Summary of the Tier IV Laboratory Treatability Studies, Impoundment 2, OU8 American Cyanamid Superfund Site

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Introduction

Additional treatability studies were conducted to support the pilot study being implemented at Operable Unit (OU) 8 of the American Cyanamid Superfund Site in Bridgewater, New Jersey (Site) as part of the Focused Feasibility Study (FFS) process outlined in the Section 4.1.3 of the *Focused Feasibility Study Work Plan* (CH2M HILL, 2012a). The purpose of the pilot study is to evaluate the following technologies for treatment of acid tar:

1. Thermal treatment
2. Solidification/stabilization (including homogenization and pH adjustment)
3. A combination of thermal treatment and solidification/stabilization

This technical memorandum summarizes the Tier IV Treatability Studies and serves as an addendum to the *Laboratory Treatability Studies Report for Impoundments 1 and 2* (CH2M HILL, 2012b). The goals, procedures, and results of Tier IV Treatability studies to evaluate additional in situ solidification/ stabilization (ISS) are described in the following sections.

Background

Additional information regarding the Site and OU8 are found in *100 Percent Design of Pilot Study for Operable Unit 8, American Cyanamid Superfund Site* (CH2M HILL, 2013a). The methods utilized to conduct the Tier IV treatability studies are found in the *Focused Feasibility Study Work Plan* (CH2M HILL, 2012a) and the *Addendum to the Laboratory Treatability Studies Work Plan for Operable Unit 8 American Cyanamid Superfund Site* (CH2M HILL, 2013b).

Previous Treatability Studies

Additional details regarding the results of the previous treatability studies can be found in the *Laboratory Treatability Studies Work Plan* (CH2M HILL, 2012c). Homogenization, pH adjustment, and solidification/stabilization treatability studies were performed during the Tier I through Tier III Laboratory Treatability Study in 2012 to evaluate different mixing methodologies and the ratios of several different alkaline pH adjustment materials and pozzolan recipes for solidification/stabilization of both thermally treated and raw Impoundment 1 and 2 materials. The basic objectives of the previous studies were as follows:

- Evaluate impoundment materials for homogenization
- Determine if the pH of the impoundment materials could be raised to at least 5 to 6 SU and ideally to 11 SU
- Evaluate if the impoundment materials could be stabilized/solidified using pozzolan mixtures
- Evaluate volatile organic compound (VOC) removal by transfer to the vapor phase.

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Overall, Tier I through Tier III of Laboratory Treatability Study confirmed that the materials from Impoundments 1 and 2 could be successfully homogenized, pH adjusted, and solidified/stabilized (CH2M HILL, 2012b). The treatability study was conducted by constructing stratified models of the impoundment materials in 5-gallon buckets. Models simulating the distribution of Impoundment 1 and 2 materials were constructed using both raw and thermally treated impoundment materials collected in January and February 2012. After the models were constructed, water collected from the impoundments was placed above the impoundment materials from the corresponding impoundment to simulate the water cap. The models were then homogenized, and the materials were used to evaluate the different pH adjusting agents and pozzolans.

The study confirmed that both raw Impoundment 1 and 2 materials could be homogenized. Homogenized samples of materials from the Impoundments 1 and 2 were successfully pH adjusted to 10 SU or higher by adding Carmeuse hydrated lime or high calcium lime kiln dust (HiCal LKD). The hydrated lime did not provide strength to the raw Impoundment 2 materials when mixed, but the HiCal LKD provided significant strength gains when mixed into the thermally treated impoundment materials. Adding various blends of pozzolans to the homogenized and pH adjusted impoundment material resulted in compressive strength gains ranging from 59.0 pounds per square inch (psi) to greater than 62.5 psi after only 7 days of curing.

Following a 28-day cure after pozzolan addition, the amended impoundment materials were sampled for toxicity characteristics leaching procedure (TCLP) and synthetic precipitation leaching procedure (SPLP) testing to evaluate the extent to which the pozzolan addition was able to sequester (stabilize) the various constituents within the impoundment materials. The extent of leaching of contaminants of concern (COCs) documented during the TCLP test was similar to the extent of leaching document during the SPLP test. Benzene was the compound that failed leaching testing most frequently. Based on laboratory study results, reagent mixtures that met the criteria listed below were selected for use in the pilot study.

- Materials that demonstrated effectiveness for pH buffering in untreated acid tar
- Exothermic reagents capable of pH buffering and liquefying thermally treated acid tar
- Materials that achieved solidification greater than 7 psi bearing capacity in a 5- to 7-day period
- Materials that achieved remix stabilization greater than 42 psi unconfined compressive strength (UCS) bearing capacity in 28 days
- Local availability and delivery cost to the site location

The following table summarizes the recommendations for solidification/stabilization portion of the pilot study based on the results of the Tier I through Tier III of the Treatability Studies.

TABLE 1
Best Performing ISS Recipes Identified During Tier I through Tier III of the Treatability Studies
Tier IV Treatability Study Report

Material Type	Mixture	pH Buffering	De-emulsification	Initial Solidification	Remix / Stabilization
Raw	Recipe 1	6% Hydrated Lime/ 15% water	-	33% SFE / 15% LN / 15% Omni FBC	10% LPC / 8% water
	Recipe 2	6% Hydrated Lime/ 15% water	-	33% SFE / 30% LN	10% LPC / 8% water
Thermally Treated	Recipe 3	-	30% HiCal LKD / 30% water	15% H_2O / 5% LPC / 5% Omni FBC	10% LPC / 8% water

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TABLE 1
Best Performing ISS Recipes Identified During Tier I through Tier III of the Treatability Studies
Tier IV Treatability Study Report

Material Type	Mixture	pH Buffering	De-emulsification	Initial Solidification	Remix / Stabilization
Thermally Treated	Recipe 4	-	30% HiCal LKD / 30% water	15% H_2O / 10% LN	10% LPC / 8% water

Notes:
FBC = fluidized bed combustion ash
LN = LaFarge NewCem
LPC = LaFarge portland cement
SFE = spent fullers earth (screened)

Tier IV Treatability Study Objectives

Tier IV treatability studies were conducted to evaluate the potential for additional permeability reduction, COC leaching reduction, COC volatilization, and the optimum recipe for ISS of the impoundment materials during the pilot study. Evaluation of the Dispersion by Chemical Reaction (DCR) technology was proposed to be conducted during the additional Tier I screening process per the recommendation of the United States Environmental Protection Agency (USEPA) as an additional option for stabilization of impoundment material. However, the patent holder; DRC technology, was unresponsive to requests to obtain a license to evaluate the technology. The additional treatability studies were conducted on both raw and thermally treated materials from Impoundment 2. The overall objectives for each of the treatability studies proposed are described below.

Additional Tier I Screening

Additional Tier I screenings were completed using methods described in the approved Laboratory Treatability Studies Work Plan (CH2M HILL, 2013b). The additional Tier I screening will evaluate local New Jersey clay material as an alternate substitute for spent fullers earth (SFE) in recipe determination.

Tier IV Permeability Optimization Evaluation

The goals of the permeability testing are as follows:

1. Optimization of Tier III solidification/stabilization reagents to reduce permeability beyond the values of the solidified/stabilized raw and thermally treated impoundment materials while still meeting 40 psi UCS goal.
2. Evaluate temperature rise from exothermic chemical reactions between the waste and pozzolan additives along with emissions produced during solidification/stabilization reagent mixing.
3. Further evaluate the solidification/stabilization characteristics of the impoundment materials.
4. Evaluate changes in the chemical properties of the impoundment materials after solidification/stabilization.

Tier IV Powdered Activated Carbon Addition Evaluation

The Powdered Activated Carbon (PAC) treatability testing addressed the following:

1. Evaluate adding various percentages of PAC to the solidification/stabilization recipe to bind VOCs contained within the raw and thermally treated impoundment materials and reduce VOC content of both air emissions during material handling and leachate.
2. Evaluate temperature rise from exothermic chemical reactions between the waste and pozzolan additives along with emissions produced during solidification/stabilization reagent mixing.
3. Evaluate changes in the chemical properties of the impoundment materials after solidification/stabilization.

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Results

The results of the additional Tier I screening, and the Tier IV permeability optimization evaluation and activated carbon addition are described in the sections below. The procedures followed for the data collection are located in the *Addendum to the Laboratory Treatability Studies Work Plan for Operable Unit 8 American Cyanamid Superfund Site* (CH2M HILL, 2013b).

Raw and thermally treated impoundment materials used during the previous treatability studies was used for this phase of the ISS treatability studies. New layered models of Impoundment 2 raw and thermally treated materials were created in 5-gallon polyethylene buckets to conduct the additional ISS treatability testing. These models were homogenized using methods determined most suitable during the previous phase of treatability testing (CH2M HILL, 2012b). The homogenized raw Impoundment 2 material was then pH adjusted using 6% hydrated lime and 15% water. The thermally treated Impoundment 2 material required the de-emulsification step described in the *Impoundments 1 and 2 Treatability Results Report* (CH2M HILL, 2012b). De-emulsification was accomplished by mixing 30% HiCal LKD and 30% water with the thermally treated impoundment material to create heat and soften the material. This allowed the hard thermally treated impoundment material to be homogenized.

Additional Tier I Screening

During the treatability studies completed in 2012, a source of SFE material was identified and tested that may have been suitable for use as ISS agent for the impoundment materials at OU8. Since completion of the Tier III studies, this material has been determined to be unsuitable due to contamination with asbestos. Therefore, additional Tier I studies were conducted using clay from a source near the site.

The recipes selected for the additional Tier I screenings were based on the results of the previous Tier I through Tier III treatability studies seen in Table 1. The SFE material previously tested was replaced with the same percentage of the local clay material and additional blends of LaFarge Newcem (LN) and Omni Fluidized Bed Combustion ash (FBC). After completion of the pozzolan mixing, the mixed materials were evaluated for strength gain using a pocket penetrometer at days 1, 3, and 7. The recipes tested during the additional Tier I and the strength gains achieved are found in Table 2.

TABLE 2
Tier I Screening Results
Tier IV Treatability Study Report

Material	pH Buffering	Pozzolan	Pocket Penetrometer Reading (psi)		
			Day 1	Day 3	Day 7
Imp 2 RM-1	6% lime/ 15% water	33% clay / 22.5% LN / 15% Omni FBC	27.8	31.3	45.8
Imp 2 RM-2	6% lime/ 15% water	33% clay / 37.5% LN	41.7	48.6	>62.5
Imp 2 RM-1A	6% lime/ 15% water	33% clay / 22.5% LN / 15% Omni FBC	22.2	31.3	48.6
Imp 2 RM-2A	6% lime/ 15% water	33% clay / 37.5% LN	40.3	48.6	55.6

Notes:
62.5 psi is the maximum strength measurable on the penetrometer.
Values are percents are by mass.
LPC = LaFarge Portland Cement

The use of local clay and the pozzolans identified in Table 2 produced final solidified/stabilized raw impoundment materials that provided significant gains. Each mixture achieved enough strength after 1 day of curing to support equipment. In addition, each recipe tested achieved greater than 40 psi after only 7 days of curing. Therefore, with respect to strength the local clay material is a suitable substitute for the SFE material originally tested.

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Tier IV Permeability Optimization Physical Parameter Results

Results from the Tier II treatability testing indicated that the recipes evaluated were unable to achieve a permeability of $1.0x10^{-6}$ cm/sec but were able to achieve UCS strength greater of 40 psi. During the Tier IV treatability studies, two recipes for the raw Impoundment 2 material and two recipes for the thermally treated Impoundment 2 material were evaluated for performance with respect to UCS and permeability. In addition, the Tier III remixing step was also completed on the two raw material recipes. The mixed impoundment materials were allowed to cure for 28 days and were evaluated for UCS and permeability. The recipes evaluated and the data from the geotechnical testing of the Tier IV optimization studies is presented in Table 3.

TABLE 3
Tier IV Permeability Optimization Results
Tier IV Treatability Study Report

Material	pH Buffering/De-emulsification	Pozzolan	7-Day Remix Pozzolan	UCS (psi)	Permeability (cm/sec)
				Result	Result
Imp 2 RM	6% lime/ 15% water	33% clay / 22.5% LN / 15% Omni FBC	None	22.9	2.59×10^{-5}
Imp 2 RM	6% lime/ 15% water	33% clay / 37.5% LN	None	45.8	6.45×10^{-6}
Imp 2 RM	6% lime/ 15% water	33% clay / 22.5% LN / 15% Omni FBC	10% LPC / 8% water	106	9.56×10^{-8}
Imp 2 RM	6% lime/ 15% water	33% clay / 37.5% LN	10% LPC / 8% water	140.4	1.02×10^{-5}
Imp 2 TT	30% HiCal LKD / 30% H_2O	15% water / 5% LPC / 5% Omni FBC	None	73.5	2.61×10^{-5}
Imp 2 TT	30% HiCal LKD / 30% water	15% water / 10% LN	None	115.9	2.29×10^{-5}

Notes:
Values are percents are by mass.

The raw impoundment materials solidified/stabilized with 33% clay, 22.5% LN, and 15% Omni FBC did not provide at least 40 psi of UCS after 28 days of curing. The raw impoundment material stabilized with 33% clay and 37.5% LN did achieve the 40 psi UCS goal. When the Tier III remixing step was implemented after 7 days of curing, the UCS of both stabilized raw materials was over 100 psi. The solidification/stabilization recipes used for mixing the thermally treated impoundment materials were able to provide UCS significantly above the 40 psi goal. This is a result of the strength gained during the de-emulsification step through addition of the 30% HiCal LKD and 30% water. The thermally treated impoundment material solidified/stabilized with 15% water and 10% LN provided the best UCS, achieving 115.9 psi. Only one recipe was able reduce permeability below 1.0×10^{-6} cm/sec. The combination of the local clay remixed with the LPC achieved permeability as low as 9.56×10^{-8} cm/sec.

The temperature of the different ISS recipe mixtures within the UCS molds is presented in Table 4.

TABLE 4
Tier IV Permeability Optimization Temperature Results
Tier IV Treatability Study Report

Pozzolan	7-Day Remix Pozzolan	Temperature (°F)				
		Day 0	Day 3	Day 7	Day 14	Day 28
33% clay / 22.5% LN / 15% Omni FBC	None	94.0	80.0	79.0	Remixed	Remixed
33% clay / 37.5% LN	None	95.5	80.0	78.5	Remixed	Remixed
33% clay / 22.5% LN / 15% Omni FBC	10% LPC / 8% water	80.0	79.5	78.5	78.5	78.0

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TABLE 4
Tier IV Permeability Optimization Temperature Results
Tier IV Treatability Study Report

		Temperature (°F)				
Pozzolan	**7-Day Remix Pozzolan**	**Day 0**	**Day 3**	**Day 7**	**Day 14**	**Day 28**
33% clay / 37.5% LN	10% LPC / 8% water	80.0	79.0	78.5	79.0	78.5
15% water / 5% LPC / 5% Omni FBC	None	89.0	80.0	78.5	78.5	78.5
15% water / 10% LN	None	85.0	80.5	78.0	78.5	78.5

Notes:
Values are percents are by mass.

The greatest temperature increase occurred in the raw material mixed with the 33% clay and 37.5% LN mixture and the lowest temperature increase occurred during the remixing of the 33% clay, 37.5% LN and 33% clay, 22.5% LN, and 15% Omni FBC pozzolan mixtures. The temperature increase in the solidified/stabilized thermally treated impoundment materials was less than the temperature increase of the solidified/stabilized raw impoundment materials.

Tier IV Raw Material Permeability Optimization Chemical Results

Head-space concentrations of VOCs and reduced sulfur compounds were measured in the solidified/stabilized raw impoundment materials that were mixed with the 33% clay and 37.5% LN and 33% clay, 22.5% LN and 15% Omni FBC pozzolan agents and allowed to cure for 7 days. These data are presented in Table 5.

The head-space sampling was initially performed on samples as each test recipe was mixed with the pH adjusting agent within a sealed glove box. This air sampling was conducted using a tube held directly over the blending bowl. The day 7 sampling event was conducted within a 2-inch diameter by 4-inch high UCS sample mold. Following the 7-day curing period, the solidified/stabilized impoundment materials were broken apart and placed into a UCS cylinder to simulate the removal step for materials from Impoundment 2. Then the VOC and reduced sulfur compound head-space samples were collected by placing a cap on top of the UCS mold and pulling the sample from the head-space within the sealed mold.

TABLE 5
Tier IV Raw Impoundment 2 Material Permeability Optimization Headspace Results
Tier IV Treatability Study Report

Compound	**Curing Day 7 - 33% Clay / 22.5% LN / 15% Omni FBC (mg/m^3)**	**Curing Day 7 - 33% Clay / 37.5% LN (mg/m^3)**
Benzene	47,000,000	4,900,000
Ethylbenzene	ND	ND
Toluene	3,900,000	710,000
Total Xylenes	ND	ND
Naphthalene	ND	ND
Hydrogen Sulfide	ND	ND
Carbonyl Sulfide	230	190
Methyl Mercaptan	ND	ND
Ethyl Mercaptan	ND	ND
Dimethyl Sulfide	1,800	580

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TABLE 5
Tier IV Raw Impoundment 2 Material Permeability Optimization Headspace Results
Tier IV Treatability Study Report

Compound	Curing Day 7 - 33% Clay / 22.5% LN / 15% Omni FBC (mg/m^3)	Curing Day 7 - 33% Clay / 37.5% LN (mg/m^3)
Carbon Disulfide	42,000	11,000
Isopropyl Mercaptan	ND	ND
tert-Butyl Mercaptan	ND	ND
n-Propyl Mercaptan	ND	ND
Ethyl Methyl Sulfide	400	160
Thiophene	2,300	1,500
Isobutyl Mercaptan	480	260
Diethyl Sulfide	38	ND
n-Butyl Mercaptan	ND	ND
Methyl Disulfide	100	50
3-Methylthiophene	330	320
Tetrahydrothiophene	ND	ND
2,5-Dimethylthiophene	ND	ND
2-Ethylthiophene	200	180
Diethyl Disulfide	ND	ND

Notes:
Values are percents are by mass.
mg/m^3 = milligrams per cubic meter
ND = not detected

The reduced sulfur compound head-space data collected during the remixing step indicates that 10 of 20 reduced sulfur compounds were detected after 7 days of curing. The concentrations of five detected reduced sulfur compounds exceed their reported odor thresholds (Ruth, 1986 and 3M 2010). A list of reported odor thresholds for reduced sulfur/malodorous compounds are in Table 6.

TABLE 6
Reduced Sulfur/Malodorous Compounds odor Thresholds
Tier IV Treatability Study Report

Compound	Odor Threshold Concentration Range (mg/m^3)
Hydrogen Sulfide	0.007 to 0.70
Carbonyl Sulfide	No Data
Methyl Mercaptan	0.045 to 8.2
Ethyl Mercaptan	0.032 to 9.2
Dimethyl Sulfide	0.10 to 346
Carbon Disulfide	24 to 23,000
Isopropyl Mercaptan	No Data
tert-Butyl Mercaptan	No Data

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TABLE 6
Reduced Sulfur/Malodorous Compounds odor Thresholds
Tier IV Treatability Study Report

Compound	Odor Threshold Concentration Range (mg/m^3)
n-Propyl Mercaptan	0.20 to 74.6
Ethyl Methyl Sulfide	No data
Thiophene	2.6
Isobutyl Mercaptan	2.0
Diethyl Sulfide	17.7
n-Butyl Mercaptan	No Data
Methyl Disulfide	No Data
3-Methylthiophene	No Data
Tetrahydrothiophene	No Data
2,5-Dimethylthiophene	No Data
2-Ethylthiophene	No Data
Diethyl Disulfide	No Data

Notes:
Data from Ruth 1986 and 3M 2010

The reduced sulfur/malodorous compound data indicate that several compounds were detected above their respective odor thresholds and there is a potential for odor issues during the remixing step for the solidified/stabilized raw impoundment materials.

The VOC concentration detected in the head-space from the mixing with the impoundment material solidified/stabilized with 33% clay, 22.5% LN and 15% Omni FBC mixture was greater than the VOC concentration detected in the emissions from the impoundment material solidified/stabilized with 33% clay and 37.5% LN.

Since the permeability goal of 1.0×10^{-6} cm/sec could not be achieved without an additional remixing step to provide further permeability reduction, SPLP evaluations were not conducted.

Tier IV Permeability Optimization Thermally Treated Material Chemical Results

Head-space concentrations of VOCs and reduced sulfur compounds were measured in the solidified/stabilized thermally treated impoundment materials that were mixed with the 15% water, and 10% LN pozzolan agents and the 15% water, 5% LPC and 5% Omni FBC agents and allowed to cure for 28 days. The headspace sampling was conducted as described above. Head-space samples were collected after 0, 7 and 28 days of curing and are presented in Table 7.

TABLE 7
Tier IV Thermally Treated Impoundment 2 Material Permeability Optimization Headspace Results
Tier IV Treatability Study Report

Compound	15% Water / 10% LN			15% Water / 5% LPC / 5% Omni FBC		
	Day 0	Day 7	Day 28	Day 0	Day 7	Day 28
	VOCs (mg/m^3)					
Benzene	10,000	41,000	4,400	4,200	49,000	10,000
Ethylbenzene	1,300	4,400	5,300	560	4,000	13,000

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TABLE 7
Tier IV Thermally Treated Impoundment 2 Material Permeability Optimization Headspace Results
Tier IV Treatability Study Report

Compound	15% Water / 10% LN			15% Water / 5% LPC / 5% Omni FBC		
	Day 0	Day 7	Day 28	Day 0	Day 7	Day 28
Toluene	24,000	96,000	100	11,000	100,000	680
Total Xylenes	17,800	56,000	2,410	8,100	52,000	8,600
Cumene	3,000	10,000	460	1,700	8,800	1,700
1,3,5-Trimethylbenzene	2,100	4,900	150	970	3,900	880
1,2,4-Trimethylbenzene	3,000	5,600	140	1,400	4,200	1,000
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	950	960	ND	420	700	140
1,2-Dichlorobenzene	11,000	11,000	240	4,80	7,900	2,100
Naphthalene	4,700	1,300	ND	2,100	720	480
Reduced Sulfur (mg/m^3)						
Hydrogen Sulfide	ND	ND	ND	ND	ND	ND
Carbonyl Sulfide	24	77	49	ND	33	23
Methyl Mercaptan	ND	ND	ND	ND	ND	ND
Ethyl Mercaptan	ND	ND	ND	ND	ND	ND
Dimethyl Sulfide	ND	28	ND	ND	20	ND
Carbon Disulfide	190	3,200	1,800	100	2,700	1,200
Isopropyl Mercaptan	ND	ND	ND	ND	ND	ND
tert-Butyl Mercaptan	ND	ND	ND	ND	ND	ND
n-Propyl Mercaptan	ND	ND	ND	ND	ND	ND
Ethyl Methyl Sulfide	ND	ND	ND	ND	ND	ND
Thiophene	80	820	290	59	490	110
Isobutyl Mercaptan	ND	ND	ND	ND	ND	ND
Diethyl Sulfide	ND	ND	ND	ND	ND	ND
n-Butyl Mercaptan	ND	ND	ND	ND	ND	ND
Methyl Disulfide	ND	130	46	ND	79	28
3-Methylthiophene	29	330	140	ND	240	81
Tetrahydrothiophene	ND	ND	ND	ND	ND	ND
2,5-Dimethylthiophene	ND	ND	ND	ND	ND	ND
2-Ethylthiophene	53	980	360	39	800	260
Diethyl Disulfide	ND	ND	ND	ND	ND	ND

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TABLE 7
Tier IV Thermally Treated Impoundment 2 Material Permeability Optimization Headspace Results
Tier IV Treatability Study Report

Compound	15% Water / 10% LN			15% Water / 5% LPC / 5% Omni FBC		
	Day 0	Day 7	Day 28	Day 0	Day 7	Day 28

Notes:
Values are percents are by mass.
mg/m^3 = milligrams per cubic meter
ND = not detected

The head-space data indicates that the mixture of 15% water and 10% LN generally performed better than the 15% water, 5% LPC and 5% Omni FBC blend for VOCs. The head-space data for the reduced sulfur compounds was generally lower after 28 days of curing with the 15% water, 5% LPC and 5% Omni FBC blend.

The data indicate head-space concentrations of VOCs and reduced sulfur compounds were greatest in the day 7 samples and decreased from day-7 through day-28. Two factors are likely contributing to the highest constituent concentrations occurring at day 7 of curing:

1) The day 0 samples were collected during the pH adjustment step which was conducted within a glove box and the day 7 and day 28 samples were collected from the head-space within a sealed UCS cylinder. The head-space volume of the glove box was many times greater than the head-space volume within the sealed UCS cylinder and may have resulted in a diluted sample at day- 0 samples.
2) The day 7 head-space sample was collected after the solidified/stabilized impoundment material had cured for 7 days and was broken apart to simulate removal from the impoundment and placed into a UCS cylinder. This increased the fresh surface area of the solidified/stabilized impoundment material within the cylinder and allowed more constituents to volatilize.

Seven reduced sulfur compounds were detected in the head-space above the solidified/stabilized thermally treated impoundment materials and the concentrations were significantly lower than concentrations detected in the head-space above the solidified/stabilized raw impoundment materials. The concentrations of reduced sulfur compounds detected in the head-space above the solidified/stabilized thermally treated impoundment materials also exceed reported odor thresholds (Table 6) for these compounds, indicating odors may be an issue during handling of the solidified/stabilized thermally treated impoundment materials.

Tier IV Powdered Activated Carbon Optimization

The PAC testing evaluated additions of 0%, 2%, 4%, and 6% PAC to the pozzolan mixtures to determine if PAC can reduce leaching and emissions of COCs from solidified/stabilized raw and thermally treated Impoundment 2 materials. The raw impoundment material solidification/stabilization recipe evaluated for the PAC testing was the 33% clay, 22.5% LN, and 15% Omni FBC that was remixed after 7 days of curing with 10% LPC and 8% water. This mixture was able to achieve both the strength and permeability goals. The PAC evaluation for the thermally treated impoundment material was conducted with de-emulsified thermally treated impoundment materials mixed with 15% water and 10% LN. This mixture was judged to be the most likely to meet the permeability criteria based on experience.

Raw and Thermally Treated Physical Parameter Results for PAC

Each PAC blend of homogenized raw and thermally treated Impoundment 2 materials was evaluated for strength by conducting pocket penetrometer and UCS testing. The impoundment materials were homogenized following procedures developed during Tier II of the previous treatability studies. The pH adjustment of the impoundment materials occurred during the de-emulsification step needed to soften the hard thermally treated impoundment materials to allow them to be homogenized.

The pocket penetrometer strength data was collected at days 1, 3, 7, 14 and 28 of curing after mixing was completed. Data from the pocket penetrometer testing of solidified/stabilized thermally treated impoundment

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material are located in Table 8. The data for the pocket penetrometer evaluation of the raw impoundment material ISS recipes are located in Table 2.

TABLE 8
Tier IV Thermally Treated Impoundment 2 Materials PAC Evaluation Physical Parameter Day 28 Results
Tier IV Treatability Study Report

		Pocket Penetrometer Reading (psi)				
Pozzolan	**PAC (%)**	**Day 1**	**Day 3**	**Day 7**	**Day 14**	**Day 28**
33% Clay / 22.5% LN / 15% Omni FBC	0	29.2	45.1	>62.5	Remixed	Remixed
	2	31.3	45.1	>62.5	Remixed	Remixed
	4	31.3	48.6	>62.5	Remixed	Remixed
	6	34.7	48.6	>62.5	Remixed	Remixed
15% Water / 10% LN	0	>62.5	>62.5	>62.5	Remixed	Remixed
	2	>62.5	>62.5	>62.5	Remixed	Remixed
	4	>62.5	>62.5	>62.5	Remixed	Remixed
	6	>62.5	>62.5	>62.5	Remixed	Remixed
33% Clay / 22.5% LN / 15% Omni FBC remixed w/0.8% Soda Ash / 3.5% Clay / 20% Water	0	>62.5	>62.5	>62.5	>62.5	>62.5
	2	>62.5	>62.5	>62.5	>62.5	>62.5
	4	>62.5	>62.5	>62.5	>62.5	>62.5
	6	>62.5	>62.5	>62.5	>62.5	>62.5
15% Water / 10% LN remixed w/0.8% Soda Ash / 3.5% Clay / 20% Water	0	>62.5	>62.5	>62.5	>62.5	>62.5
	2	>62.5	>62.5	>62.5	>62.5	>62.5
	4	>62.5	>62.5	>62.5	>62.5	>62.5
	6	>62.5	>62.5	>62.5	>62.5	>62.5

Notes:
62.5 psi is the maximum strength reading of the pocket penetrometer.
Values are percents are by mass.
NA = not analyzed

The pocket penetrometer results for the solidified/stabilized raw impoundment material are discussed in the previous sections of this technical memorandum. The thermally treated impoundment materials acquired at least 29.2 psi after only 1 day of curing after mixing was completed. The remixed materials acquired greater strength, each mixture gaining at least 62.5 psi. All the PAC addition runs tested achieved enough strength after 1 day of curing to support equipment.

The mixtures evaluated for the PAC testing were 33% clay, 22.5% LN, 15% and Omni FBC as well as the 15% and 10% LN blends. Each recipe was mixed with the thermally treated Impoundment 2 materials and evaluated for UCS after 28 days of curing. During the curing process, the temperature of the UCS molds was monitored. Permeability and UCS data were only collected for the remixed samples because previous data has shown that the permeability of 1.0×10^{-6} cm/sec cannot be achieved without the Tier III remixing step. The remixing recipe was modified for the thermally treated Impoundment 2 materials and the re-mixture recipe consisted of 0.8% soda ash, 3.5% clay, and 20% water.

TABLE 9
Tier IV Thermally Treated Impoundment 2 Materials PAC Evaluation Physical Parameter Day 28 Results

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Tier IV Treatability Study Report

Pozzolan	PAC (%)	Temperature (°F)					Day 28 UCS (psi)	Day 28 Permeability (cm/sec)
		Day 0	Day 3	Day 7	Day 14	Day 28		
33% Clay / 22.5% LN / 15% Omni FBC	0	94.5	80.0	78.0	Remixed	Remixed	NA	NA
	2	94.5	79.5	78.0	Remixed	Remixed	NA	NA
	4	95.0	80.0	78.5	Remixed	Remixed	NA	NA
	6	94.5	80.0	78.5	Remixed	Remixed	NA	NA
15% Water / 10% LN	0	87.5	80.5	78.0	Remixed	Remixed	NA	NA
	2	87.5	78.0	78.0	Remixed	Remixed	NA	NA
	4	88.0	78.0	78.0	Remixed	Remixed	NA	NA
	6	87.5	78.5	78.0	Remixed	Remixed	NA	NA
33% Clay / 22.5% LN / 15% Omni FBC remixed w/0.8% Soda Ash / 3.5% Clay / 20% Water	0	79.5	78.0	78.0	77.0	77.0	55.7	$1.62X10^{-3}$
	2	79.0	78.0	78.0	77.0	77.0	78.0	$7.90x10^{-4}$
	4	78.5	78.0	78.0	77.0	77.0	52.5	$2.35x10^{-6}$
	6	79.5	78.0	78.0	77.0	77.0	49.3	$3.65x10^{-4}$
15% Water / 10% LN remixed w/0.8% Soda Ash / 3.5% Clay / 20% Water	0	77,5	77.0	77.0	77.0	77.0	50.3	$2.79x10^{-4}$
	2	78.0	77.0	77.0	77.0	77.0	47.4	$2.23x10^{-5}$
	4	77.5	77.0	77.0	77.0	77.0	103.5	$2.77x10^{-5}$
	6	78.0	77.0	77.0	77.0	77.0	75.8	$2.01x10^{-4}$

Notes:
Values are percents are by mass.

The temperature results for the PAC evaluation were similar to the results from the permeability optimization. The greatest temperature increase occurred during mixing of the raw Impoundment 2 materials. The thermally treated Impoundment 2 materials temperature increased during mixing, but not as much as the raw materials. The temperatures of the remixed Impoundment 2 materials were not significantly elevated above the 28-day cure (ambient) temperature.

The permeability results for the remixed thermally treated Impoundment 2 materials after 28 days of curing ranged from $2.35x10^{-6}$ cm/sec to $1.62X10^{-3}$ cm/sec. The impoundment material solidified/stabilized with 33% clay, 22.5% LN, and 15% Omni FBC and remixed with 0.8% soda ash, 3.5% clay, and 20% water, where 4% PAC was added performed best for permeability. The UCS data indicates that the UCS achieved by the remixed thermal treated impoundment materials after 28 days of curing ranged from 47.4 to 103.5 psi. The highest UCS was from the 15% water and 10% LN remixed with 0.8% soda ash, 3.5% clay, and 20% water, where 4% PAC was added.

Raw Impoundment Materials Chemical Results

For each percentage PAC addition to the solidified/stabilized impoundment material, data were collected for head-space concentrations at days 0, 7 and 28 of curing and leaching data was collected at days 0 and 28 of curing. The PAC was added during the pH adjustment step and the day 0 head-space sample collected during mixing within the sealed glovebox. After 7 days of initial curing, the solidified/stabilized impoundment materials were broken apart, place in a UCS mold, and sealed. The day 7 and day 28 head-space samples were collected from the head-space within the sealed UCS mold. Head-space samples were collected after 0, 7 and 28 days of curing and are presented in Table 10. The laboratory analytical data is located in Attachment 1.

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TABLE 10

Tier IV Homogenized Raw Impoundment 2 Material PAC Evaluation Head-Space Concentrations

Tier IV Treatability Study Report

Compound	0% PAC			2% PAC			4% PAC			6% PAC		
	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]
VOCs (mg/m^3)												
Benzene	2,500,000	2,700,000	2,700,000	2,700,000	24,000,000	1,800,000	2,400,000	22,000,000	1,900,000	2,800,000	32,000,000	2,500,000
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	320,000	330,000	970,000	360,000	3,300,000	810,000	270,000	2,600,000	650,000	350,000	4,100,000	1,000,000
Total Xylenes	ND	ND	74,000	ND	ND	65,000	ND	ND	54,000	ND	ND	84,000
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Reduced Sulfur (mg/m^3)												
Hydrogen Sulfide	37	ND	ND	340	ND	ND	350	ND	ND	140	ND	ND
Carbonyl Sulfide	61	ND	77	27	ND	110	21	43	63	15	ND	ND
Methyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl Sulfide	930	ND	73	470	ND	45	530	51	160	420	22	42
Carbon Disulfide	20,000	160	2,300	10,000	310	2,100	11,000	980	1,500	7,200	540	2,800
Isopropyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Methyl Sulfide	220	ND	ND	110	ND	ND	130	19	ND	95	ND	ND
Thiophene	1,200	41	600	560	94	460	640	220	520	520	130	600
Isobutyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl Sulfide	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Disulfide	23	ND	88	ND	ND	90	10	ND	110	ND	ND	96

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TABLE 10

Tier IV Homogenized Raw Impoundment 2 Material PAC Evaluation Head-Space Concentrations

Tier IV Treatability Study Report

Compound	0% PAC			2% PAC			4% PAC			6% PAC		
	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]
3-Methy-lthiophene	180	ND	130	85	ND	130	100	82	140	84	44	170
Tetra-hydrothiophene	39	ND	ND	23	ND	ND	24	ND	ND	22	ND	ND
2,5-Dimethylthiophene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Ethylthiophene	100	ND	130	45	ND	150	34	53	110	37	ND	160
Diethyl Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
Values are percents are by mass.

a Mixture is 33% clay / 22.5% LN / 15% Omni FBC.
b Mixture is 33% clay / 22.5% LN / 15% Omni FBC remixed after 7 days with 0.8% soda ash / 3.5% clay / 20% water.

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The head-space results indicate that benzene, toluene, ethylbenzene, and total xylenes (BTEX) were the most common VOCs detected. The data from the 0% PAC studies indicate that benzene concentration in the head-space remains nearly constant through the curing process, while toluene and xylene concentration in the head-space increased in the samples collected after 7 and 28 days of curing. The addition of PAC to the pozzolan recipes resulted in approximately one order of magnitude increase in head-space benzene concentration at day 7 of curing. After 28 days of curing the benzene head-space concentrations were lower than the day 0 and day 7 benzene concentrations. This was likely the result of the PAC sequestering some of the benzene, preventing it from partitioning into the head-space. The toluene data indicate that the toluene head-space concentration increased during the curing process. The addition of the PAC at all concentrations resulted in an approximately one order of magnitude increase in toluene within the head-space after 7 days of curing and the toluene concentrations were at least 2.4 times greater after 28 days of curing.

The reduced sulfur compound data indicate that up to 11 compounds were detected in the headspace of the thermally treated Impoundment 2 materials mixed with 15% water and 10% LN and remixed with 0.8% soda ash, 3.5% clay, and 20% water after 7 days of curing. Carbon disulfide was detected at the highest concentrations with 20,000 mg/m^3 detected in the sample collected on day 0 of curing for the 0% PAC addition. Generally, the concentration of reduced sulfur compounds significantly decreased from day 0 to 7 of curing, then increase after 28 days of curing. In addition, the head-space concentration of reduced sulfur compounds for the solidified/stabilized impoundment materials after 28 days of curing for each PAC addition evaluated was less than the emissions at day 0 of curing, including the 0% PAC addition run. The concentrations of reduced sulfur compounds detected in the head-space above the solidified/stabilized thermally treated impoundment materials mixed with PAC also exceed reported odor thresholds (Table 6), indicating odors may be an issue during handling of the solidified/stabilized thermally treated impoundment materials amended with PAC, as well.

The PAC addition evaluation of the solidified/stabilized impoundment materials was also evaluated for leaching using TCLP after 28 days of curing. The TCLP data collected is located in Table 11.

TABLE 11
Tier IV Homogenized Raw Impoundment 2 Material PAC Evaluation TCLP Results
Tier IV Treatability Study Report

Compound		33% Clay / 22.5% LN / 15% Omni FBC			
	Regulator Level (mg/L)	0% PAC Day 28 (mg/L)	2% PAC Day 28 (mg/L)	4% PAC Day 28 (mg/L)	6% PAC Day 28 (mg/L)
VOCs					
Benzene	0.5	8.030	14.0	15.8	8.28
Carbon Tetrachloride	0.5	ND	ND	ND	ND
Chlorobenzene	100	ND	ND	ND	ND
Chloroform	6.0	ND	ND	ND	ND
1,4-Dichlorobenzene	7.5	0.088	0.099	0.082	0.090
1,2-Dichloroethane	0.5	ND	ND	ND	ND
1,1-Dichloroethene	0.7	ND	ND	ND	ND
Methyl Ethyl Keytone	200	ND	ND	ND	ND
Tetrachloroethene	0.7	ND	ND	ND	ND
Trichloroethene	0.5	ND	ND	ND	ND
Vinyl Chloride	0.2	ND	ND	ND	ND
Semivolatile Organic Compounds					

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TABLE 11
Tier IV Homogenized Raw Impoundment 2 Material PAC Evaluation TCLP Results
Tier IV Treatability Study Report

Compound	33% Clay / 22.5% LN / 15% Omni FBC				
	Regulator Level (mg/L)	0% PAC Day 28 (mg/L)	2% PAC Day 28 (mg/L)	4% PAC Day 28 (mg/L)	6% PAC Day 28 (mg/L)
o-Cresol (2-Methylphenol)	200	ND	ND	ND	ND
m-Cresol (3-Methylphenol)[a]	200	0.595	0.473	0.315	0.297
P-Cresol (4-Methylphenol)[b]	200	0.595	0.473	0.315	0.297
2,4-Dinitrotoluene	0.13	ND	ND	ND	ND
Hexachlorobenzene	0.13	ND	ND	ND	ND
Hexachloro-1,3-butadiene	0.5	ND	ND	ND	ND
Hexachloroethane	3.0	ND	ND	ND	ND
Nitrobenzene	2.0	0.15	0.119	0.073	0.060
Pentachlorophenol	100	ND	ND	ND	ND
Pyridine	5.0	0.603	0.837	0.631	0.502
2,4,5-Trichlorophenol	400	ND	ND	ND	ND
2,4,6-Trichlorophenol	2.0	ND	ND	ND	ND

Notes:
a Sample co-eluted with P-Cresol (4-Methylphenol)
b Sample co-eluted with P-Cresol (3-Methylphenol)
mg/L = milligrams per liter

Only two regulated VOCs and four regulated semivolatile organic compounds (SVOCs) were detected in the samples collected from the mixed raw impoundment materials. Benzene was the only compound detected above the TCLP standard of 0.5 milligrams per liter (mg/L). The addition of 2% and 4% PAC resulted in a significant increase of leached benzene when compared to the 0% PAC addition. The addition of 6% PAC resulted in leaching that was similar to the 0% PAC addition run.

Thermally Treated Impoundment Materials Chemical Results

Head-space concentration data for the solidified/stabilized thermally treated Impoundment 2 materials were collected at days 0, 7 and 28 after mixing was completed and data for leachability was collected after 0 and 28 days of curing for the thermally treated impoundment material. Emissions data from mixed thermally treated Impoundment 2 material are located in Table 12 and the leaching data is located in Table 13. The laboratory analytical data is located in Attachment 1.

Significantly lower VOC and reduced sulfur compound concentrations were generated by the thermally treated Impoundment 2 materials when compared to the emissions from the solidified/stabilized raw impoundment materials. More VOCs were detected in emission samples of all runs of the mixed thermally treated impoundment material than in the samples of the mixed raw impoundment materials. This is because the lower VOC concentration in the samples required less dilution by the laboratory, allowing more compounds to be identified above the reporting limits.

The emission data indicate that 11 VOCs were typically detected in headspace samples collected from the curing thermally treated Impoundment 2 materials. In addition to BTEX, naphthalene, cumene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene were also detected. The data for each PAC addition run, including the 0% PAC addition run indicate VOCs concentrations increase after

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7 and 28 days of curing. The concentrations were the greatest after 7 days of curing and decrease during the next 21 days of curing.

The reduced sulfur compound concentrations for the mixed thermally treated impoundment materials were also significantly less than the concentrations for the mixed raw Impoundment 2 materials at each PAC addition. Carbon disulfide was the reduced sulfur compound detected at the highest concentration in the head-space. Similar to the raw mixed impoundment materials, the concentration of reduced sulfur compounds increase from day 0 to 7 after mixing. After 28 days of curing, the concentration of reduced sulfur compound in the head-space generally decreased to below the day 0 concentrations for each PAC addition run.

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TABLE 12

Tier IV Homogenized Thermally Treated Impoundment 2 Material PAC Evaluation Head-Space Concentration Results

Tier IV Treatability Study Report

Compound	0% PAC			2% PAC			4% PAC			6% PAC		
	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]
VOCs (mg/m^3)												
Benzene	12,000	450,000	340,000	12,000	410,000	220,000	8,700	270,000	150,000	9,900	300,000	180,000
Ethylbenzene	10,000	130,000	4,900	12,000	180,000	4,000	630	ND	3,000	980	1,900	4,200
Toluene	440	ND	200,000	680	3,200	160,000	11,000	92,000	110,000	15,000	120,000	140,000
Total Xylenes	6,100	25,200	47,000	9,700	42,100	47,000	9,000	15,600	36,300	14,000	25,300	48,900
Cumene	1,000	3,200	9,300	1,700	5,400	7,300	1,600	2,100	6,100	2,600	3,400	8,800
1,3,5-Trimethylbenzene	690	ND	3,900	1,300	2,600	3,000	1,100	ND	2,600	1,800	ND	3,800
1,2,4-Trimethylbenzene	1,000	ND	4,400	2,000	3,100	3,400	1,600	ND	3,000	2,700	1,800	4,200
1,3-Dichlorobenzene	65	ND	ND	140	ND	ND	100	ND	ND	180	ND	ND
1,4-Dichlorobenzene	350	ND	ND	790	ND	ND	560	ND	ND	990	ND	ND
1,2-Dichlorobenzene	3,600	4,300	9,500	8,300	8,600	8,300	5,800	1,700	7,800	10,000	4,700	9,800
Naphthalene	2,300	ND	ND	7,300	ND	ND	4,200	ND	1,200	6,600	ND	1,400
Reduced Sulfur (mg/m^3)												
Hydrogen Sulfide	18	ND	ND	19	ND	ND	12	ND	ND	ND	ND	ND
Carbonyl Sulfide	ND	240	ND	ND	190	ND	ND	120	ND	ND	69	ND
Methyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyl Sulfide	ND	22	ND	ND	23	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	270	2,900	870	340	2,200	ND	320	940	ND	350	890	ND
Isopropyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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TABLE 12

Tier IV Homogenized Thermally Treated Impoundment 2 Material PAC Evaluation Head-Space Concentration Results

Tier IV Treatability Study Report

Compound	0% PAC			2% PAC			4% PAC			6% PAC		
	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]	Day 0[a]	Day 7[a]	Day 28[b]
Ethyl Methyl Sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thiophene	70	690	150	82	550	ND	80	250	ND	92	260	ND
Isobutyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethyl Sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butyl Mercaptan	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Disulfide	ND	110	33	ND	110	ND	ND	62	ND	ND	64	ND
3-Methy-lthiophene	ND	230	68	22	210	ND	ND	120	ND	25	150	ND
Tetra-hydrothiophene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,5-Dimethylthiophene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Ethylthiophene	32	590	220	55	570	ND	50	340	ND	54	440	ND
Diethyl Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Values are percents are by mass.

a Mixture is 33% clay / 22.5% LN / 15% Omni FBC.

b Mixture is 33% clay / 22.5% LN / 15% Omni FBC remixed after 7 days with 0.8% soda ash / 3.5% clay / 20% water.

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The solidified/stabilized thermally treated impoundment material PAC addition runs were also evaluated for leaching using TCLP after 28 days of curing. The TCLP data collected is located in Table 13.

TABLE 13
Tier IV Homogenized Thermally Treated Impoundment 2 Material PAC Evaluation TCLP Results
Tier IV Treatability Study Report

Compound	15% Water / 10% LN				
	Regulator Level (mg/L)	0% PAC Day 28 (mg/L)	2% PAC Day 28 (mg/L)	4% PAC Day 28 (mg/L)	6% PAC Day 28 (mg/L)
VOCs					
Benzene	0.5	0.344	0.486	0.080	0.075
Carbon Tetrachloride	0.5	ND	ND	ND	ND
Chlorobenzene	100	ND	ND	ND	ND
Chloroform	6.0	ND	ND	ND	ND
1,4-Dichlorobenzene	7.5	0.061	0.058	0.049	0.052
1,2-Dichloroethane	0.5	ND	ND	ND	ND
1,1-Dichloroethene	0.7	ND	ND	ND	ND
Methyl Ethyl Keytone	200	ND	ND	ND	ND
Tetrachloroethene	0.7	ND	ND	ND	ND
Trichloroethene	0.5	ND	ND	ND	ND
Vinyl Chloride	0.2	ND	ND	ND	ND
SVOCs					
o-Cresol (2-Methylphenol)	200	ND	ND	ND	ND
m-Cresol (3-Methylphenol)[a]	200	0.473	0.344	0.253	0.195
P-Cresol (4-Methylphenol)[b]	200	0.595	0.473	0.253	0.195
2,4-Dinitrotoluene	0.13	ND	ND	ND	ND
Hexachlorobenzene	0.13	ND	ND	ND	ND
Hexachloro-1,3-butadiene	0.5	ND	ND	ND	ND
Hexachloroethane	3.0	ND	ND	ND	ND
Nitrobenzene	2.0	ND	ND	ND	ND
Pentachlorophenol	100	ND	ND	ND	ND
Pyridine	5.0	0.802	0.849	0.995	0.830
2,4,5-Trichlorophenol	400	ND	ND	ND	ND
2,4,6-Trichlorophenol	2.0	ND	ND	ND	ND

Notes:
a Sample co-eluted with P-Cresol (4-Methylphenol)
b Sample co-eluted with P-Cresol (3-Methylphenol)

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The TCLP data collected from the PAC addition runs for the mixed thermally treated impoundment materials was similar to the data collected from the raw material leaching samples. Only two regulated VOC and four regulated SVOCs were detected. All compounds were below the TCLP regulatory leaching levels. The concentration of leached benzene was significantly less in the 4% and 6% PAC addition runs when compared to the 0% and 2% PAC addition runs.

Conclusions and Recommendations

The data from the Tier IV treatability studies provide further evidence that raw and thermally treated materials from Impoundment 2 can effectively be pH adjusted, solidified and stabilized. The following observations were made based on the Tier IV results:

- An effective clay substitute to the SFE material used for the Tier I through Tier III studies was identified.
- The modifications made in the Tier IV recipes had difficulty achieving permeability of 1.0×10^{-6} cm/sec. With the exception of the recipe of 33% clay, 22.5% LN, 15% Omni FBC; remixed with 10% LPC and 8% water, the permeability results from the Tier IV studies were similar to or slightly better than the permeability results from the previous (i.e. Tier I through III) ISS treatability studies.
- A strength of 40 psi was readily achieved for both raw and thermally treated impoundment materials.
- The leaching data indicate that solidification/stabilization of raw impoundment material cannot reduce leached benzene to below 0.5 mg/L; however, the benzene concentration in leachate from the thermally treated impoundment materials was below the 0.5 mg/L threshold.
- The addition of PAC increased both emissions and leaching of COCs after 7 days of curing; however, after 28 days of curing, COC concentrations in both head-space and leachate were generally less than without PAC addition. However, the COC reduction achieved are not significant enough to include the use of PAC during the treatability study.

Previously, two recipes were identified as effective for stabilizing the raw impoundment materials. The data from the Tier IV studies of the raw impoundment materials indicate that the following recipe is expected to perform the best:

- pH buffing with 6% hydrated lime and 15% water
- Initial ISS using 33% clay, 22.5% LN, and 15% Omni FBC
- Remixing after 7 days of curing using a slurry of 10% LPC and 8% water

The pH adjustment recipe of 6% hydrated lime and 15% water for raw acid tar material was not modified during the Tier IV studies. Both recipes require a remixing step after 7 days of curing. Data from Tier IV indicates that the blend of clay, LN and Omni FBC performs better than the blend with only clay and LN. The LN content of this recipe increased from 15% to 22.5%, which helped reduce the permeability of the solidified/stabilized compound.

The highest performing solidification/stabilization recipe for the thermally treated material is as follows:

- De-emulsify and pH buffer using 30% HiCal LKD and 30% water
- Initial mixing using 10% LN and 15% water
- Remixing after 7 days of curing using 10% LPC and 8% water

In the Tier III studies, two recipes were identified for solidification/stabilization of the thermally treated materials. Each recipe included a pH adjustment and a de-emulsifying step using a blend of 30% HiCal LKD and 30% water. A remixing step after 7 days of curing using 10% LPC and 8% water was included for both recipes as well. The two recipes were a mixture of LPC and Omni FBC and a mixture of LN and water. The results of the Tier IV studies indicate that a mixture of 10% LN and 15% water performs the best for the remixing step.

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Attachment 1

Laboratory Analytical Data

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Attachment 1

Laboratory Analytical Data

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LABORATORY REPORT

October 7, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on September 21, 2013. For your reference, these analyses have been assigned our service request number P1304211.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 1:16 pm, Oct 07, 2013

Kate Aguilera
Project Manager

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www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon #2-3620

Service Request No: P1304211

CASE NARRATIVE

The samples were received intact under chain of custody on September 21, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The Tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The Summa Canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	581572
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon #2-3620
Service Request: P1304211

Date Received: 9/21/2013
Time Received: 09:46

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
2-3620-023 (250g)	P1304211-001	Air	9/20/2013	14:15	1SC00252	-1.13	5.19	X	
2-3620-024 (250g)	P1304211-002	Air	9/20/2013	15:00	1SC00474	-3.87	5.01	X	
2-3620-025 (250g)	P1304211-003	Air	9/20/2013	15:45	1SC00439	-0.74	5.30	X	
2-3620-026 (250g)	P1304211-004	Air	9/20/2013	16:30	1SC01062	-2.00	5.02	X	
2-3620-023 (250g)	P1304211-005	Air	9/20/2013	14:00					X
2-3620-024 (250g)	P1304211-006	Air	9/20/2013	14:45					X
2-3620-025 (250g)	P1304211-007	Air	9/20/2013	15:30					X
2-3620-026 (250g)	P1304211-008	Air	9/20/2013	16:15					X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. P1304211

Company Name & Address (Reporting Information): CH2M Hill, 1717 Arch Street; Suite 4400, Philadelphia, PA 19103

Project Name: Pfizer Tie IV

Project Number: RECON # 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information

Phone: 215 640 9305 | Fax: 215 640 9305

Email Address for Result Reporting: richard.traver@CH2M.com

Sampler (Print & Sign): Glenn R. Knierien

ALS Contact:

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15 PL	Analysis Canada	Comments e.g. Actual Preservative or specific instructions
2-3620-023 (250$_d$)	1	9-20-13	1415	ISC00252	OA 00047	-27	-2	1l	x	-	started 9-19 24-hour
-024	2		1500	ISC00474	OA01175	-22	-5	1l	x	-	
-025	3		1545	ISC00439	OA00148	-30	-2	1l	x	-	
-026	4		1630	ISC01062	OA00277	-26	-1	1l	x	-	
—	—	—	—	—	—	—	—	—	—	—	—
2-3620-023 (250$_d$)	5	9-20-13	1400	—	—	—	—	1l	—	x	15-min Tedlar
024	6		1445	—	—	—	—	1l	—	x	
025	7		1530	—	—	—	—	1l	—	x	
026	8		1615	—	—	—	—	1l	—	x	
						Seal #	955 89 2				

CUSTODY SEAL INTACT Sealing box TOP & bottom

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____ Tier III (Results + QC & Calibration Summaries) _____
Tier II (Results + QC Summaries _____ Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Glenn R. Knierien	9-20	1700	Fedex 8026 3608 6567	9-20	1700
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Fedex				9/21/13	0946

Cooler / Blank NA Temperature _____ °C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1304211

Project: Pfizer Tier IV / Recon #2-3620

Sample(s) received on: 9/21/13 Date opened: 9/21/13 by: SANDERSON

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Sealing Box Lid and box bottom Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1304211-001.01	1.0 L Source Can					
P1304211-002.01	1.0 L Source Can					
P1304211-003.01	1.0 L Source Can					
P1304211-004.01	1.0 L Source Can					
P1304211-005.01	1 L Zefon Bag					
P1304211-006.01	1 L Zefon Bag					
P1304211-007.01	1 L Zefon Bag					
P1304211-008.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-023 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304211
ALS Sample ID: P1304211-005

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Jennifer Young
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/20/13
Time Collected: 14:00
Date Received: 9/21/13
Date Analyzed: 9/21/13
Time Analyzed: 10:44
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**870**	7.8	**280**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**150**	17	**42**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**33**	9.6	**8.6**	2.5	
616-44-4	3-Methylthiophene	**68**	20	**17**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**220**	23	**48**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-024 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304211
ALS Sample ID: P1304211-006

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Jennifer Young
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/20/13
Time Collected: 14:45
Date Received: 9/21/13
Date Analyzed: 9/21/13
Time Analyzed: 11:11
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-025 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304211
ALS Sample ID: P1304211-007

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Jennifer Young
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/20/13
Time Collected: 15:30
Date Received: 9/21/13
Date Analyzed: 9/21/13
Time Analyzed: 12:05
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-026 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304211
ALS Sample ID: P1304211-008

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Jennifer Young
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/20/13
Time Collected: 16:15
Date Received: 9/21/13
Date Analyzed: 9/21/13
Time Analyzed: 12:32
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304211
ALS Sample ID: P130921-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Jennifer Young
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 9/21/13
Time Analyzed: 10:18
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304211
ALS Sample ID: P130921-LCS

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Jennifer Young
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 9/21/13
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,850	**3,290**	**115**	63-140	
463-58-1	Carbonyl Sulfide	4,950	**5,840**	**118**	63-138	
74-93-1	Methyl Mercaptan	3,710	**4,860**	**131**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-023 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-001

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00040 Liter(s)
Test Notes:
Container ID: 1SC00252

Initial Pressure (psig): -1.13 Final Pressure (psig): 5.19

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	1,800	ND	1,100	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1,800	ND	370	
74-87-3	Chloromethane	ND	1,800	ND	890	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1,800	ND	260	
75-01-4	Vinyl Chloride	ND	1,800	ND	720	
106-99-0	1,3-Butadiene	ND	1,800	ND	830	
74-83-9	Bromomethane	ND	1,800	ND	470	
75-00-3	Chloroethane	ND	1,800	ND	700	
64-17-5	Ethanol	ND	18,000	ND	9,800	
75-05-8	Acetonitrile	ND	1,800	ND	1,100	
107-02-8	Acrolein	ND	7,400	ND	3,200	
67-64-1	Acetone	ND	18,000	ND	7,700	
75-69-4	Trichlorofluoromethane	ND	1,800	ND	330	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	18,000	ND	7,500	
107-13-1	Acrylonitrile	ND	1,800	ND	850	
75-35-4	1,1-Dichloroethene	ND	1,800	ND	460	
75-09-2	Methylene Chloride	ND	1,800	ND	530	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1,800	ND	590	
76-13-1	Trichlorotrifluoroethane	ND	1,800	ND	240	
75-15-0	Carbon Disulfide	ND	18,000	ND	5,900	
156-60-5	trans-1,2-Dichloroethene	ND	1,800	ND	460	
75-34-3	1,1-Dichloroethane	ND	1,800	ND	450	
1634-04-4	Methyl tert-Butyl Ether	ND	1,800	ND	510	
108-05-4	Vinyl Acetate	ND	18,000	ND	5,200	
78-93-3	2-Butanone (MEK)	ND	18,000	ND	6,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-023 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-001

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00040 Liter(s)
Test Notes:
Container ID: 1SC00252

Initial Pressure (psig): -1.13 Final Pressure (psig): 5.19

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1,800	ND	460	
141-78-6	Ethyl Acetate	ND	3,700	ND	1,000	
110-54-3	n-Hexane	ND	1,800	ND	520	
67-66-3	Chloroform	ND	1,800	ND	380	
109-99-9	Tetrahydrofuran (THF)	ND	1,800	ND	620	
107-06-2	1,2-Dichloroethane	ND	1,800	ND	450	
71-55-6	1,1,1-Trichloroethane	ND	1,800	ND	340	
71-43-2	Benzene	**340,000**	1,800	**110,000**	580	
56-23-5	Carbon Tetrachloride	ND	1,800	ND	290	
110-82-7	Cyclohexane	ND	3,700	ND	1,100	
78-87-5	1,2-Dichloropropane	ND	1,800	ND	400	
75-27-4	Bromodichloromethane	ND	1,800	ND	270	
79-01-6	Trichloroethene	ND	1,800	ND	340	
123-91-1	1,4-Dioxane	ND	1,800	ND	510	
80-62-6	Methyl Methacrylate	ND	3,700	ND	900	
142-82-5	n-Heptane	ND	1,800	ND	450	
10061-01-5	cis-1,3-Dichloropropene	ND	1,800	ND	400	
108-10-1	4-Methyl-2-pentanone	ND	1,800	ND	450	
10061-02-6	trans-1,3-Dichloropropene	ND	1,800	ND	400	
79-00-5	1,1,2-Trichloroethane	ND	1,800	ND	340	
108-88-3	Toluene	**200,000**	1,800	**53,000**	490	
591-78-6	2-Hexanone	ND	1,800	ND	450	
124-48-1	Dibromochloromethane	ND	1,800	ND	220	
106-93-4	1,2-Dibromoethane	ND	1,800	ND	240	
123-86-4	n-Butyl Acetate	ND	1,800	ND	390	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304211
Client Sample ID: **2-3620-023 (250g)** ALS Sample ID: P1304211-001
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00040 Liter(s)
Test Notes:
Container ID: 1SC00252

Initial Pressure (psig): -1.13 Final Pressure (psig): 5.19

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1,800	ND	390	
127-18-4	Tetrachloroethene	ND	1,800	ND	270	
108-90-7	Chlorobenzene	ND	1,800	ND	400	
100-41-4	Ethylbenzene	**4,900**	1,800	**1,100**	420	
179601-23-1	m,p-Xylenes	**47,000**	3,700	**11,000**	850	
75-25-2	Bromoform	ND	1,800	ND	180	
100-42-5	Styrene	ND	1,800	ND	430	
95-47-6	o-Xylene	**11,000**	1,800	**2,600**	420	
111-84-2	n-Nonane	ND	1,800	ND	350	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1,800	ND	270	
98-82-8	Cumene	**9,300**	1,800	**1,900**	370	
80-56-8	alpha-Pinene	ND	1,800	ND	330	
103-65-1	n-Propylbenzene	ND	1,800	ND	370	
622-96-8	4-Ethyltoluene	ND	1,800	ND	370	
108-67-8	1,3,5-Trimethylbenzene	**3,900**	1,800	**800**	370	
95-63-6	1,2,4-Trimethylbenzene	**4,400**	1,800	**890**	370	
100-44-7	Benzyl Chloride	ND	1,800	ND	360	
541-73-1	1,3-Dichlorobenzene	ND	1,800	ND	310	
106-46-7	1,4-Dichlorobenzene	ND	1,800	ND	310	
95-50-1	1,2-Dichlorobenzene	**9,500**	1,800	**1,600**	310	
5989-27-5	d-Limonene	ND	1,800	ND	330	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1,800	ND	190	
120-82-1	1,2,4-Trichlorobenzene	ND	1,800	ND	250	
91-20-3	Naphthalene	ND	1,800	ND	350	
87-68-3	Hexachlorobutadiene	ND	1,800	ND	170	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-024 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-002

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00060 Liter(s)
Test Notes:
Container ID: 1SC00474

Initial Pressure (psig): -3.87 Final Pressure (psig): 5.01

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	1,500	ND	880	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1,500	ND	310	
74-87-3	Chloromethane	ND	1,500	ND	730	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1,500	ND	220	
75-01-4	Vinyl Chloride	ND	1,500	ND	590	
106-99-0	1,3-Butadiene	ND	1,500	ND	690	
74-83-9	Bromomethane	ND	1,500	ND	390	
75-00-3	Chloroethane	ND	1,500	ND	570	
64-17-5	Ethanol	ND	15,000	ND	8,100	
75-05-8	Acetonitrile	ND	1,500	ND	900	
107-02-8	Acrolein	ND	6,100	ND	2,600	
67-64-1	Acetone	ND	15,000	ND	6,400	
75-69-4	Trichlorofluoromethane	ND	1,500	ND	270	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	15,000	ND	6,200	
107-13-1	Acrylonitrile	ND	1,500	ND	700	
75-35-4	1,1-Dichloroethene	ND	1,500	ND	380	
75-09-2	Methylene Chloride	ND	1,500	ND	440	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1,500	ND	480	
76-13-1	Trichlorotrifluoroethane	ND	1,500	ND	200	
75-15-0	Carbon Disulfide	ND	15,000	ND	4,900	
156-60-5	trans-1,2-Dichloroethene	ND	1,500	ND	380	
75-34-3	1,1-Dichloroethane	ND	1,500	ND	370	
1634-04-4	Methyl tert-Butyl Ether	ND	1,500	ND	420	
108-05-4	Vinyl Acetate	ND	15,000	ND	4,300	
78-93-3	2-Butanone (MEK)	ND	15,000	ND	5,100	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-024 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-002

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00060 Liter(s)
Test Notes:
Container ID: 1SC00474

Initial Pressure (psig): -3.87 Final Pressure (psig): 5.01

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1,500	ND	380	
141-78-6	Ethyl Acetate	ND	3,000	ND	840	
110-54-3	n-Hexane	ND	1,500	ND	430	
67-66-3	Chloroform	ND	1,500	ND	310	
109-99-9	Tetrahydrofuran (THF)	ND	1,500	ND	510	
107-06-2	1,2-Dichloroethane	ND	1,500	ND	370	
71-55-6	1,1,1-Trichloroethane	ND	1,500	ND	280	
71-43-2	Benzene	**220,000**	1,500	**68,000**	470	
56-23-5	Carbon Tetrachloride	ND	1,500	ND	240	
110-82-7	Cyclohexane	ND	3,000	ND	880	
78-87-5	1,2-Dichloropropane	ND	1,500	ND	330	
75-27-4	Bromodichloromethane	ND	1,500	ND	230	
79-01-6	Trichloroethene	ND	1,500	ND	280	
123-91-1	1,4-Dioxane	ND	1,500	ND	420	
80-62-6	Methyl Methacrylate	ND	3,000	ND	740	
142-82-5	n-Heptane	ND	1,500	ND	370	
10061-01-5	cis-1,3-Dichloropropene	ND	1,500	ND	330	
108-10-1	4-Methyl-2-pentanone	ND	1,500	ND	370	
10061-02-6	trans-1,3-Dichloropropene	ND	1,500	ND	330	
79-00-5	1,1,2-Trichloroethane	ND	1,500	ND	280	
108-88-3	Toluene	**160,000**	1,500	**42,000**	400	
591-78-6	2-Hexanone	ND	1,500	ND	370	
124-48-1	Dibromochloromethane	ND	1,500	ND	180	
106-93-4	1,2-Dibromoethane	ND	1,500	ND	200	
123-86-4	n-Butyl Acetate	ND	1,500	ND	320	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304211
Client Sample ID: **2-3620-024 (250g)** ALS Sample ID: P1304211-002
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00060 Liter(s)
Test Notes:
Container ID: 1SC00474

Initial Pressure (psig): -3.87 Final Pressure (psig): 5.01

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1,500	ND	320	
127-18-4	Tetrachloroethene	ND	1,500	ND	220	
108-90-7	Chlorobenzene	ND	1,500	ND	330	
100-41-4	Ethylbenzene	**4,000**	1,500	**910**	350	
179601-23-1	m,p-Xylenes	**38,000**	3,000	**8,700**	700	
75-25-2	Bromoform	ND	1,500	ND	150	
100-42-5	Styrene	ND	1,500	ND	360	
95-47-6	o-Xylene	**9,000**	1,500	**2,100**	350	
111-84-2	n-Nonane	ND	1,500	ND	290	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1,500	ND	220	
98-82-8	Cumene	**7,300**	1,500	**1,500**	310	
80-56-8	alpha-Pinene	ND	1,500	ND	270	
103-65-1	n-Propylbenzene	ND	1,500	ND	310	
622-96-8	4-Ethyltoluene	ND	1,500	ND	310	
108-67-8	1,3,5-Trimethylbenzene	**3,000**	1,500	**620**	310	
95-63-6	1,2,4-Trimethylbenzene	**3,400**	1,500	**700**	310	
100-44-7	Benzyl Chloride	ND	1,500	ND	290	
541-73-1	1,3-Dichlorobenzene	ND	1,500	ND	250	
106-46-7	1,4-Dichlorobenzene	ND	1,500	ND	250	
95-50-1	1,2-Dichlorobenzene	**8,300**	1,500	**1,400**	250	
5989-27-5	d-Limonene	ND	1,500	ND	270	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1,500	ND	160	
120-82-1	1,2,4-Trichlorobenzene	ND	1,500	ND	200	
91-20-3	Naphthalene	ND	1,500	ND	290	
87-68-3	Hexachlorobutadiene	ND	1,500	ND	140	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-025 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-003

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00075 Liter(s)
Test Notes:
Container ID: 1SC00439

Initial Pressure (psig): -0.74 Final Pressure (psig): 5.30

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	950	ND	550	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	950	ND	190	
74-87-3	Chloromethane	ND	950	ND	460	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	950	ND	140	
75-01-4	Vinyl Chloride	ND	950	ND	370	
106-99-0	1,3-Butadiene	ND	950	ND	430	
74-83-9	Bromomethane	ND	950	ND	250	
75-00-3	Chloroethane	ND	950	ND	360	
64-17-5	Ethanol	ND	9,500	ND	5,100	
75-05-8	Acetonitrile	ND	950	ND	570	
107-02-8	Acrolein	ND	3,800	ND	1,700	
67-64-1	Acetone	ND	9,500	ND	4,000	
75-69-4	Trichlorofluoromethane	ND	950	ND	170	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	9,500	ND	3,900	
107-13-1	Acrylonitrile	ND	950	ND	440	
75-35-4	1,1-Dichloroethene	ND	950	ND	240	
75-09-2	Methylene Chloride	ND	950	ND	270	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	950	ND	300	
76-13-1	Trichlorotrifluoroethane	ND	950	ND	120	
75-15-0	Carbon Disulfide	ND	9,500	ND	3,100	
156-60-5	trans-1,2-Dichloroethene	ND	950	ND	240	
75-34-3	1,1-Dichloroethane	ND	950	ND	240	
1634-04-4	Methyl tert-Butyl Ether	ND	950	ND	260	
108-05-4	Vinyl Acetate	ND	9,500	ND	2,700	
78-93-3	2-Butanone (MEK)	ND	9,500	ND	3,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-025 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-003

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00075 Liter(s)
Test Notes:
Container ID: 1SC00439

Initial Pressure (psig): -0.74 Final Pressure (psig): 5.30

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	950	ND	240	
141-78-6	Ethyl Acetate	ND	1,900	ND	530	
110-54-3	n-Hexane	ND	950	ND	270	
67-66-3	Chloroform	ND	950	ND	200	
109-99-9	Tetrahydrofuran (THF)	ND	950	ND	320	
107-06-2	1,2-Dichloroethane	ND	950	ND	240	
71-55-6	1,1,1-Trichloroethane	ND	950	ND	170	
71-43-2	Benzene	**150,000**	950	**48,000**	300	
56-23-5	Carbon Tetrachloride	ND	950	ND	150	
110-82-7	Cyclohexane	ND	1,900	ND	550	
78-87-5	1,2-Dichloropropane	ND	950	ND	210	
75-27-4	Bromodichloromethane	ND	950	ND	140	
79-01-6	Trichloroethene	ND	950	ND	180	
123-91-1	1,4-Dioxane	ND	950	ND	260	
80-62-6	Methyl Methacrylate	ND	1,900	ND	470	
142-82-5	n-Heptane	ND	950	ND	230	
10061-01-5	cis-1,3-Dichloropropene	ND	950	ND	210	
108-10-1	4-Methyl-2-pentanone	ND	950	ND	230	
10061-02-6	trans-1,3-Dichloropropene	ND	950	ND	210	
79-00-5	1,1,2-Trichloroethane	ND	950	ND	170	
108-88-3	Toluene	**110,000**	950	**29,000**	250	
591-78-6	2-Hexanone	ND	950	ND	230	
124-48-1	Dibromochloromethane	ND	950	ND	110	
106-93-4	1,2-Dibromoethane	ND	950	ND	120	
123-86-4	n-Butyl Acetate	ND	950	ND	200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304211
Client Sample ID: **2-3620-025 (250g)** ALS Sample ID: P1304211-003
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00075 Liter(s)
Test Notes:
Container ID: 1SC00439

Initial Pressure (psig): -0.74 Final Pressure (psig): 5.30

Canister Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	950	ND	200	
127-18-4	Tetrachloroethene	ND	950	ND	140	
108-90-7	Chlorobenzene	ND	950	ND	210	
100-41-4	Ethylbenzene	**3,000**	950	**700**	220	
179601-23-1	m,p-Xylenes	**29,000**	1,900	**6,700**	440	
75-25-2	Bromoform	ND	950	ND	92	
100-42-5	Styrene	ND	950	ND	220	
95-47-6	o-Xylene	**7,300**	950	**1,700**	220	
111-84-2	n-Nonane	ND	950	ND	180	
79-34-5	1,1,2,2-Tetrachloroethane	ND	950	ND	140	
98-82-8	Cumene	**6,100**	950	**1,200**	190	
80-56-8	alpha-Pinene	ND	950	ND	170	
103-65-1	n-Propylbenzene	ND	950	ND	190	
622-96-8	4-Ethyltoluene	ND	950	ND	190	
108-67-8	1,3,5-Trimethylbenzene	**2,600**	950	**530**	190	
95-63-6	1,2,4-Trimethylbenzene	**3,000**	950	**610**	190	
100-44-7	Benzyl Chloride	ND	950	ND	180	
541-73-1	1,3-Dichlorobenzene	ND	950	ND	160	
106-46-7	1,4-Dichlorobenzene	ND	950	ND	160	
95-50-1	1,2-Dichlorobenzene	**7,800**	950	**1,300**	160	
5989-27-5	d-Limonene	ND	950	ND	170	
96-12-8	1,2-Dibromo-3-chloropropane	ND	950	ND	99	
120-82-1	1,2,4-Trichlorobenzene	ND	950	ND	130	
91-20-3	Naphthalene	**1,200**	950	**220**	180	
87-68-3	Hexachlorobutadiene	ND	950	ND	89	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-026 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-004

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00060 Liter(s)
Test Notes:
Container ID: 1SC01062

Initial Pressure (psig): -2.00 Final Pressure (psig): 5.02

Canister Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	1,300	ND	750	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1,300	ND	260	
74-87-3	Chloromethane	ND	1,300	ND	630	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1,300	ND	180	
75-01-4	Vinyl Chloride	ND	1,300	ND	510	
106-99-0	1,3-Butadiene	ND	1,300	ND	580	
74-83-9	Bromomethane	ND	1,300	ND	330	
75-00-3	Chloroethane	ND	1,300	ND	490	
64-17-5	Ethanol	ND	13,000	ND	6,900	
75-05-8	Acetonitrile	ND	1,300	ND	770	
107-02-8	Acrolein	ND	5,200	ND	2,300	
67-64-1	Acetone	ND	13,000	ND	5,400	
75-69-4	Trichlorofluoromethane	ND	1,300	ND	230	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	13,000	ND	5,300	
107-13-1	Acrylonitrile	ND	1,300	ND	600	
75-35-4	1,1-Dichloroethene	ND	1,300	ND	330	
75-09-2	Methylene Chloride	ND	1,300	ND	370	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1,300	ND	410	
76-13-1	Trichlorotrifluoroethane	ND	1,300	ND	170	
75-15-0	Carbon Disulfide	ND	13,000	ND	4,100	
156-60-5	trans-1,2-Dichloroethene	ND	1,300	ND	330	
75-34-3	1,1-Dichloroethane	ND	1,300	ND	320	
1634-04-4	Methyl tert-Butyl Ether	ND	1,300	ND	360	
108-05-4	Vinyl Acetate	ND	13,000	ND	3,700	
78-93-3	2-Butanone (MEK)	ND	13,000	ND	4,400	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-026 (250g)** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304211-004

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00060 Liter(s)
Test Notes:
Container ID: 1SC01062

Initial Pressure (psig): -2.00 Final Pressure (psig): 5.02

Canister Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1,300	ND	330	
141-78-6	Ethyl Acetate	ND	2,600	ND	720	
110-54-3	n-Hexane	ND	1,300	ND	370	
67-66-3	Chloroform	ND	1,300	ND	260	
109-99-9	Tetrahydrofuran (THF)	ND	1,300	ND	440	
107-06-2	1,2-Dichloroethane	ND	1,300	ND	320	
71-55-6	1,1,1-Trichloroethane	ND	1,300	ND	240	
71-43-2	Benzene	**180,000**	1,300	**56,000**	400	
56-23-5	Carbon Tetrachloride	ND	1,300	ND	210	
110-82-7	Cyclohexane	ND	2,600	ND	750	
78-87-5	1,2-Dichloropropane	ND	1,300	ND	280	
75-27-4	Bromodichloromethane	ND	1,300	ND	190	
79-01-6	Trichloroethene	ND	1,300	ND	240	
123-91-1	1,4-Dioxane	ND	1,300	ND	360	
80-62-6	Methyl Methacrylate	ND	2,600	ND	630	
142-82-5	n-Heptane	ND	1,300	ND	320	
10061-01-5	cis-1,3-Dichloropropene	ND	1,300	ND	280	
108-10-1	4-Methyl-2-pentanone	ND	1,300	ND	320	
10061-02-6	trans-1,3-Dichloropropene	ND	1,300	ND	280	
79-00-5	1,1,2-Trichloroethane	ND	1,300	ND	240	
108-88-3	Toluene	**140,000**	1,300	**37,000**	340	
591-78-6	2-Hexanone	ND	1,300	ND	320	
124-48-1	Dibromochloromethane	ND	1,300	ND	150	
106-93-4	1,2-Dibromoethane	ND	1,300	ND	170	
123-86-4	n-Butyl Acetate	ND	1,300	ND	270	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304211
Client Sample ID: **2-3620-026 (250g)** ALS Sample ID: P1304211-004
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/20/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/21/13
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00060 Liter(s)
Test Notes:
Container ID: 1SC01062

Initial Pressure (psig): -2.00 Final Pressure (psig): 5.02

Canister Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1,300	ND	280	
127-18-4	Tetrachloroethene	ND	1,300	ND	190	
108-90-7	Chlorobenzene	ND	1,300	ND	280	
100-41-4	Ethylbenzene	**4,200**	1,300	**960**	300	
179601-23-1	m,p-Xylenes	**39,000**	2,600	**9,100**	590	
75-25-2	Bromoform	ND	1,300	ND	120	
100-42-5	Styrene	ND	1,300	ND	300	
95-47-6	o-Xylene	**9,900**	1,300	**2,300**	300	
111-84-2	n-Nonane	ND	1,300	ND	250	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1,300	ND	190	
98-82-8	Cumene	**8,800**	1,300	**1,800**	260	
80-56-8	alpha-Pinene	ND	1,300	ND	230	
103-65-1	n-Propylbenzene	ND	1,300	ND	260	
622-96-8	4-Ethyltoluene	ND	1,300	ND	260	
108-67-8	1,3,5-Trimethylbenzene	**3,800**	1,300	**770**	260	
95-63-6	1,2,4-Trimethylbenzene	**4,200**	1,300	**850**	260	
100-44-7	Benzyl Chloride	ND	1,300	ND	250	
541-73-1	1,3-Dichlorobenzene	ND	1,300	ND	210	
106-46-7	1,4-Dichlorobenzene	ND	1,300	ND	210	
95-50-1	1,2-Dichlorobenzene	**9,800**	1,300	**1,600**	210	
5989-27-5	d-Limonene	ND	1,300	ND	230	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1,300	ND	130	
120-82-1	1,2,4-Trichlorobenzene	ND	1,300	ND	170	
91-20-3	Naphthalene	**1,400**	1,300	**260**	250	
87-68-3	Hexachlorobutadiene	ND	1,300	ND	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131001-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1304211

Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131001-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Elsa Moctezuma Date Analyzed: 10/1/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304211

Client Sample ID: **Method Blank** ALS Sample ID: P131001-MB

Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA

Analyst: Elsa Moctezuma Date Analyzed: 10/1/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Project ID: P1304211

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Collected: 9/20/13
Analyst: Elsa Moctezuma Date(s) Received: 9/21/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 10/1/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P131001-MB	**94**	**99**	**96**	70-130	
Lab Control Sample	P131001-LCS	**93**	**97**	**98**	70-130	
2-3620-023 (250g)	P1304211-001	**94**	**100**	**96**	70-130	
2-3620-024 (250g)	P1304211-002	**96**	**99**	**96**	70-130	
2-3620-025 (250g)	P1304211-003	**95**	**99**	**95**	70-130	
2-3620-026 (250g)	P1304211-004	**95**	**99**	**95**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131001-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**163**	**82**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**167**	**82**	63-115	
74-87-3	Chloromethane	198	**174**	**88**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**168**	**82**	65-115	
75-01-4	Vinyl Chloride	200	**174**	**87**	64-122	
106-99-0	1,3-Butadiene	212	**215**	**101**	57-141	
74-83-9	Bromomethane	200	**156**	**78**	68-122	
75-00-3	Chloroethane	202	**183**	**91**	66-120	
64-17-5	Ethanol	1,020	**828**	**81**	58-126	
75-05-8	Acetonitrile	202	**177**	**88**	64-136	
107-02-8	Acrolein	214	**191**	**89**	58-129	
67-64-1	Acetone	1,080	**869**	**80**	60-114	
75-69-4	Trichlorofluoromethane	198	**157**	**79**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**357**	**85**	54-118	
107-13-1	Acrylonitrile	208	**198**	**95**	72-143	
75-35-4	1,1-Dichloroethene	214	**181**	**85**	69-119	
75-09-2	Methylene Chloride	216	**169**	**78**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**189**	**88**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**179**	**84**	69-117	
75-15-0	Carbon Disulfide	196	**166**	**85**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**190**	**90**	70-126	
75-34-3	1,1-Dichloroethane	208	**179**	**86**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**180**	**85**	69-120	
108-05-4	Vinyl Acetate	1,020	**819**	**80**	58-160	
78-93-3	2-Butanone (MEK)	218	**175**	**80**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131001-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**186**	**87**	70-119	
141-78-6	Ethyl Acetate	426	**353**	**83**	72-129	
110-54-3	n-Hexane	210	**154**	**73**	63-115	
67-66-3	Chloroform	214	**170**	**79**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**180**	**87**	60-126	
107-06-2	1,2-Dichloroethane	210	**164**	**78**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**180**	**87**	68-120	
71-43-2	Benzene	220	**178**	**81**	69-117	
56-23-5	Carbon Tetrachloride	210	**189**	**90**	65-134	
110-82-7	Cyclohexane	420	**376**	**90**	69-114	
78-87-5	1,2-Dichloropropane	212	**191**	**90**	70-116	
75-27-4	Bromodichloromethane	214	**198**	**93**	71-126	
79-01-6	Trichloroethene	208	**180**	**87**	71-119	
123-91-1	1,4-Dioxane	218	**174**	**80**	72-126	
80-62-6	Methyl Methacrylate	420	**362**	**86**	75-136	
142-82-5	n-Heptane	214	**183**	**86**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**208**	**92**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**183**	**84**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**200**	**93**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**188**	**90**	72-119	
108-88-3	Toluene	210	**167**	**80**	65-116	
591-78-6	2-Hexanone	222	**160**	**72**	62-132	
124-48-1	Dibromochloromethane	220	**205**	**93**	66-140	
106-93-4	1,2-Dibromoethane	216	**183**	**85**	69-130	
123-86-4	n-Butyl Acetate	224	**166**	**74**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304211
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131001-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 10/1/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**176**	**85**	66-118	
127-18-4	Tetrachloroethene	196	**164**	**84**	63-123	
108-90-7	Chlorobenzene	216	**178**	**82**	66-118	
100-41-4	Ethylbenzene	212	**174**	**82**	66-119	
179601-23-1	m,p-Xylenes	420	**346**	**82**	64-118	
75-25-2	Bromoform	216	**206**	**95**	64-140	
100-42-5	Styrene	218	**182**	**83**	68-132	
95-47-6	o-Xylene	206	**171**	**83**	65-120	
111-84-2	n-Nonane	206	**166**	**81**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**171**	**85**	63-128	
98-82-8	Cumene	204	**169**	**83**	65-121	
80-56-8	alpha-Pinene	208	**180**	**87**	66-123	
103-65-1	n-Propylbenzene	202	**167**	**83**	65-121	
622-96-8	4-Ethyltoluene	212	**179**	**84**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**172**	**81**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**168**	**79**	64-131	
100-44-7	Benzyl Chloride	222	**193**	**87**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**177**	**80**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**170**	**79**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**176**	**81**	63-126	
5989-27-5	d-Limonene	210	**192**	**91**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**176**	**83**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**154**	**70**	59-146	
91-20-3	Naphthalene	204	**149**	**73**	56-143	
87-68-3	Hexachlorobutadiene	218	**175**	**80**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Response Factor Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : CH2M Hill
Analyst : JY

Service Request : P1304211
Instrument : GC13
Date Acquired : 9/21/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	MB 1ml				0	0		std 2000ppb s27-08271301		std 2000ppb s27-08271301									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						2063.60	3.6%	1913.955	3.9%								
Carbonyl_Sulfide	1.900	5.000	ND	P						2019.45	0.6%	1876.588	7.6%								
Methyl_Mercaptan	2.200	5.000	ND	P						2074.63	2.6%	1841.546	8.9%								
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						8:41 AM		2:01 PM									
Carbon_Disulfide	1.100	2.500	ND	P						09211303.D		09211315.D									
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			10:18 AM																		
DataFile			09211307.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	2363.66	115.6%					2045.54
Carbonyl_Sulfide	2378.98	117.9%					2017.48
Methyl_Mercaptan	2472.17	131.0%					1887.74
Acqisition Time	9:06 AM						
DataFile	09211304.D						

MC 9/25/13

Response Factor Report GCMS13

Method Path : I:\MS13\METHODS\
Method File : R13082913A.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Aug 30 10:25:43 2013
Response Via : Initial Calibration

Calibration Files
0.08=08291311.D 0.10=08291312.D 0.20=08291313.D 0.40=08291314.D 1.0 =08291315.D 5.0 =08291316.D
25 =08291317.D 50 =08291318.D 100 =08291319.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------			ISTD	----------						
2)	T	Propene				2.776	1.652	1.615	1.589	1.614	1.886	1.855	25.01
3)	T	Dichlorodifluo...	3.591	3.627	3.621	3.608	3.441	3.372	3.342	3.225	2.988	3.424	6.37
4)	T	Chloromethane	2.799	2.782	2.535	2.216	2.659	2.512	2.518	2.459	2.243	2.525	8.15
5)	T	1,2-Dichloro-1...	1.739	1.876	1.913	1.968	1.871	1.844	1.813	1.785	1.701	1.834	4.59
6)	T	Vinyl Chloride	2.497	2.757	2.597	2.650	2.512	2.485	2.506	2.468	2.321	2.533	4.87
7)	T	1,3-Butadiene	1.516	1.292	1.264	1.195	1.287	1.297	1.513	1.542	1.452	1.373	9.57
8)	T	Bromomethane		2.492	1.991	1.825	1.612	1.519	1.537	1.508	1.432	1.739	20.50
9)	T	Chloroethane	1.207	1.214	1.285	1.256	1.244	1.218	1.216	1.195	1.161	1.222	2.93
10)	T	Ethanol	1.546	1.407	1.262	1.180	1.185	1.114	1.135	1.105	1.029	1.218	13.42
11)	T	Acetonitrile			3.727	3.467	3.117	2.982	2.955	2.895	2.778	3.132	10.92
12)	T	Acrolein			1.171	1.087	0.957	0.948	0.920	0.899	0.858	0.977	11.40
13)	T	Acetone			1.549	1.423	1.153	1.134	1.144	1.072	0.915	1.199	17.99
14)	T	Trichlorofluor...	2.974	3.176	3.112	3.196	2.952	2.962	2.787	2.717	2.625	2.945	6.84
15)	T	2-Propanol (Is...	4.795	4.708	4.370	3.130	4.036	3.907	4.002	3.746	2.844	3.949	16.55
16)	T	Acrylonitrile	1.873	1.959	1.984	2.061	2.001	2.036	2.099	2.055	1.965	2.004	3.40
17)	T	1,1-Dichloroet...	1.574	1.568	1.501	1.518	1.541	1.465	1.504	1.480	1.426	1.508	3.20
18)	T	2-Methyl-2-Pro...				4.213	3.973	3.989	3.935	3.734	3.115	3.826	9.95
19)	T	Methylene Chlo...				1.963	1.725	1.623	1.630	1.600	1.551	1.682	8.87
20)	T	3-Chloro-1-pro...	2.476	2.429	2.335	2.146	2.206	2.182	2.255	2.200	2.075	2.256	5.88
21)	T	Trichlorotrifl...	1.376	1.444	1.484	1.475	1.443	1.411	1.389	1.375	1.342	1.415	3.46
22)	T	Carbon Disulfide			8.090	7.082	6.167	5.789	5.878	5.676	5.331	6.288	15.36
23)	T	trans-1,2-Dich...	2.088	2.226	2.311	2.230	2.218	2.233	2.262	2.223	2.138	2.214	2.95
24)	T	1,1-Dichloroet...	2.844	2.877	2.902	2.949	2.771	2.757	2.686	2.650	2.574	2.779	4.51
25)	T	Methyl tert-Bu...	4.655	4.971	4.916	4.952	4.631	4.655	4.518	4.418	4.211	4.659	5.52
26)	T	Vinyl Acetate	0.362	0.371	0.392	0.398	0.362	0.387	0.379	0.373	0.344	0.374	4.56
27)	T	2-Butanone (MEK)	1.048	1.169	1.190	1.240	0.980	1.003	0.991	0.985	0.975	1.065	9.86
28)	T	cis-1,2-Dichlo...	2.011	2.169	2.167	2.222	2.086	2.113	2.091	2.053	1.974	2.098	3.80
29)	T	Diisopropyl Ether	1.336	1.325	1.538	1.595	1.481	1.505	1.473	1.210	1.093	1.395	11.88
30)	T	Ethyl Acetate	0.549	0.540	0.569	0.608	0.563	0.566	0.551	0.536	0.472	0.550	6.56
31)	T	n-Hexane	2.781	3.007	2.851	2.806	2.394	2.337	2.027	1.970	1.858	2.448	17.59
32)	T	Chloroform	2.699	2.857	2.835	2.854	2.691	2.668	2.612	2.542	2.434	2.688	5.42
33)	S	1,2-Dichloroet...	1.519	1.520	1.524	1.534	1.508	1.499	1.474	1.466	1.453	1.500	1.91
34)	T	Tetrahydrofura...	0.951	1.037	1.064	1.085	0.999	0.990	0.981	0.975	0.962	1.005	4.65
35)	T	Ethyl tert-But...	1.887	1.945	1.949	1.944	1.854	1.848	1.836	1.817	1.749	1.870	3.63
36)	T	1,2-Dichloroet...	1.971	2.078	2.121	2.119	1.990	1.983	1.920	1.868	1.784	1.982	5.75
37)	IR	1,4-Difluorobenzen...	----------			ISTD	----------						
38)	T	1,1,1-Trichlor...	0.447	0.465	0.471	0.478	0.454	0.460	0.454	0.443	0.429	0.456	3.25

Method Path : I:\MS13\METHODS\
Method File : R13082913A.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.213	0.216	0.211	0.217	0.187	0.187	0.186	0.180	0.164	0.196	9.76
40)	T	1-Butanol	0.421	0.419	0.413	0.415	0.293	0.310	0.312	0.302	0.262	0.350	18.76
41)	T	Benzene			1.611	1.368	1.204	1.157	1.106	1.077	0.963	1.212	17.77
42)	T	Carbon Tetrach...	0.370	0.371	0.371	0.384	0.386	0.396	0.403	0.399	0.388	0.385	3.25
43)	T	Cyclohexane	0.450	0.490	0.473	0.470	0.465	0.464	0.459	0.449	0.408	0.459	4.91
44)	T	tert-Amyl Meth...	0.897	0.934	0.926	0.931	0.874	0.882	0.896	0.874	0.819	0.893	4.06
45)	T	1,2-Dichloropr...	0.287	0.328	0.309	0.307	0.297	0.294	0.292	0.286	0.281	0.298	4.95
46)	T	Bromodichlorom...	0.358	0.381	0.383	0.383	0.380	0.389	0.397	0.390	0.378	0.382	2.85
47)	T	Trichloroethene	0.308	0.352	0.340	0.340	0.329	0.330	0.327	0.327	0.323	0.331	3.77
48)	T	1,4-Dioxane	0.303	0.331	0.310	0.303	0.248	0.244	0.250	0.247	0.242	0.275	12.93
49)	T	2,2,4-Trimethy...	1.322	1.437	1.308	1.326	1.315	1.307	1.308	1.256	1.137	1.302	6.00
50)	T	Methyl Methacr...	0.122	0.137	0.135	0.131	0.125	0.127	0.129	0.127	0.123	0.129	3.95
51)	T	n-Heptane	0.298	0.301	0.296	0.305	0.287	0.278	0.262	0.258	0.255	0.282	7.01
52)	T	cis-1,3-Dichlo...	0.434	0.440	0.468	0.464	0.461	0.474	0.483	0.476	0.466	0.463	3.53
53)	T	4-Methyl-2-pen...	0.321	0.353	0.344	0.352	0.271	0.274	0.277	0.273	0.262	0.303	12.78
54)	T	trans-1,3-Dich...	0.396	0.392	0.401	0.411	0.415	0.430	0.447	0.442	0.430	0.418	4.76
55)	T	1,1,2-Trichlor...	0.296	0.303	0.295	0.298	0.291	0.289	0.291	0.286	0.280	0.292	2.31
56)	IR	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.581	2.580	2.575	2.579	2.587	2.560	2.559	2.555	2.557	2.570	0.48
58)	T	Toluene	3.571	3.724	3.314	3.228	3.087	2.992	2.969	2.876	2.673	3.159	10.64
59)	T	2-Hexanone	2.272	2.343	2.338	2.216	1.659	1.624	1.601	1.530	1.419	1.889	20.66
60)	T	Dibromochlorom...	0.677	0.693	0.717	0.724	0.743	0.784	0.831	0.833	0.816	0.758	7.91
61)	T	1,2-Dibromoethane	0.810	0.815	0.808	0.837	0.812	0.821	0.834	0.818	0.796	0.817	1.59
62)	T	n-Butyl Acetate	2.410	2.455	2.399	2.358	1.808	1.790	1.786	1.721	1.594	2.036	17.54
63)	T	n-Octane	0.661	0.661	0.653	0.660	0.632	0.629	0.620	0.604	0.578	0.633	4.57
64)	T	Tetrachloroethene	0.915	0.942	0.955	0.961	0.940	0.931	0.934	0.923	0.916	0.935	1.73
65)	T	Chlorobenzene	2.074	2.121	2.075	2.076	2.037	1.994	2.017	1.973	1.860	2.025	3.82
66)	T	Ethylbenzene	3.776	3.755	3.596	3.555	3.464	3.416	3.437	3.285	2.915	3.466	7.52
67)	T	m- & p-Xylenes	2.887	2.957	2.865	2.863	2.770	2.798	2.835	2.693	2.303	2.775	6.92
68)	T	Bromoform				0.596	0.609	0.678	0.770	0.773	0.754	0.697	11.59
69)	T	Styrene	2.275	2.217	2.175	2.138	2.111	2.145	2.227	2.155	1.977	2.158	3.95
70)	T	o-Xylene	3.000	3.026	2.931	2.959	2.878	2.883	2.942	2.826	2.500	2.883	5.42
71)	T	n-Nonane	1.711	1.769	1.642	1.606	1.508	1.530	1.502	1.414	1.240	1.547	10.33
72)	T	1,1,2,2-Tetrac...	1.309	1.401	1.455	1.449	1.385	1.386	1.441	1.402	1.299	1.392	4.05
73)	S	Bromofluoroben...	1.078	1.081	1.090	1.085	1.094	1.097	1.097	1.106	1.094	1.091	0.81
74)	T	Cumene	3.919	3.887	3.817	3.831	3.684	3.684	3.753	3.553	3.038	3.685	7.27
75)	T	alpha-Pinene	1.642	1.635	1.677	1.657	1.802	1.841	1.884	1.836	1.666	1.738	5.79
76)	T	n-Propylbenzene	4.655	4.969	4.690	4.658	4.472	4.493	4.533	4.225	3.517	4.468	9.16
77)	T	3-Ethyltoluene	3.690	3.848	3.727	3.738	3.590	3.637	3.650	3.616	2.961	3.606	7.05
78)	T	4-Ethyltoluene	3.607	3.550	3.562	3.466	3.265	3.351	3.535	3.158	2.773	3.363	7.97
79)	T	1,3,5-Trimethy...	3.217	3.155	3.143	3.016	2.941	2.945	3.058	2.914	2.515	2.989	6.93
80)	T	alpha-Methylst...	1.319	1.257	1.253	1.306	1.622	1.684	1.763	1.703	1.530	1.493	14.01
81)	T	2-Ethyltoluene	3.669	3.664	3.618	3.649	3.432	3.484	3.565	3.356	2.861	3.478	7.37
82)	T	1,2,4-Trimethy...	3.254	3.227	3.187	3.190	2.986	3.073	3.197	2.909	2.256	3.031	10.33
83)	T	n-Decane	1.802	1.827	1.676	1.682	1.631	1.655	1.679	1.577	1.312	1.649	9.02
84)	T	Benzyl Chloride	2.321	2.155	2.047	2.113	2.239	2.485	2.741	2.626	2.194	2.324	10.38
85)	T	1,3-Dichlorobe...	1.816	1.842	1.831	1.807	1.714	1.740	1.851	1.791	1.625	1.780	4.15
86)	T	1,4-Dichlorobe...	2.045	1.998	1.926	1.885	1.756	1.779	1.883	1.835	1.685	1.866	6.21

Method Path : I:\MS13\METHODS\
Method File : R13082913A.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	4.006	4.137	4.077	4.097	3.869	3.921	3.998	3.710	3.055	3.874	8.62
88)	T	4-Isopropyltol...	3.834	4.077	3.915	4.051	3.775	3.855	3.928	3.474	2.590	3.722	12.35
89)	T	1,2,3-Trimethy...	3.176	3.371	3.262	3.278	3.052	3.119	3.255	2.940	2.241	3.077	11.04
90)	T	1,2-Dichlorobe...	1.749	1.805	1.808	1.795	1.675	1.703	1.811	1.741	1.507	1.733	5.63
91)	T	d-Limonene	0.863	0.886	0.891	0.894	1.142	1.201	1.243	1.159	0.910	1.021	15.64
92)	T	1,2-Dibromo-3-...	0.591	0.649	0.676	0.677	0.586	0.634	0.696	0.686	0.658	0.650	6.14
93)	T	n-Undecane	2.278	2.136	1.933	1.959	1.716	1.747	1.771	1.681	1.422	1.849	13.93
94)	T	1,2,4-Trichlor...	1.906	1.740	1.621	1.641	1.297	1.349	1.483	1.458	1.357	1.539	13.18
95)	T	Naphthalene			6.328	6.127	4.166	4.347	4.742	4.355	3.320	4.769	22.79
96)	T	n-Dodecane			2.511	2.542	1.634	1.741	1.731	1.572	1.128	1.837	27.98
97)	T	Hexachlorobuta...	0.884	0.935	0.930	0.950	0.858	0.864	0.923	0.918	0.890	0.906	3.62
98)	T	Cyclohexanone	1.538	1.627	1.565	1.578	1.037	1.061	1.062	1.027	0.963	1.273	22.83
99)	T	tert-Butylbenzene	2.937	3.063	3.060	3.054	2.878	2.899	2.975	2.702	2.125	2.855	10.40
100)	T	n-Butylbenzene	3.563	3.650	3.451	3.433	3.062	3.110	3.182	2.975	2.479	3.212	11.27

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2013_10\01\10011303.D Vial: 15
Acq On : 1 Oct 2013 8:31 Operator: EM
Sample : 5ng TO-15 CCV STD Inst : GCMS13
Misc : S25-09181302/S25-09071305 (10/6)

Quant Time: Oct 01 09:14:40 2013
Quant Method : I:\MS13\METHODS\R13082913A.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Aug 30 10:25:43 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	74	-0.03
2	T	Propene	1.855	1.726	7.0	79	-0.02
3	T	Dichlorodifluoromethane (CF	3.424	3.104	9.3	68	-0.02
4	T	Chloromethane	2.525	2.471	2.1	72	-0.03
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.834	1.662	9.4	66	-0.03
6	T	Vinyl Chloride	2.533	2.430	4.1	72	-0.03
7	T	1,3-Butadiene	1.373	1.505	-9.6	85	-0.04
8	T	Bromomethane	1.739	1.442	17.1	70	-0.04
9	T	Chloroethane	1.222	1.240	-1.5	75	-0.04
10	T	Ethanol	1.218	1.172	3.8	77	-0.10
11	T	Acetonitrile	3.132	3.132	0.0	77	-0.07
12	T	Acrolein	0.977	0.981	-0.4	76	-0.04
13	T	Acetone	1.199	1.162	3.1	75	-0.06
14	T	Trichlorofluoromethane	2.945	2.641	10.3	66	-0.03
15	T	2-Propanol (Isopropanol)	3.949	3.666	7.2	69	-0.07
16	T	Acrylonitrile	2.004	2.081	-3.8	75	-0.05
17	T	1,1-Dichloroethene	1.508	1.428	5.3	72	-0.03
18	T	2-Methyl-2-Propanol (tert-B	3.826	3.507	8.3	65	-0.06
19	T	Methylene Chloride	1.682	1.584	5.8	72	-0.04
20	T	3-Chloro-1-propene (Allyl C	2.256	2.070	8.2	70	-0.03
21	T	Trichlorotrifluoroethane	1.415	1.306	7.7	68	-0.02
22	T	Carbon Disulfide	6.288	5.873	6.6	75	-0.03
23	T	trans-1,2-Dichloroethene	2.214	2.192	1.0	72	-0.03
24	T	1,1-Dichloroethane	2.779	2.707	2.6	72	-0.03
25	T	Methyl tert-Butyl Ether	4.659	4.404	5.5	70	-0.02
26	T	Vinyl Acetate	0.374	0.355	5.1	68	-0.04
27	T	2-Butanone (MEK)	1.065	1.001	6.0	73	-0.03
28	T	cis-1,2-Dichloroethene	2.098	2.039	2.8	71	-0.03
29	T	Diisopropyl Ether	1.395	1.417	-1.6	69	-0.02
30	T	Ethyl Acetate	0.550	0.546	0.7	71	-0.03
31	T	n-Hexane	2.448	2.285	6.7	72	-0.01
32	T	Chloroform	2.688	2.445	9.0	67	-0.03
33	S	1,2-Dichloroethane-d4(SS1)	1.500	1.380	8.0	68	-0.02
34	T	Tetrahydrofuran (THF)	1.005	0.990	1.5	74	-0.02
35	T	Ethyl tert-Butyl Ether	1.870	1.748	6.5	70	-0.01
36	T	1,2-Dichloroethane	1.982	1.750	11.7	65	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	72	-0.02
38	T	1,1,1-Trichloroethane	0.456	0.426	6.6	66	-0.02
39	T	Isopropyl Acetate	0.196	0.184	6.1	71	-0.02
40	T	1-Butanol	0.350	0.288	17.7	67	-0.04
41	T	Benzene	1.212	1.128	6.9	70	-0.02
42	T	Carbon Tetrachloride	0.385	0.368	4.4	67	-0.02
43	T	Cyclohexane	0.459	0.455	0.9	70	-0.02
44	T	tert-Amyl Methyl Ether	0.893	0.857	4.0	70	-0.01
45	T	1,2-Dichloropropane	0.298	0.295	1.0	72	-0.01
46	T	Bromodichloromethane	0.382	0.367	3.9	68	-0.01
47	T	Trichloroethene	0.331	0.314	5.1	68	-0.02
48	T	1,4-Dioxane	0.275	0.239	13.1	70	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.302	1.320	-1.4	73	-0.02
50	T	Methyl Methacrylate	0.129	0.121	6.2	68	-0.02
51	T	n-Heptane	0.282	0.273	3.2	71	-0.01

EM 10/2/13

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2013_10\01\10011303.D Vial: 15
Acq On : 1 Oct 2013 8:31 Operator: EM
Sample : 5ng TO-15 CCV STD Inst : GCMS13
Misc : S25-09181302/S25-09071305 (10/6)

Quant Time: Oct 01 09:14:40 2013
Quant Method : I:\MS13\METHODS\R13082913A.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Aug 30 10:25:43 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	T	cis-1,3-Dichloropropene	0.463	0.456	1.5	69	-0.01
53	T	4-Methyl-2-pentanone	0.303	0.273	9.9	72	-0.01
54	T	trans-1,3-Dichloropropene	0.418	0.409	2.2	68	-0.01
55	T	1,1,2-Trichloroethane	0.292	0.280	4.1	70	-0.01
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	73	0.00
57	S	Toluene-d8 (SS2)	2.570	2.548	0.9	73	-0.01
58	T	Toluene	3.159	2.854	9.7	70	-0.01
59	T	2-Hexanone	1.889	1.561	17.4	70	-0.01
60	T	Dibromochloromethane	0.758	0.747	1.5	69	-0.01
61	T	1,2-Dibromoethane	0.817	0.765	6.4	68	-0.01
62	T	n-Butyl Acetate	2.036	1.725	15.3	70	-0.01
63	T	n-Octane	0.633	0.618	2.4	72	-0.01
64	T	Tetrachloroethene	0.935	0.868	7.2	68	0.00
65	T	Chlorobenzene	2.025	1.867	7.8	68	0.00
66	T	Ethylbenzene	3.466	3.220	7.1	69	0.00
67	T	m- & p-Xylenes	2.775	2.593	6.6	68	-0.01
68	T	Bromoform	0.697	0.651	6.6	70	0.00
69	T	Styrene	2.158	1.978	8.3	67	-0.01
70	T	o-Xylene	2.883	2.678	7.1	68	-0.01
71	T	n-Nonane	1.547	1.457	5.8	69	0.00
72	T	1,1,2,2-Tetrachloroethane	1.392	1.311	5.8	69	-0.01
73	S	Bromofluorobenzene (SS3)	1.091	1.040	4.7	69	0.00
74	T	Cumene	3.685	3.445	6.5	68	0.00
75	T	alpha-Pinene	1.738	1.672	3.8	66	0.00
76	T	n-Propylbenzene	4.468	4.204	5.9	68	0.00
77	T	3-Ethyltoluene	3.606	3.351	7.1	67	0.00
78	T	4-Ethyltoluene	3.363	3.126	7.0	68	0.00
79	T	1,3,5-Trimethylbenzene	2.989	2.739	8.4	68	0.00
80	T	alpha-Methylstyrene	1.493	1.388	7.0	60	-0.01
81	T	2-Ethyltoluene	3.478	3.200	8.0	67	0.00
82	T	1,2,4-Trimethylbenzene	3.031	2.797	7.7	66	-0.01
83	T	n-Decane	1.649	1.566	5.0	69	-0.01
84	T	Benzyl Chloride	2.324	2.137	8.0	63	-0.01
85	T	1,3-Dichlorobenzene	1.780	1.596	10.3	67	-0.01
86	T	1,4-Dichlorobenzene	1.866	1.660	11.0	68	-0.01
87	T	sec-Butylbenzene	3.874	3.625	6.4	67	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.722	3.520	5.4	67	-0.01
89	T	1,2,3-Trimethylbenzene	3.077	2.835	7.9	66	0.00
90	T	1,2-Dichlorobenzene	1.733	1.567	9.6	67	0.00
91	T	d-Limonene	1.021	1.014	0.7	62	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.650	0.581	10.6	67	0.00
93	T	n-Undecane	1.849	1.664	10.0	69	0.00
94	T	1,2,4-Trichlorobenzene	1.539	1.251	18.7	68	0.00
95	T	Naphthalene	4.769	4.069	14.7	68	0.00
96	T	n-Dodecane	1.837	1.649	10.2	69	0.00
97	T	Hexachlorobutadiene	0.906	0.787	13.1	66	0.00
98	T	Cyclohexanone	1.273	1.025	19.5	70	-0.01
99	T	tert-Butylbenzene	2.855	2.632	7.8	66	-0.01
100	T	n-Butylbenzene	3.212	2.874	10.5	67	0.00

EM 10/2/13

Evaluate Continuing Calibration Report

Data File : I:\MS13\DATA\2013_10\01\10011303.D Vial: 15
Acq On : 1 Oct 2013 8:31 Operator: EM
Sample : 5ng TO-15 CCV STD Inst : GCMS13
Misc : S25-09181302/S25-09071305 (10/6)

Quant Time: Oct 01 09:14:40 2013
Quant Method : I:\MS13\METHODS\R13082913A.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Aug 30 10:25:43 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

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www.alsglobal.com

LABORATORY REPORT

October 4, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on September 20, 2013. For your reference, these analyses have been assigned our service request number P1304177.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 3:28 pm, Oct 04, 2013

For Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon #2-3620

Service Request No: P1304177

CASE NARRATIVE

The samples were received intact under chain of custody on September 20, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The Tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The Summa Canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	581572
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon #2-3620
Service Request: P1304177

Date Received: 9/20/2013
Time Received: 07:35

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
2-3620-019 (250g)	P1304177-001	Air	9/19/2013	14:00	1SC00482	-1.11	5.27	X	
2-3620-020 (250g)	P1304177-002	Air	9/19/2013	14:45	1SC00495	-0.75	6.23	X	
2-3620-021 (250g)	P1304177-003	Air	9/19/2013	15:30	1SC01107	-1.32	5.32	X	
2-3620-022 (250g)	P1304177-004	Air	9/19/2013	16:15	1SC00613	-1.42	5.60	X	
2-3620-019 (250g)	P1304177-005	Air	9/19/2013	13:45					X
2-3620-020 (250g)	P1304177-006	Air	9/19/2013	14:30					X
2-3620-021 (250g)	P1304177-007	Air	9/19/2013	15:15					X
2-3620-022 (250g)	P1304177-008	Air	9/19/2013	16:00					X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No P1304177

Company Name & Address (Reporting Information)
CH2M Hill
1717 Arch Street; Suite 4400
Philadelphia PA 19103

Project Name Pfizer Tier IV

Project Number Recon # 2-3620

ALS Contact:

Project Manager Richard Traver

P.O. # / Billing Information

Phone 215 640 9105 Fax 215 640 9305

Email Address for Result Reporting Richard.Traver@CH2M.com

Sampler (Print & Sign) Glenn R. Knieriem

Analysis Method: TO-15 | Manador Cmpds

Comments e.g. Actual Preservative or specific instructions

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Manador Cmpds	Comments
2-3620-019 (250d)	1-1.14	9-18-13	1400 CDT	1SC00482	OA01174	-28	-1	1L	x	-	24 hr
-020	2-0.61	9-19-13	1445	1SC00495	OA00403	-29	-1	1L	x	-	
-021	3-1.11	9-19-13	1530	1SC01107	OA01529	-30	-3	1L	x	-	
-022	4-1.32	9-19-13	1615	1SC00613	OA00050	-29	-4	1L	x	-	
—	—	—	—	—	—	—	—	—	—	—	
2-3620-019 (250d)	5	9-19-13	1345 CDT	—	—	—	—	1L	—	x	collected 15 min - tello
-020	6		1430 CDT	—	—	—	—	1L	—	x	
-021	7		1515 CDT	—	—	—	—	1L	—	x	
-022	8		1600 CDT	—	—	—	—	1L	—	x	

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____ Tier III (Results + QC & Calibration Summaries) _____

Tier II (Results + QC Summaries _____ Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No

Type: _____ Units. _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Glenn Knieriem	9-19	1700	FedEx 8034 7580 8941	9-19	1700
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Fedex				9/20/13	0735

Cooler / Blank Temperature _____ °C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1304177

Project: Pfizer Tier IV / Recon #2-3620

Sample(s) received on: 9/20/13 Date opened: 9/20/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☐	☒	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1304177-001.01	1.0 L Source Can					
P1304177-002.01	1.0 L Source Can					
P1304177-003.01	1.0 L Source Can					
P1304177-004.01	1.0 L Source Can					
P1304177-005.01	1 L Zefon Bag					
P1304177-006.01	1 L Zefon Bag					
P1304177-007.01	1 L Zefon Bag					
P1304177-008.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers):

Cainsters were received without ID information, and are assigned by the canister serial numbers listed on COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-019 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304177
ALS Sample ID: P1304177-005

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/19/13
Time Collected: 13:45
Date Received: 9/20/13
Date Analyzed: 9/20/13
Time Analyzed: 09:55
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**77**	12	**32**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**73**	13	**29**	5.0	
75-15-0	Carbon Disulfide	**2,300**	7.8	**750**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**600**	17	**180**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**88**	9.6	**23**	2.5	
616-44-4	3-Methylthiophene	**130**	20	**33**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**130**	23	**27**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-020 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304177
ALS Sample ID: P1304177-006

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/19/13
Time Collected: 14:30
Date Received: 9/20/13
Date Analyzed: 9/20/13
Time Analyzed: 10:13
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**110**	12	**46**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**45**	13	**18**	5.0	
75-15-0	Carbon Disulfide	**2,100**	7.8	**690**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**460**	17	**130**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**90**	9.6	**23**	2.5	
616-44-4	3-Methylthiophene	**130**	20	**33**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**150**	23	**32**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-021 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304177
ALS Sample ID: P1304177-007

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/19/13
Time Collected: 15:15
Date Received: 9/20/13
Date Analyzed: 9/20/13
Time Analyzed: 10:47
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**63**	12	**26**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**160**	13	**64**	5.0	
75-15-0	Carbon Disulfide	**1,500**	7.8	**470**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**520**	17	**150**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**110**	9.6	**29**	2.5	
616-44-4	3-Methylthiophene	**140**	20	**34**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**110**	23	**24**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-022 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304177
ALS Sample ID: P1304177-008

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 9/19/13
Time Collected: 16:00
Date Received: 9/20/13
Date Analyzed: 9/20/13
Time Analyzed: 09:57
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**110**	12	**46**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**42**	13	**16**	5.0	
75-15-0	Carbon Disulfide	**2,800**	7.8	**890**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**600**	17	**170**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**96**	9.6	**25**	2.5	
616-44-4	3-Methylthiophene	**170**	20	**42**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**160**	23	**34**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304177
ALS Sample ID: P130920-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 9/20/13
Time Analyzed: 08:12
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1304177
ALS Sample ID: P130920-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 9/20/13
Time Analyzed: 08:15
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130920-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 9/20/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,850	**3,130**	**110**	63-140	
463-58-1	Carbonyl Sulfide	4,950	**5,380**	**109**	63-138	
74-93-1	Methyl Mercaptan	3,710	**4,810**	**130**	63-144	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130920-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 9/20/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,850	**2,440**	**86**	63-140	
463-58-1	Carbonyl Sulfide	4,950	**4,290**	**87**	63-138	
74-93-1	Methyl Mercaptan	3,710	**3,890**	**105**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-019 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-001

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC00482

Initial Pressure (psig): -1.11 Final Pressure (psig): 5.27

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	15,000	ND	8,500	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	15,000	ND	3,000	
74-87-3	Chloromethane	ND	15,000	ND	7,100	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	15,000	ND	2,100	
75-01-4	Vinyl Chloride	ND	15,000	ND	5,800	
106-99-0	1,3-Butadiene	ND	15,000	ND	6,600	
74-83-9	Bromomethane	ND	15,000	ND	3,800	
75-00-3	Chloroethane	ND	15,000	ND	5,600	
64-17-5	Ethanol	ND	150,000	ND	78,000	
75-05-8	Acetonitrile	ND	15,000	ND	8,800	
107-02-8	Acrolein	ND	59,000	ND	26,000	
67-64-1	Acetone	ND	150,000	ND	62,000	
75-69-4	Trichlorofluoromethane	ND	15,000	ND	2,600	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	150,000	ND	60,000	
107-13-1	Acrylonitrile	ND	15,000	ND	6,800	
75-35-4	1,1-Dichloroethene	ND	15,000	ND	3,700	
75-09-2	Methylene Chloride	ND	15,000	ND	4,200	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	15,000	ND	4,700	
76-13-1	Trichlorotrifluoroethane	ND	15,000	ND	1,900	
75-15-0	Carbon Disulfide	ND	150,000	ND	47,000	
156-60-5	trans-1,2-Dichloroethene	ND	15,000	ND	3,700	
75-34-3	1,1-Dichloroethane	ND	15,000	ND	3,600	
1634-04-4	Methyl tert-Butyl Ether	ND	15,000	ND	4,100	
108-05-4	Vinyl Acetate	ND	150,000	ND	42,000	
78-93-3	2-Butanone (MEK)	ND	150,000	ND	50,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-019 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-001

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC00482

Initial Pressure (psig): -1.11 Final Pressure (psig): 5.27

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	15,000	ND	3,700	
141-78-6	Ethyl Acetate	ND	29,000	ND	8,200	
110-54-3	n-Hexane	ND	15,000	ND	4,200	
67-66-3	Chloroform	ND	15,000	ND	3,000	
109-99-9	Tetrahydrofuran (THF)	ND	15,000	ND	5,000	
107-06-2	1,2-Dichloroethane	ND	15,000	ND	3,600	
71-55-6	1,1,1-Trichloroethane	ND	15,000	ND	2,700	
71-43-2	Benzene	**2,700,000**	15,000	**860,000**	4,600	
56-23-5	Carbon Tetrachloride	ND	15,000	ND	2,300	
110-82-7	Cyclohexane	ND	29,000	ND	8,500	
78-87-5	1,2-Dichloropropane	ND	15,000	ND	3,200	
75-27-4	Bromodichloromethane	ND	15,000	ND	2,200	
79-01-6	Trichloroethene	ND	15,000	ND	2,700	
123-91-1	1,4-Dioxane	ND	15,000	ND	4,100	
80-62-6	Methyl Methacrylate	ND	29,000	ND	7,200	
142-82-5	n-Heptane	ND	15,000	ND	3,600	
10061-01-5	cis-1,3-Dichloropropene	ND	15,000	ND	3,200	
108-10-1	4-Methyl-2-pentanone	ND	15,000	ND	3,600	
10061-02-6	trans-1,3-Dichloropropene	ND	15,000	ND	3,200	
79-00-5	1,1,2-Trichloroethane	ND	15,000	ND	2,700	
108-88-3	Toluene	**970,000**	15,000	**260,000**	3,900	
591-78-6	2-Hexanone	ND	15,000	ND	3,600	
124-48-1	Dibromochloromethane	ND	15,000	ND	1,700	
106-93-4	1,2-Dibromoethane	ND	15,000	ND	1,900	
123-86-4	n-Butyl Acetate	ND	15,000	ND	3,100	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304177
Client Sample ID: **2-3620-019 (250g)** ALS Sample ID: P1304177-001
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC00482

Initial Pressure (psig): -1.11 Final Pressure (psig): 5.27

Canister Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	15,000	ND	3,100	
127-18-4	Tetrachloroethene	ND	15,000	ND	2,200	
108-90-7	Chlorobenzene	ND	15,000	ND	3,200	
100-41-4	Ethylbenzene	ND	15,000	ND	3,400	
179601-23-1	m,p-Xylenes	**74,000**	29,000	**17,000**	6,800	
75-25-2	Bromoform	ND	15,000	ND	1,400	
100-42-5	Styrene	ND	15,000	ND	3,500	
95-47-6	o-Xylene	**16,000**	15,000	**3,800**	3,400	
111-84-2	n-Nonane	ND	15,000	ND	2,800	
79-34-5	1,1,2,2-Tetrachloroethane	ND	15,000	ND	2,100	
98-82-8	Cumene	ND	15,000	ND	3,000	
80-56-8	alpha-Pinene	ND	15,000	ND	2,600	
103-65-1	n-Propylbenzene	ND	15,000	ND	3,000	
622-96-8	4-Ethyltoluene	ND	15,000	ND	3,000	
108-67-8	1,3,5-Trimethylbenzene	ND	15,000	ND	3,000	
95-63-6	1,2,4-Trimethylbenzene	ND	15,000	ND	3,000	
100-44-7	Benzyl Chloride	ND	15,000	ND	2,800	
541-73-1	1,3-Dichlorobenzene	ND	15,000	ND	2,400	
106-46-7	1,4-Dichlorobenzene	ND	15,000	ND	2,400	
95-50-1	1,2-Dichlorobenzene	ND	15,000	ND	2,400	
5989-27-5	d-Limonene	ND	15,000	ND	2,600	
96-12-8	1,2-Dibromo-3-chloropropane	ND	15,000	ND	1,500	
120-82-1	1,2,4-Trichlorobenzene	ND	15,000	ND	2,000	
91-20-3	Naphthalene	ND	15,000	ND	2,800	
87-68-3	Hexachlorobutadiene	ND	15,000	ND	1,400	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-020 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-002

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000090 Liter(s)
Test Notes:
Container ID: 1SC00495

Initial Pressure (psig): -0.75 Final Pressure (psig): 6.23

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	8,300	ND	4,800	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	8,300	ND	1,700	
74-87-3	Chloromethane	ND	8,300	ND	4,000	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	8,300	ND	1,200	
75-01-4	Vinyl Chloride	ND	8,300	ND	3,300	
106-99-0	1,3-Butadiene	ND	8,300	ND	3,800	
74-83-9	Bromomethane	ND	8,300	ND	2,100	
75-00-3	Chloroethane	ND	8,300	ND	3,200	
64-17-5	Ethanol	ND	83,000	ND	44,000	
75-05-8	Acetonitrile	ND	8,300	ND	5,000	
107-02-8	Acrolein	ND	33,000	ND	15,000	
67-64-1	Acetone	ND	83,000	ND	35,000	
75-69-4	Trichlorofluoromethane	ND	8,300	ND	1,500	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	83,000	ND	34,000	
107-13-1	Acrylonitrile	ND	8,300	ND	3,800	
75-35-4	1,1-Dichloroethene	ND	8,300	ND	2,100	
75-09-2	Methylene Chloride	ND	8,300	ND	2,400	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	8,300	ND	2,700	
76-13-1	Trichlorotrifluoroethane	ND	8,300	ND	1,100	
75-15-0	Carbon Disulfide	ND	83,000	ND	27,000	
156-60-5	trans-1,2-Dichloroethene	ND	8,300	ND	2,100	
75-34-3	1,1-Dichloroethane	ND	8,300	ND	2,100	
1634-04-4	Methyl tert-Butyl Ether	ND	8,300	ND	2,300	
108-05-4	Vinyl Acetate	ND	83,000	ND	24,000	
78-93-3	2-Butanone (MEK)	ND	83,000	ND	28,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-020 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-002

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000090 Liter(s)
Test Notes:
Container ID: 1SC00495

Initial Pressure (psig): -0.75 Final Pressure (psig): 6.23

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	8,300	ND	2,100	
141-78-6	Ethyl Acetate	ND	17,000	ND	4,600	
110-54-3	n-Hexane	ND	8,300	ND	2,400	
67-66-3	Chloroform	ND	8,300	ND	1,700	
109-99-9	Tetrahydrofuran (THF)	ND	8,300	ND	2,800	
107-06-2	1,2-Dichloroethane	ND	8,300	ND	2,100	
71-55-6	1,1,1-Trichloroethane	ND	8,300	ND	1,500	
71-43-2	Benzene	**1,800,000**	8,300	**550,000**	2,600	
56-23-5	Carbon Tetrachloride	ND	8,300	ND	1,300	
110-82-7	Cyclohexane	ND	17,000	ND	4,800	
78-87-5	1,2-Dichloropropane	ND	8,300	ND	1,800	
75-27-4	Bromodichloromethane	ND	8,300	ND	1,200	
79-01-6	Trichloroethene	ND	8,300	ND	1,600	
123-91-1	1,4-Dioxane	ND	8,300	ND	2,300	
80-62-6	Methyl Methacrylate	ND	17,000	ND	4,100	
142-82-5	n-Heptane	ND	8,300	ND	2,000	
10061-01-5	cis-1,3-Dichloropropene	ND	8,300	ND	1,800	
108-10-1	4-Methyl-2-pentanone	ND	8,300	ND	2,000	
10061-02-6	trans-1,3-Dichloropropene	ND	8,300	ND	1,800	
79-00-5	1,1,2-Trichloroethane	ND	8,300	ND	1,500	
108-88-3	Toluene	**810,000**	8,300	**220,000**	2,200	
591-78-6	2-Hexanone	ND	8,300	ND	2,000	
124-48-1	Dibromochloromethane	ND	8,300	ND	980	
106-93-4	1,2-Dibromoethane	ND	8,300	ND	1,100	
123-86-4	n-Butyl Acetate	ND	8,300	ND	1,800	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304177
Client Sample ID: **2-3620-020 (250g)** ALS Sample ID: P1304177-002
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000090 Liter(s)
Test Notes:
Container ID: 1SC00495

Initial Pressure (psig): -0.75 Final Pressure (psig): 6.23

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	8,300	ND	1,800	
127-18-4	Tetrachloroethene	ND	8,300	ND	1,200	
108-90-7	Chlorobenzene	ND	8,300	ND	1,800	
100-41-4	Ethylbenzene	**8,800**	8,300	**2,000**	1,900	
179601-23-1	m,p-Xylenes	**65,000**	17,000	**15,000**	3,800	
75-25-2	Bromoform	ND	8,300	ND	810	
100-42-5	Styrene	ND	8,300	ND	2,000	
95-47-6	o-Xylene	**14,000**	8,300	**3,200**	1,900	
111-84-2	n-Nonane	ND	8,300	ND	1,600	
79-34-5	1,1,2,2-Tetrachloroethane	ND	8,300	ND	1,200	
98-82-8	Cumene	**11,000**	8,300	**2,200**	1,700	
80-56-8	alpha-Pinene	ND	8,300	ND	1,500	
103-65-1	n-Propylbenzene	ND	8,300	ND	1,700	
622-96-8	4-Ethyltoluene	ND	8,300	ND	1,700	
108-67-8	1,3,5-Trimethylbenzene	ND	8,300	ND	1,700	
95-63-6	1,2,4-Trimethylbenzene	ND	8,300	ND	1,700	
100-44-7	Benzyl Chloride	ND	8,300	ND	1,600	
541-73-1	1,3-Dichlorobenzene	ND	8,300	ND	1,400	
106-46-7	1,4-Dichlorobenzene	ND	8,300	ND	1,400	
95-50-1	1,2-Dichlorobenzene	ND	8,300	ND	1,400	
5989-27-5	d-Limonene	ND	8,300	ND	1,500	
96-12-8	1,2-Dibromo-3-chloropropane	ND	8,300	ND	860	
120-82-1	1,2,4-Trichlorobenzene	ND	8,300	ND	1,100	
91-20-3	Naphthalene	ND	8,300	ND	1,600	
87-68-3	Hexachlorobutadiene	ND	8,300	ND	780	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-021 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-003

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC01107

Initial Pressure (psig): -1.32 Final Pressure (psig): 5.32

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	13,000	ND	7,300	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	13,000	ND	2,500	
74-87-3	Chloromethane	ND	13,000	ND	6,100	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	13,000	ND	1,800	
75-01-4	Vinyl Chloride	ND	13,000	ND	4,900	
106-99-0	1,3-Butadiene	ND	13,000	ND	5,700	
74-83-9	Bromomethane	ND	13,000	ND	3,200	
75-00-3	Chloroethane	ND	13,000	ND	4,700	
64-17-5	Ethanol	ND	130,000	ND	66,000	
75-05-8	Acetonitrile	ND	13,000	ND	7,400	
107-02-8	Acrolein	ND	50,000	ND	22,000	
67-64-1	Acetone	ND	130,000	ND	53,000	
75-69-4	Trichlorofluoromethane	ND	13,000	ND	2,200	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	130,000	ND	51,000	
107-13-1	Acrylonitrile	ND	13,000	ND	5,800	
75-35-4	1,1-Dichloroethene	ND	13,000	ND	3,200	
75-09-2	Methylene Chloride	ND	13,000	ND	3,600	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	13,000	ND	4,000	
76-13-1	Trichlorotrifluoroethane	ND	13,000	ND	1,600	
75-15-0	Carbon Disulfide	ND	130,000	ND	40,000	
156-60-5	trans-1,2-Dichloroethene	ND	13,000	ND	3,200	
75-34-3	1,1-Dichloroethane	ND	13,000	ND	3,100	
1634-04-4	Methyl tert-Butyl Ether	ND	13,000	ND	3,500	
108-05-4	Vinyl Acetate	ND	130,000	ND	36,000	
78-93-3	2-Butanone (MEK)	ND	130,000	ND	42,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-021 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-003

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC01107

Initial Pressure (psig): -1.32 Final Pressure (psig): 5.32

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	13,000	ND	3,200	
141-78-6	Ethyl Acetate	ND	25,000	ND	6,900	
110-54-3	n-Hexane	ND	13,000	ND	3,500	
67-66-3	Chloroform	ND	13,000	ND	2,600	
109-99-9	Tetrahydrofuran (THF)	ND	13,000	ND	4,200	
107-06-2	1,2-Dichloroethane	ND	13,000	ND	3,100	
71-55-6	1,1,1-Trichloroethane	ND	13,000	ND	2,300	
71-43-2	Benzene	**1,900,000**	13,000	**610,000**	3,900	
56-23-5	Carbon Tetrachloride	ND	13,000	ND	2,000	
110-82-7	Cyclohexane	ND	25,000	ND	7,300	
78-87-5	1,2-Dichloropropane	ND	13,000	ND	2,700	
75-27-4	Bromodichloromethane	ND	13,000	ND	1,900	
79-01-6	Trichloroethene	ND	13,000	ND	2,300	
123-91-1	1,4-Dioxane	ND	13,000	ND	3,500	
80-62-6	Methyl Methacrylate	ND	25,000	ND	6,100	
142-82-5	n-Heptane	ND	13,000	ND	3,100	
10061-01-5	cis-1,3-Dichloropropene	ND	13,000	ND	2,800	
108-10-1	4-Methyl-2-pentanone	ND	13,000	ND	3,100	
10061-02-6	trans-1,3-Dichloropropene	ND	13,000	ND	2,800	
79-00-5	1,1,2-Trichloroethane	ND	13,000	ND	2,300	
108-88-3	Toluene	**650,000**	13,000	**170,000**	3,300	
591-78-6	2-Hexanone	ND	13,000	ND	3,100	
124-48-1	Dibromochloromethane	ND	13,000	ND	1,500	
106-93-4	1,2-Dibromoethane	ND	13,000	ND	1,600	
123-86-4	n-Butyl Acetate	ND	13,000	ND	2,600	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304177
Client Sample ID: **2-3620-021 (250g)** ALS Sample ID: P1304177-003
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC01107

Initial Pressure (psig): -1.32 Final Pressure (psig): 5.32

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	13,000	ND	2,700	
127-18-4	Tetrachloroethene	ND	13,000	ND	1,800	
108-90-7	Chlorobenzene	ND	13,000	ND	2,700	
100-41-4	Ethylbenzene	ND	13,000	ND	2,900	
179601-23-1	m,p-Xylenes	**54,000**	25,000	**12,000**	5,800	
75-25-2	Bromoform	ND	13,000	ND	1,200	
100-42-5	Styrene	ND	13,000	ND	2,900	
95-47-6	o-Xylene	ND	13,000	ND	2,900	
111-84-2	n-Nonane	ND	13,000	ND	2,400	
79-34-5	1,1,2,2-Tetrachloroethane	ND	13,000	ND	1,800	
98-82-8	Cumene	ND	13,000	ND	2,500	
80-56-8	alpha-Pinene	ND	13,000	ND	2,200	
103-65-1	n-Propylbenzene	ND	13,000	ND	2,500	
622-96-8	4-Ethyltoluene	ND	13,000	ND	2,500	
108-67-8	1,3,5-Trimethylbenzene	ND	13,000	ND	2,500	
95-63-6	1,2,4-Trimethylbenzene	ND	13,000	ND	2,500	
100-44-7	Benzyl Chloride	ND	13,000	ND	2,400	
541-73-1	1,3-Dichlorobenzene	ND	13,000	ND	2,100	
106-46-7	1,4-Dichlorobenzene	ND	13,000	ND	2,100	
95-50-1	1,2-Dichlorobenzene	ND	13,000	ND	2,100	
5989-27-5	d-Limonene	ND	13,000	ND	2,200	
96-12-8	1,2-Dibromo-3-chloropropane	ND	13,000	ND	1,300	
120-82-1	1,2,4-Trichlorobenzene	ND	13,000	ND	1,700	
91-20-3	Naphthalene	ND	13,000	ND	2,400	
87-68-3	Hexachlorobutadiene	ND	13,000	ND	1,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-022 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-004

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00613

Initial Pressure (psig): -1.42 Final Pressure (psig): 5.60

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	13,000	ND	7,400	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	13,000	ND	2,600	
74-87-3	Chloromethane	ND	13,000	ND	6,200	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	13,000	ND	1,800	
75-01-4	Vinyl Chloride	ND	13,000	ND	5,000	
106-99-0	1,3-Butadiene	ND	13,000	ND	5,800	
74-83-9	Bromomethane	ND	13,000	ND	3,300	
75-00-3	Chloroethane	ND	13,000	ND	4,800	
64-17-5	Ethanol	ND	130,000	ND	68,000	
75-05-8	Acetonitrile	ND	13,000	ND	7,600	
107-02-8	Acrolein	ND	51,000	ND	22,000	
67-64-1	Acetone	ND	130,000	ND	54,000	
75-69-4	Trichlorofluoromethane	ND	13,000	ND	2,300	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	130,000	ND	52,000	
107-13-1	Acrylonitrile	ND	13,000	ND	5,900	
75-35-4	1,1-Dichloroethene	ND	13,000	ND	3,200	
75-09-2	Methylene Chloride	ND	13,000	ND	3,700	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	13,000	ND	4,100	
76-13-1	Trichlorotrifluoroethane	ND	13,000	ND	1,700	
75-15-0	Carbon Disulfide	ND	130,000	ND	41,000	
156-60-5	trans-1,2-Dichloroethene	ND	13,000	ND	3,200	
75-34-3	1,1-Dichloroethane	ND	13,000	ND	3,200	
1634-04-4	Methyl tert-Butyl Ether	ND	13,000	ND	3,500	
108-05-4	Vinyl Acetate	ND	130,000	ND	36,000	
78-93-3	2-Butanone (MEK)	ND	130,000	ND	43,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-022 (250g)** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1304177-004

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00613

Initial Pressure (psig): -1.42 Final Pressure (psig): 5.60

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	13,000	ND	3,200	
141-78-6	Ethyl Acetate	ND	26,000	ND	7,100	
110-54-3	n-Hexane	ND	13,000	ND	3,600	
67-66-3	Chloroform	ND	13,000	ND	2,600	
109-99-9	Tetrahydrofuran (THF)	ND	13,000	ND	4,300	
107-06-2	1,2-Dichloroethane	ND	13,000	ND	3,200	
71-55-6	1,1,1-Trichloroethane	ND	13,000	ND	2,300	
71-43-2	Benzene	**2,500,000**	13,000	**790,000**	4,000	
56-23-5	Carbon Tetrachloride	ND	13,000	ND	2,000	
110-82-7	Cyclohexane	ND	26,000	ND	7,400	
78-87-5	1,2-Dichloropropane	ND	13,000	ND	2,800	
75-27-4	Bromodichloromethane	ND	13,000	ND	1,900	
79-01-6	Trichloroethene	ND	13,000	ND	2,400	
123-91-1	1,4-Dioxane	ND	13,000	ND	3,500	
80-62-6	Methyl Methacrylate	ND	26,000	ND	6,200	
142-82-5	n-Heptane	ND	13,000	ND	3,100	
10061-01-5	cis-1,3-Dichloropropene	ND	13,000	ND	2,800	
108-10-1	4-Methyl-2-pentanone	ND	13,000	ND	3,100	
10061-02-6	trans-1,3-Dichloropropene	ND	13,000	ND	2,800	
79-00-5	1,1,2-Trichloroethane	ND	13,000	ND	2,300	
108-88-3	Toluene	**1,000,000**	13,000	**280,000**	3,400	
591-78-6	2-Hexanone	ND	13,000	ND	3,100	
124-48-1	Dibromochloromethane	ND	13,000	ND	1,500	
106-93-4	1,2-Dibromoethane	ND	13,000	ND	1,700	
123-86-4	n-Butyl Acetate	ND	13,000	ND	2,700	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304177
Client Sample ID: **2-3620-022 (250g)** ALS Sample ID: P1304177-004
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 9/19/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 9/20/13
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00613

Initial Pressure (psig): -1.42 Final Pressure (psig): 5.60

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	13,000	ND	2,700	
127-18-4	Tetrachloroethene	ND	13,000	ND	1,900	
108-90-7	Chlorobenzene	ND	13,000	ND	2,800	
100-41-4	Ethylbenzene	ND	13,000	ND	2,900	
179601-23-1	m,p-Xylenes	**84,000**	26,000	**19,000**	5,900	
75-25-2	Bromoform	ND	13,000	ND	1,200	
100-42-5	Styrene	ND	13,000	ND	3,000	
95-47-6	o-Xylene	**19,000**	13,000	**4,300**	2,900	
111-84-2	n-Nonane	ND	13,000	ND	2,400	
79-34-5	1,1,2,2-Tetrachloroethane	ND	13,000	ND	1,900	
98-82-8	Cumene	**15,000**	13,000	**3,100**	2,600	
80-56-8	alpha-Pinene	ND	13,000	ND	2,300	
103-65-1	n-Propylbenzene	ND	13,000	ND	2,600	
622-96-8	4-Ethyltoluene	ND	13,000	ND	2,600	
108-67-8	1,3,5-Trimethylbenzene	ND	13,000	ND	2,600	
95-63-6	1,2,4-Trimethylbenzene	ND	13,000	ND	2,600	
100-44-7	Benzyl Chloride	ND	13,000	ND	2,500	
541-73-1	1,3-Dichlorobenzene	ND	13,000	ND	2,100	
106-46-7	1,4-Dichlorobenzene	ND	13,000	ND	2,100	
95-50-1	1,2-Dichlorobenzene	ND	13,000	ND	2,100	
5989-27-5	d-Limonene	ND	13,000	ND	2,300	
96-12-8	1,2-Dibromo-3-chloropropane	ND	13,000	ND	1,300	
120-82-1	1,2,4-Trichlorobenzene	ND	13,000	ND	1,700	
91-20-3	Naphthalene	ND	13,000	ND	2,400	
87-68-3	Hexachlorobutadiene	ND	13,000	ND	1,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131003-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1304177

Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131003-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: Wida Ang Date Analyzed: 10/3/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1304177

Client Sample ID: **Method Blank** ALS Sample ID: P131003-MB

Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: Wida Ang Date Analyzed: 10/3/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Project ID: P1304177

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 9/19/13
Analyst: Wida Ang Date(s) Received: 9/20/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 10/3/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P131003-MB	**100**	**100**	**97**	70-130	
Lab Control Sample	P131003-LCS	**99**	**100**	**100**	70-130	
2-3620-019 (250g)	P1304177-001	**99**	**99**	**98**	70-130	
2-3620-020 (250g)	P1304177-002	**100**	**100**	**98**	70-130	
2-3620-021 (250g)	P1304177-003	**100**	**100**	**98**	70-130	
2-3620-022 (250g)	P1304177-004	**100**	**99**	**99**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131003-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**205**	**103**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**186**	**91**	63-115	
74-87-3	Chloromethane	198	**192**	**97**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**175**	**86**	65-115	
75-01-4	Vinyl Chloride	200	**183**	**92**	64-122	
106-99-0	1,3-Butadiene	212	**205**	**97**	57-141	
74-83-9	Bromomethane	200	**168**	**84**	68-122	
75-00-3	Chloroethane	202	**176**	**87**	66-120	
64-17-5	Ethanol	1,020	**1010**	**99**	58-126	
75-05-8	Acetonitrile	202	**180**	**89**	64-136	
107-02-8	Acrolein	214	**202**	**94**	58-129	
67-64-1	Acetone	1,080	**955**	**88**	60-114	
75-69-4	Trichlorofluoromethane	198	**167**	**84**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**357**	**85**	54-118	
107-13-1	Acrylonitrile	208	**195**	**94**	72-143	
75-35-4	1,1-Dichloroethene	214	**194**	**91**	69-119	
75-09-2	Methylene Chloride	216	**165**	**76**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**221**	**102**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**184**	**86**	69-117	
75-15-0	Carbon Disulfide	196	**171**	**87**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**192**	**91**	70-126	
75-34-3	1,1-Dichloroethane	208	**187**	**90**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**155**	**73**	69-120	
108-05-4	Vinyl Acetate	1,020	**1130**	**111**	58-160	
78-93-3	2-Butanone (MEK)	218	**205**	**94**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131003-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**194**	**91**	70-119	
141-78-6	Ethyl Acetate	426	**410**	**96**	72-129	
110-54-3	n-Hexane	210	**182**	**87**	63-115	
67-66-3	Chloroform	214	**183**	**86**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**175**	**85**	60-126	
107-06-2	1,2-Dichloroethane	210	**181**	**86**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**180**	**87**	68-120	
71-43-2	Benzene	220	**180**	**82**	69-117	
56-23-5	Carbon Tetrachloride	210	**188**	**90**	65-134	
110-82-7	Cyclohexane	420	**371**	**88**	69-114	
78-87-5	1,2-Dichloropropane	212	**189**	**89**	70-116	
75-27-4	Bromodichloromethane	214	**202**	**94**	71-126	
79-01-6	Trichloroethene	208	**177**	**85**	71-119	
123-91-1	1,4-Dioxane	218	**192**	**88**	72-126	
80-62-6	Methyl Methacrylate	420	**402**	**96**	75-136	
142-82-5	n-Heptane	214	**199**	**93**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**213**	**94**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**216**	**99**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**208**	**96**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**191**	**91**	72-119	
108-88-3	Toluene	210	**183**	**87**	65-116	
591-78-6	2-Hexanone	222	**217**	**98**	62-132	
124-48-1	Dibromochloromethane	220	**211**	**96**	66-140	
106-93-4	1,2-Dibromoethane	216	**197**	**91**	69-130	
123-86-4	n-Butyl Acetate	224	**225**	**100**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1304177
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P131003-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**195**	**94**	66-118	
127-18-4	Tetrachloroethene	196	**170**	**87**	63-123	
108-90-7	Chlorobenzene	216	**186**	**86**	66-118	
100-41-4	Ethylbenzene	212	**186**	**88**	66-119	
179601-23-1	m,p-Xylenes	420	**370**	**88**	64-118	
75-25-2	Bromoform	216	**220**	**102**	64-140	
100-42-5	Styrene	218	**202**	**93**	68-132	
95-47-6	o-Xylene	206	**180**	**87**	65-120	
111-84-2	n-Nonane	206	**188**	**91**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**187**	**93**	63-128	
98-82-8	Cumene	204	**179**	**88**	65-121	
80-56-8	alpha-Pinene	208	**191**	**92**	66-123	
103-65-1	n-Propylbenzene	202	**180**	**89**	65-121	
622-96-8	4-Ethyltoluene	212	**189**	**89**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**187**	**88**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**184**	**87**	64-131	
100-44-7	Benzyl Chloride	222	**244**	**110**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**182**	**82**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**179**	**84**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**183**	**84**	63-126	
5989-27-5	d-Limonene	210	**209**	**100**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**207**	**98**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**186**	**85**	59-146	
91-20-3	Naphthalene	204	**187**	**92**	56-143	
87-68-3	Hexachlorobutadiene	218	**183**	**84**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Response Factor Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

Response Factor Report GC #22

Method Path : J:\GC22\METHODS\
Method File : GC22082213.M
Title : 20 Sulfurs Initial Calibration
Last Update : Thu Aug 22 17:54:13 2013
Response Via : Initial Calibration

Calibration Files
1 =08221325.d 2 =08221327.d 3 =08221328.d
4 =08221332.d 5 =08221330.d 6 =08221331.d

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	4.159	4.956	4.382	4.513	4.985	4.746	4.624	E4	7.12
2)	W	Carbonyl_Sulfide	5.163	4.267	5.827	4.914	5.551	5.207	5.155	E4	10.48
3)	T	Methyl_Mercaptan	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
4)	T	Ethyl_Mercaptan	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
5)	T	Dimethyl_Sulfide	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
6)	T	Carbon_Disulfide	6.565	6.311	8.632	8.044	9.146	9.359	8.009	E4	16.25
7)	T	2-Propyl_Merc...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
8)	T	t-Butyl_Merca...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
9)	T	Propyl_Mercaptan	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
10)	T	Ethyl_Methyl_...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
11)	T	Thiophene	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
12)	T	i-Butyl_Merca...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
13)	T	Diethyl_Sulfide	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
14)	T	n-Butyl_Merca...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
15)	T	Dimethyl_Disu...	6.565	6.311	8.632	8.044	9.146	9.359	8.009	E4	16.25
16)	T	2-Methylthiop...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
17)	T	3-Methylthiop...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
18)	T	Tetrahydrothi...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
19)	T	2,5-Dimethylt...	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
20)	T	2-Ethylthiophene	3.282	3.155	4.316	4.022	4.573	4.679	4.005	E4	16.25
21)	T	Diethyl_Disul...	6.565	6.311	8.632	8.044	9.146	9.359	8.009	E4	16.25
22)	T	Methyltrisulfide	0.985	0.947	1.295	1.207	1.372	1.404	1.201	E5	16.25

(#) = Out of Range

GC22082213.M Thu Aug 22 17:54:34 2013

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : CH2M Hill
Analyst : mc

Service Request : P1304177
Instrument : GC13
Date Acquired : 9/20/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std 2000ppb s27-08271301		std 2000ppb s27-08271301		std 2000ppb s27-08271301							
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						2068.80	3.9%	1868.137	6.2%	1887.284	5.3%						
Carbonyl_Sulfide	1.900	5.000	ND	P						2045.98	0.7%	1855.475	8.7%	1887.632	7.1%						
Methyl_Mercaptan	2.200	5.000	ND	P						2113.56	4.5%	1937.260	4.2%	1970.449	2.5%						
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						7:34 AM		8:31 AM		11:59 AM							
Carbon_Disulfide	1.100	2.500	ND	P						09201301.D		09201306.D		09201317.D							
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			8:12 AM																		
DataFile			09201305.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	2245.73	109.8%					2045.54
Carbonyl_Sulfide	2191.99	108.6%					2017.48
Methyl_Mercaptan	2448.02	129.7%					1887.74
Acqisition Time	7:39 AM						
DataFile	09201302.D						

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs Initial Calibration
Client : CH2M Hill
Analyst : MC

Service Request : P1304177
Instrument : GC #22
Date Acquired : 9/20/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std 2000ppb s27-08271301		std 2000ppb s27-08271301		std 2000ppb s27-08271301							
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						1550.70	22.2%	1690.753	15.1%	1747.117	12.3%						
Carbonyl_Sulfide	1.900	5.000	ND	P						1541.30	24.1%	1705.169	16.1%	1747.677	14.0%						
Methyl_Mercaptan	2.200	5.000	ND	P						1690.00	16.4%	1857.803	8.1%	1893.755	6.3%						
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						7:38 AM		8:34 AM		12:25 PM							
Carbon_Disulfide	1.100	2.500	ND	P						09201302.d		09201307.d		09201318.d							
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			8:15 AM																		
DataFile			09201306.d																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	1747.96	85.5%					2045.54
Carbonyl_Sulfide	1744.88	86.5%					2017.48
Methyl_Mercaptan	1975.83	104.7%					1887.74
Acqisition Time	7:43 AM						
DataFile	09201303.d						

MC 9/20/13

Response Factor Report MS09

Method Path : I:\MS09\Methods\
Method File : R9091313.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Sep 13 07:21:26 2013
Response Via : Initial Calibration

Calibration Files
0.08=09131302.D 0.10=09131303.D 0.20=09131304.D 0.40=09131305.D 1.0 =09131306.D 5.0 =09131307.D
25 =09131308.D 50 =09131309.D 100 =09131310.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	ISTD										
2)	T	Propene	1.268	1.100	1.063	1.020	1.051	0.920	0.946	1.098	1.125	1.066	9.63
3)	T	Dichlorodifluo...	2.672	2.587	2.501	2.425	2.779	2.475	2.448	2.335	2.184	2.490	7.10
4)	T	Chloromethane	1.530	1.497	1.470	1.373	1.628	1.490	1.491	1.374	1.243	1.455	7.63
5)	T	1,2-Dichloro-1...	1.433	1.496	1.398	1.309	1.488	1.307	1.323	1.270	1.191	1.357	7.59
6)	T	Vinyl Chloride	1.546	1.615	1.549	1.499	1.712	1.531	1.540	1.471	1.374	1.537	6.05
7)	T	1,3-Butadiene	1.082	1.020	1.004	0.871	1.112	0.990	1.043	0.988	0.930	1.004	7.29
8)	T	Bromomethane		2.184	1.550	1.256	1.460	1.090	1.260	1.185	0.989	1.372	27.35
9)	T	Chloroethane	1.016	1.049	0.995	0.958	1.017	0.886	0.873	0.825	0.775	0.933	10.32
10)	T	Ethanol	0.766	0.727	0.787	0.714	0.739	0.644	0.734	0.685	0.628	0.714	7.38
11)	T	Acetonitrile	2.471	2.379	2.143	1.947	1.921	1.706	1.790	1.714	1.646	1.969	15.28
12)	T	Acrolein	0.786	0.732	0.692	0.662	0.749	0.667	0.610	0.584	0.562	0.672	11.42
13)	T	Acetone			0.891	0.849	0.903	0.774	0.731	0.673	0.610	0.776	14.39
14)	T	Trichlorofluor...	2.429	2.590	2.401	2.329	2.590	2.314	2.272	2.192	2.091	2.356	7.09
15)	T	2-Propanol (Is...	2.876	2.878	2.819	2.574	2.801	2.517	2.512	1.958	1.587	2.503	17.93
16)	T	Acrylonitrile	1.478	1.474	1.543	1.437	1.565	1.381	1.400	1.356	1.299	1.437	6.07
17)	T	1,1-Dichloroet...	1.106	1.222	1.218	1.160	1.346	1.205	1.209	1.171	1.119	1.195	5.88
18)	T	2-Methyl-2-Pro...	3.008	3.078	2.785	2.331	3.230	2.780	2.790	2.080	1.482	2.618	21.28
19)	T	Methylene Chlo...			1.783	1.570	1.533	1.308	1.282	1.240	1.181	1.414	15.48
20)	T	3-Chloro-1-pro...	1.173	1.108	1.153	1.191	1.373	1.277	1.313	1.269	1.225	1.231	6.85
21)	T	Trichlorotrifl...	1.124	1.150	1.197	1.087	1.292	1.111	1.121	1.061	0.974	1.124	7.84
22)	T	Carbon Disulfide	5.754	6.042	5.136	4.809	5.194	4.647	4.577	4.375	4.096	4.959	12.84
23)	T	trans-1,2-Dich...	1.815	1.699	1.689	1.686	1.886	1.697	1.692	1.631	1.549	1.705	5.69
24)	T	1,1-Dichloroet...	2.248	2.157	2.117	2.040	2.299	2.068	2.037	1.976	1.860	2.089	6.46
25)	T	Methyl tert-Bu...	3.747	3.804	3.658	3.407	3.968	3.634	3.580	3.033	2.408	3.471	13.79
26)	T	Vinyl Acetate	0.163	0.211	0.214	0.229	0.253	0.264	0.255	0.246	0.228	0.229	13.56
27)	T	2-Butanone (MEK)	0.639	0.733	0.718	0.750	0.828	0.750	0.756	0.735	0.696	0.734	6.91
28)	T	cis-1,2-Dichlo...	1.577	1.583	1.632	1.574	1.734	1.552	1.564	1.513	1.432	1.573	5.21
29)	T	Diisopropyl Ether	1.262	1.228	1.251	1.173	1.143	0.997	0.966	0.920	0.820	1.084	14.92
30)	T	Ethyl Acetate	0.328	0.395	0.388	0.393	0.439	0.392	0.387	0.358	0.312	0.377	10.20
31)	T	n-Hexane	2.056	2.076	1.974	1.921	1.972	1.779	1.632	1.550	1.336	1.811	14.10
32)	T	Chloroform	2.359	2.369	2.093	2.109	2.371	2.085	2.110	2.055	1.938	2.165	7.36
33)	S	1,2-Dichloroet...	1.384	1.397	1.384	1.387	1.394	1.392	1.387	1.407	1.399	1.392	0.54
34)	T	Tetrahydrofura...	0.994	0.974	0.834	0.756	0.851	0.765	0.756	0.739	0.703	0.819	12.70
35)	T	Ethyl tert-But...	1.399	1.425	1.413	1.443	1.592	1.473	1.489	1.453	1.377	1.451	4.37
36)	T	1,2-Dichloroet...	1.647	1.704	1.591	1.538	1.732	1.540	1.569	1.541	1.469	1.592	5.39
37)	IR	1,4-Difluorobenzen...	ISTD										
38)	T	1,1,1-Trichlor...	0.380	0.407	0.392	0.373	0.434	0.391	0.392	0.378	0.357	0.390	5.63

Method Path : I:\MS09\Methods\
Method File : R9091313.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.135	0.125	0.136	0.129	0.144	0.134	0.129	0.120	0.108	0.129	7.98
40)	T	1-Butanol			0.242	0.226	0.192	0.180	0.208	0.192	0.175	0.202	12.18
41)	T	Benzene			1.370	1.097	1.104	0.953	0.915	0.874	0.813	1.018	18.60
42)	T	Carbon Tetrach...	0.326	0.354	0.343	0.332	0.382	0.348	0.340	0.332	0.315	0.341	5.65
43)	T	Cyclohexane	0.405	0.403	0.389	0.372	0.423	0.376	0.368	0.346	0.309	0.377	9.14
44)	T	tert-Amyl Meth...	0.717	0.725	0.720	0.673	0.767	0.701	0.703	0.676	0.635	0.702	5.37
45)	T	1,2-Dichloropr...	0.246	0.239	0.236	0.223	0.254	0.226	0.222	0.214	0.201	0.229	7.21
46)	T	Bromodichlorom...	0.302	0.330	0.319	0.300	0.355	0.325	0.331	0.321	0.303	0.321	5.44
47)	T	Trichloroethene	0.350	0.318	0.312	0.280	0.331	0.293	0.289	0.279	0.261	0.301	9.36
48)	T	1,4-Dioxane	0.216	0.229	0.221	0.212	0.211	0.193	0.201	0.192	0.178	0.206	7.94
49)	T	2,2,4-Trimethy...	1.053	1.063	0.995	0.959	1.085	0.964	0.947	0.895	0.818	0.975	8.77
50)	T	Methyl Methacr...	0.098	0.098	0.096	0.099	0.112	0.104	0.108	0.104	0.096	0.102	5.64
51)	T	n-Heptane	0.219	0.226	0.232	0.228	0.263	0.227	0.224	0.218	0.201	0.226	7.27
52)	T	cis-1,3-Dichlo...	0.364	0.389	0.353	0.341	0.407	0.377	0.390	0.378	0.354	0.373	5.71
53)	T	4-Methyl-2-pen...	0.192	0.184	0.180	0.183	0.218	0.199	0.203	0.194	0.180	0.193	6.66
54)	T	trans-1,3-Dich...	0.335	0.329	0.303	0.305	0.346	0.341	0.360	0.352	0.337	0.334	5.80
55)	T	1,1,2-Trichlor...	0.250	0.246	0.250	0.252	0.272	0.248	0.247	0.237	0.223	0.247	5.19
56)	IR	Chlorobenzene-d5 (...	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.612	2.622	2.634	2.610	2.621	2.623	2.644	2.668	2.653	2.632	0.74
58)	T	Toluene	2.937	2.873	2.743	2.614	2.929	2.621	2.607	2.498	2.296	2.680	7.95
59)	T	2-Hexanone	1.103	1.016	1.043	1.015	1.063	1.001	1.065	1.021	0.956	1.032	4.15
60)	T	Dibromochlorom...	0.674	0.625	0.630	0.644	0.771	0.699	0.742	0.725	0.691	0.689	7.41
61)	T	1,2-Dibromoethane	0.692	0.704	0.653	0.660	0.765	0.694	0.717	0.700	0.661	0.694	4.99
62)	T	n-Butyl Acetate	1.137	1.038	1.105	1.082	1.156	1.126	1.173	1.134	1.058	1.112	4.07
63)	T	n-Octane	0.442	0.472	0.476	0.468	0.545	0.477	0.480	0.461	0.419	0.471	7.22
64)	T	Tetrachloroethene	0.903	0.870	0.864	0.827	0.931	0.835	0.846	0.823	0.772	0.852	5.48
65)	T	Chlorobenzene	1.943	1.883	1.839	1.761	1.948	1.745	1.756	1.681	1.560	1.791	7.07
66)	T	Ethylbenzene	3.123	3.083	3.071	2.828	3.272	2.950	2.946	2.799	2.576	2.961	6.99
67)	T	m- & p-Xylenes	2.493	2.524	2.375	2.345	2.703	2.406	2.405	2.279	2.068	2.400	7.29
68)	T	Bromoform	0.537	0.540	0.581	0.534	0.632	0.604	0.662	0.653	0.629	0.597	8.50
69)	T	Styrene	1.818	1.753	1.710	1.660	1.977	1.825	1.874	1.789	1.647	1.784	5.91
70)	T	o-Xylene	2.667	2.615	2.481	2.376	2.759	2.443	2.488	2.371	2.159	2.484	7.23
71)	T	n-Nonane	1.041	1.049	1.023	0.995	1.153	1.009	0.999	0.934	0.837	1.005	8.53
72)	T	1,1,2,2-Tetrac...	1.104	1.073	1.076	1.042	1.185	1.083	1.104	1.050	0.955	1.075	5.69
73)	S	Bromofluoroben...	1.067	1.075	1.075	1.069	1.070	1.063	1.077	1.082	1.060	1.071	0.64
74)	T	Cumene	3.383	3.325	3.221	3.055	3.535	3.182	3.205	3.023	2.737	3.185	7.25
75)	T	alpha-Pinene	1.472	1.487	1.492	1.426	1.607	1.514	1.550	1.470	1.345	1.485	4.97
76)	T	n-Propylbenzene	3.895	3.842	3.747	3.633	4.279	3.777	3.766	3.542	3.187	3.741	7.82
77)	T	3-Ethyltoluene	3.133	3.160	3.085	2.935	3.428	3.046	3.021	2.950	2.573	3.037	7.48
78)	T	4-Ethyltoluene	2.982	3.032	2.965	2.895	3.323	2.952	3.043	2.768	2.582	2.949	6.86
79)	T	1,3,5-Trimethy...	2.587	2.628	2.574	2.487	2.913	2.532	2.609	2.454	2.231	2.557	7.02
80)	T	alpha-Methylst...	1.255	1.252	1.241	1.265	1.457	1.356	1.439	1.359	1.237	1.318	6.60
81)	T	2-Ethyltoluene	3.095	3.151	3.005	2.948	3.374	2.934	2.963	2.790	2.524	2.976	7.94
82)	T	1,2,4-Trimethy...	2.669	2.657	2.602	2.523	2.919	2.603	2.606	2.398	2.100	2.564	8.67
83)	T	n-Decane	1.225	1.221	1.204	1.202	1.391	1.199	1.166	1.060	0.924	1.177	10.81
84)	T	Benzyl Chloride			1.409	1.435	1.694	1.827	2.043	1.965	1.790	1.738	14.04
85)	T	1,3-Dichlorobe...	1.805	1.698	1.598	1.548	1.754	1.503	1.548	1.465	1.320	1.582	9.59
86)	T	1,4-Dichlorobe...	1.787	1.752	1.675	1.582	1.776	1.553	1.604	1.516	1.397	1.627	8.10

Method Path : I:\MS09\Methods\
Method File : R9091313.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	3.506	3.458	3.344	3.295	3.786	3.309	3.339	3.116	2.794	3.328	8.16
88)	T	4-Isopropyltol...	3.353	3.390	3.311	3.226	3.749	3.264	3.234	2.943	2.511	3.220	10.51
89)	T	1,2,3-Trimethy...	2.742	2.743	2.691	2.560	2.957	2.607	2.633	2.423	2.107	2.607	9.13
90)	T	1,2-Dichlorobe...	1.673	1.629	1.565	1.490	1.698	1.444	1.503	1.410	1.265	1.520	9.11
91)	T	d-Limonene	0.710	0.789	0.820	0.805	0.905	0.820	0.887	0.821	0.724	0.809	7.97
92)	T	1,2-Dibromo-3-...	0.479	0.467	0.462	0.481	0.519	0.513	0.582	0.562	0.532	0.511	8.31
93)	T	n-Undecane	1.299	1.165	1.191	1.197	1.471	1.291	1.279	1.186	1.042	1.236	9.61
94)	T	1,2,4-Trichlor...	1.374	1.310	1.175	1.104	1.257	1.148	1.254	1.192	1.095	1.212	7.76
95)	T	Naphthalene	4.693	4.138	3.705	3.576	3.959	3.633	4.126	3.850	3.416	3.900	9.90
96)	T	n-Dodecane	1.591	1.283	1.140	1.110	1.462	1.300	1.248	1.154	1.005	1.255	14.53
97)	T	Hexachlorobuta...	0.840	0.824	0.776	0.730	0.805	0.722	0.764	0.738	0.687	0.765	6.66
98)	T	Cyclohexanone	0.832	0.733	0.739	0.689	0.704	0.651	0.723	0.699	0.659	0.714	7.51
99)	T	tert-Butylbenzene	2.712	2.615	2.571	2.471	2.794	2.468	2.443	2.241	1.945	2.473	10.35
100)	T	n-Butylbenzene	2.732	2.609	2.577	2.550	2.877	2.563	2.594	2.422	2.168	2.566	7.62

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\MS09\Data\2013_10\03\10031301.D Vial: 15
Acq On : 3 Oct 2013 5:40 Operator: WA
Sample : 5ng TO-15 CCV STD (25mL) Inst : MS09
Misc : S25-09031301/S25-09101301(10/8)

Quant Time: Oct 03 07:03:10 2013
Quant Method : I:\MS09\Methods\R9091313.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Sep 13 07:21:26 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	103	-0.03
2	T	Propene	1.066	0.999	6.3	112	-0.01
3	T	Dichlorodifluoromethane (CF	2.490	2.453	1.5	102	0.00
4	T	Chloromethane	1.455	1.546	-6.3	107	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.357	1.284	5.4	101	-0.01
6	T	Vinyl Chloride	1.537	1.536	0.1	103	-0.02
7	T	1,3-Butadiene	1.004	1.082	-7.8	113	-0.02
8	T	Bromomethane	1.372	1.262	8.0	119	-0.02
9	T	Chloroethane	0.933	0.880	5.7	102	-0.02
10	T	Ethanol	0.714	0.737	-3.2	118	-0.09
11	T	Acetonitrile	1.969	1.837	6.7	111	-0.06
12	T	Acrolein	0.672	0.673	-0.1	104	-0.04
13	T	Acetone	0.776	0.805	-3.7	107	-0.05
14	T	Trichlorofluoromethane	2.356	2.188	7.1	97	-0.01
15	T	2-Propanol (Isopropanol)	2.503	2.692	-7.6	110	-0.07
16	T	Acrylonitrile	1.437	1.433	0.3	107	-0.05
17	T	1,1-Dichloroethene	1.195	1.201	-0.5	103	-0.02
18	T	2-Methyl-2-Propanol (tert-B	2.618	3.003	-14.7	111	-0.06
19	T	Methylene Chloride	1.414	1.295	8.4	102	-0.04
20	T	3-Chloro-1-propene (Allyl C	1.231	1.348	-9.5	109	-0.03
21	T	Trichlorotrifluoroethane	1.124	1.060	5.7	98	-0.02
22	T	Carbon Disulfide	4.959	4.674	5.7	104	-0.02
23	T	trans-1,2-Dichloroethene	1.705	1.682	1.3	102	-0.03
24	T	1,1-Dichloroethane	2.089	2.064	1.2	103	-0.03
25	T	Methyl tert-Butyl Ether	3.471	3.592	-3.5	102	-0.02
26	T	Vinyl Acetate	0.229	0.267	-16.6	104	-0.04
27	T	2-Butanone (MEK)	0.734	0.761	-3.7	105	-0.03
28	T	cis-1,2-Dichloroethene	1.573	1.562	0.7	104	-0.03
29	T	Diisopropyl Ether	1.084	0.995	8.2	103	-0.02
30	T	Ethyl Acetate	0.377	0.409	-8.5	108	-0.03
31	T	n-Hexane	1.811	1.784	1.5	103	-0.01
32	T	Chloroform	2.165	2.083	3.8	103	-0.04
33	S	1,2-Dichloroethane-d4(SS1)	1.392	1.394	-0.1	103	-0.03
34	T	Tetrahydrofuran (THF)	0.819	0.758	7.4	102	-0.02
35	T	Ethyl tert-Butyl Ether	1.451	1.454	-0.2	102	-0.01
36	T	1,2-Dichloroethane	1.592	1.521	4.5	102	-0.03
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	105	-0.02
38	T	1,1,1-Trichloroethane	0.390	0.372	4.6	100	-0.02
39	T	Isopropyl Acetate	0.129	0.138	-7.0	108	-0.02
40	T	1-Butanol	0.202	0.212	-5.0	124	-0.04
41	T	Benzene	1.018	0.945	7.2	104	-0.02
42	T	Carbon Tetrachloride	0.341	0.328	3.8	99	-0.02
43	T	Cyclohexane	0.377	0.372	1.3	104	-0.02
44	T	tert-Amyl Methyl Ether	0.702	0.702	0.0	105	-0.02
45	T	1,2-Dichloropropane	0.229	0.227	0.9	106	-0.02
46	T	Bromodichloromethane	0.321	0.322	-0.3	104	-0.02
47	T	Trichloroethene	0.301	0.283	6.0	101	-0.02
48	T	1,4-Dioxane	0.206	0.198	3.9	108	-0.01
49	T	2,2,4-Trimethylpentane (Iso	0.975	0.986	-1.1	107	-0.01
50	T	Methyl Methacrylate	0.102	0.106	-3.9	108	-0.02
51	T	n-Heptane	0.226	0.229	-1.3	106	-0.01

10/3/13

Evaluate Continuing Calibration Report

Data File : I:\MS09\Data\2013_10\03\10031301.D Vial: 15
Acq On : 3 Oct 2013 5:40 Operator: WA
Sample : 5ng TO-15 CCV STD (25mL) Inst : MS09
Misc : S25-09031301/S25-09101301(10/8)

Quant Time: Oct 03 07:03:10 2013
Quant Method : I:\MS09\Methods\R9091313.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Sep 13 07:21:26 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	T	cis-1,3-Dichloropropene	0.373	0.378	-1.3	105	-0.02
53	T	4-Methyl-2-pentanone	0.193	0.206	-6.7	108	-0.01
54	T	trans-1,3-Dichloropropene	0.334	0.340	-1.8	104	-0.01
55	T	1,1,2-Trichloroethane	0.247	0.247	0.0	105	-0.02
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	106	-0.01
57	S	Toluene-d8 (SS2)	2.632	2.620	0.5	106	-0.01
58	T	Toluene	2.680	2.581	3.7	105	-0.01
59	T	2-Hexanone	1.032	1.072	-3.9	114	-0.01
60	T	Dibromochloromethane	0.689	0.687	0.3	105	0.00
61	T	1,2-Dibromoethane	0.694	0.681	1.9	105	-0.01
62	T	n-Butyl Acetate	1.112	1.197	-7.6	113	0.00
63	T	n-Octane	0.471	0.485	-3.0	108	-0.01
64	T	Tetrachloroethene	0.852	0.793	6.9	101	-0.01
65	T	Chlorobenzene	1.791	1.712	4.4	104	-0.01
66	T	Ethylbenzene	2.961	2.889	2.4	104	0.00
67	T	m- & p-Xylenes	2.400	2.372	1.2	105	-0.02
68	T	Bromoform	0.597	0.587	1.7	104	0.00
69	T	Styrene	1.784	1.783	0.1	104	-0.01
70	T	o-Xylene	2.484	2.420	2.6	105	-0.01
71	T	n-Nonane	1.005	1.031	-2.6	109	0.00
72	T	1,1,2,2-Tetrachloroethane	1.075	1.094	-1.8	108	-0.01
73	S	Bromofluorobenzene (SS3)	1.071	1.053	1.7	105	0.00
74	T	Cumene	3.185	3.115	2.2	104	-0.01
75	T	alpha-Pinene	1.485	1.477	0.5	104	0.00
76	T	n-Propylbenzene	3.741	3.735	0.2	105	0.00
77	T	3-Ethyltoluene	3.037	3.050	-0.4	107	0.00
78	T	4-Ethyltoluene	2.949	2.872	2.6	104	-0.01
79	T	1,3,5-Trimethylbenzene	2.557	2.507	2.0	105	0.00
80	T	alpha-Methylstyrene	1.318	1.269	3.7	100	-0.01
81	T	2-Ethyltoluene	2.976	2.886	3.0	105	-0.01
82	T	1,2,4-Trimethylbenzene	2.564	2.546	0.7	104	-0.02
83	T	n-Decane	1.177	1.220	-3.7	108	-0.01
84	T	Benzyl Chloride	1.738	1.924	-10.7	112	-0.01
85	T	1,3-Dichlorobenzene	1.582	1.468	7.2	104	-0.01
86	T	1,4-Dichlorobenzene	1.627	1.508	7.3	103	-0.01
87	T	sec-Butylbenzene	3.328	3.254	2.2	105	-0.01
88	T	4-Isopropyltoluene (p-Cymen	3.220	3.200	0.6	104	-0.01
89	T	1,2,3-Trimethylbenzene	2.607	2.580	1.0	105	-0.01
90	T	1,2-Dichlorobenzene	1.520	1.432	5.8	106	-0.01
91	T	d-Limonene	0.809	0.826	-2.1	107	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.511	0.512	-0.2	106	0.00
93	T	n-Undecane	1.236	1.294	-4.7	107	0.00
94	T	1,2,4-Trichlorobenzene	1.212	1.136	6.3	105	-0.01
95	T	Naphthalene	3.900	3.796	2.7	111	0.00
96	T	n-Dodecane	1.255	1.286	-2.5	105	0.00
97	T	Hexachlorobutadiene	0.765	0.689	9.9	102	0.00
98	T	Cyclohexanone	0.714	0.732	-2.5	120	-0.02
99	T	tert-Butylbenzene	2.473	2.410	2.5	104	-0.01
100	T	n-Butylbenzene	2.566	2.518	1.9	105	-0.01

BA 10/3/13

Evaluate Continuing Calibration Report

Data File : I:\MS09\Data\2013_10\03\10031301.D Vial: 15
Acq On : 3 Oct 2013 5:40 Operator: WA
Sample : 5ng TO-15 CCV STD (25mL) Inst : MS09
Misc : S25-09031301/S25-09101301(10/8)

Quant Time: Oct 03 07:03:10 2013
Quant Method : I:\MS09\Methods\R9091313.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Sep 13 07:21:26 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

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LABORATORY REPORT

September 5, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on August 23, 2013. For your reference, these analyses have been assigned our service request number P1303718.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 12:25 pm, Sep 05, 2013

Kate Aguilera
Project Manager

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Client: CH2M Hill
Project: Pfizer Tier IV / Recon #2-3620

Service Request No: P1303718

CASE NARRATIVE

The samples were received intact under chain of custody on August 23, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The Tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The Summa Canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon #2-3620
Service Request: P1303718

Date Received: 8/23/2013
Time Received: 07:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
2-3620 015 (250g)	P1303718-001	Air	8/22/2013	13:45	1SC00165	-1.77	5.18	X	
2-3620 016 (250g)	P1303718-002	Air	8/22/2013	14:30	1SC00763	-1.82	5.56	X	
2-3620 017 (250g)	P1303718-003	Air	8/22/2013	15:45	1SC00678	-2.18	5.42	X	
2-3620 018 (250g)	P1303718-004	Air	8/22/2013	16:30	1SC00920	-2.13	5.14	X	
2-3620 015 (250g)	P1303718-005	Air	8/22/2013	13:45					X
2-3620 016 (250g)	P1303718-006	Air	8/22/2013	14:30					X
2-3620 017 (250g)	P1303718-007	Air	8/22/2013	15:45					X
2-3620 018 (250g)	P1303718-008	Air	8/22/2013	16:30					X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No P1303718

Company Name & Address (Reporting Information): CH2M Hill, 1717 Arch Street; Suite 4400, Philadelphia, PA 19103

Project Name: Pfizer Tier IV

Project Number: RECON # 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information:

Phone: 215 640 9105 Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2M.com

Sampler (Print & Sign): Glenn R. Knieriem

ALS Contact:

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Malodorous Compounds	Comments e.g. Actual Preservative or specific instructions TO-15 started 8-21
2-3620 015 (250g)	1-1.77	8-22-13	1345 CDT	ISC00165	CA00050	-27	-3	1l	x	—	24 hour
016	2-1.78		1430 CDT	ISC00763	OA00474	-29	-3	1l	x	—	
017	3-2.27		1545 CDT	ISC00678	OA01390	-22	-3	1l	x	—	
018	4-2.08		1630 CDT	ISC00920	OA01529	-28	-4	1l	x	—	
—	—	—	—	—	—	—	—	—	—	—	
2-3620 015 (250g)	5	8-22-13	1345 CDT	—	—	—	—	1l	—	x	15 min
016	6		1430 CDT	—	—	—	—	1l	—	x	
017	7		1545 CDT	—	—	—	—	1l	—	x	
018	8		1630 CDT	—	—	—	—	1l	—	x	

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	8-22-13	1830 CDT	Fed Ex 8026 3628 7503	8-22	1830 CDT
Fuller			[signature]	8/23/13	0715

Cooler / Blank Temperature ____°C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1303718

Project: Pfizer Tier IV / Recon #2-3620

Sample(s) received on: 8/23/13 Date opened: 8/23/13 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☐	☒	☐
2	Container(s) **supplied by CAS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☐	☒	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Top of box, covering opening. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1303718-001.01	1.0 L Source Can					
P1303718-002.01	1.0 L Source Can					
P1303718-003.01	1.0 L Source Can					
P1303718-004.01	1.0 L Source Can					
P1303718-005.01	1 L Zefon Bag					
P1303718-006.01	1 L Zefon Bag					
P1303718-007.01	1 L Zefon Bag					
P1303718-008.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers):

Canisters were received without ID information, and are assigned by the canister serial numbers listed on COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 015 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303718
ALS Sample ID: P1303718-005

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/22/13
Time Collected: 13:45
Date Received: 8/23/13
Date Analyzed: 8/23/13
Time Analyzed: 08:49
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**240**	12	**96**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**22**	13	**8.7**	5.0	
75-15-0	Carbon Disulfide	**2,900**	7.8	**940**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**690**	17	**200**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**110**	9.6	**30**	2.5	
616-44-4	3-Methylthiophene	**230**	20	**57**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**590**	23	**130**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 016 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303718
ALS Sample ID: P1303718-006

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/22/13
Time Collected: 14:30
Date Received: 8/23/13
Date Analyzed: 8/23/13
Time Analyzed: 09:08
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**190**	12	**77**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**23**	13	**9.0**	5.0	
75-15-0	Carbon Disulfide	**2,200**	7.8	**710**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**550**	17	**160**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**110**	9.6	**28**	2.5	
616-44-4	3-Methylthiophene	**210**	20	**52**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**570**	23	**120**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 017 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303718
ALS Sample ID: P1303718-007

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/22/13
Time Collected: 15:45
Date Received: 8/23/13
Date Analyzed: 8/23/13
Time Analyzed: 09:30
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**120**	12	**48**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**940**	7.8	**300**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**250**	17	**73**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**62**	9.6	**16**	2.5	
616-44-4	3-Methylthiophene	**120**	20	**29**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**340**	23	**75**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 018 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303718
ALS Sample ID: P1303718-008

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/22/13
Time Collected: 16:30
Date Received: 8/23/13
Date Analyzed: 8/23/13
Time Analyzed: 09:51
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**69**	12	**28**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**890**	7.8	**290**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**260**	17	**77**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**64**	9.6	**17**	2.5	
616-44-4	3-Methylthiophene	**150**	20	**37**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**440**	23	**96**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303718
ALS Sample ID: P130823-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/23/13
Time Analyzed: 08:13
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130823-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 8/23/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**1,620**	**79**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**1,650**	**82**	63-138	
74-93-1	Methyl Mercaptan	1,890	**1,730**	**92**	63-144	

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RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 015 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-001

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00030 Liter(s)
Test Notes:
Container ID: 1SC00165

Initial Pressure (psig): -1.77 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	2,600	ND	1,500	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	2,600	ND	520	
74-87-3	Chloromethane	ND	2,600	ND	1,200	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2,600	ND	370	
75-01-4	Vinyl Chloride	ND	2,600	ND	1,000	
106-99-0	1,3-Butadiene	ND	2,600	ND	1,200	
74-83-9	Bromomethane	ND	2,600	ND	660	
75-00-3	Chloroethane	ND	2,600	ND	970	
64-17-5	Ethanol	ND	26,000	ND	14,000	
75-05-8	Acetonitrile	ND	2,600	ND	1,500	
107-02-8	Acrolein	ND	10,000	ND	4,500	
67-64-1	Acetone	ND	26,000	ND	11,000	
75-69-4	Trichlorofluoromethane	ND	2,600	ND	460	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	26,000	ND	10,000	
107-13-1	Acrylonitrile	ND	2,600	ND	1,200	
75-35-4	1,1-Dichloroethene	ND	2,600	ND	650	
75-09-2	Methylene Chloride	ND	2,600	ND	740	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2,600	ND	820	
76-13-1	Trichlorotrifluoroethane	ND	2,600	ND	340	
75-15-0	Carbon Disulfide	ND	26,000	ND	8,200	
156-60-5	trans-1,2-Dichloroethene	ND	2,600	ND	650	
75-34-3	1,1-Dichloroethane	ND	2,600	ND	630	
1634-04-4	Methyl tert-Butyl Ether	ND	2,600	ND	710	
108-05-4	Vinyl Acetate	ND	26,000	ND	7,300	
78-93-3	2-Butanone (MEK)	ND	26,000	ND	8,700	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 015 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-001

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00030 Liter(s)
Test Notes:
Container ID: 1SC00165

Initial Pressure (psig): -1.77 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2,600	ND	650	
141-78-6	Ethyl Acetate	ND	5,100	ND	1,400	
110-54-3	n-Hexane	ND	2,600	ND	730	
67-66-3	Chloroform	ND	2,600	ND	530	
109-99-9	Tetrahydrofuran (THF)	ND	2,600	ND	870	
107-06-2	1,2-Dichloroethane	ND	2,600	ND	630	
71-55-6	1,1,1-Trichloroethane	ND	2,600	ND	470	
71-43-2	Benzene	**450,000**	2,600	**140,000**	800	
56-23-5	Carbon Tetrachloride	ND	2,600	ND	410	
110-82-7	Cyclohexane	ND	5,100	ND	1,500	
78-87-5	1,2-Dichloropropane	ND	2,600	ND	560	
75-27-4	Bromodichloromethane	ND	2,600	ND	380	
79-01-6	Trichloroethene	ND	2,600	ND	480	
123-91-1	1,4-Dioxane	ND	2,600	ND	710	
80-62-6	Methyl Methacrylate	ND	5,100	ND	1,300	
142-82-5	n-Heptane	ND	2,600	ND	630	
10061-01-5	cis-1,3-Dichloropropene	ND	2,600	ND	570	
108-10-1	4-Methyl-2-pentanone	ND	2,600	ND	630	
10061-02-6	trans-1,3-Dichloropropene	ND	2,600	ND	570	
79-00-5	1,1,2-Trichloroethane	ND	2,600	ND	470	
108-88-3	Toluene	**130,000**	2,600	**35,000**	680	
591-78-6	2-Hexanone	ND	2,600	ND	630	
124-48-1	Dibromochloromethane	ND	2,600	ND	300	
106-93-4	1,2-Dibromoethane	ND	2,600	ND	330	
123-86-4	n-Butyl Acetate	ND	2,600	ND	540	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill** ALS Project ID: P1303718
Client Sample ID: **2-3620 015 (250g)** ALS Sample ID: P1303718-001
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00030 Liter(s)
Test Notes:
Container ID: 1SC00165

Initial Pressure (psig): -1.77 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	2,600	ND	550	
127-18-4	Tetrachloroethene	ND	2,600	ND	380	
108-90-7	Chlorobenzene	ND	2,600	ND	560	
100-41-4	Ethylbenzene	ND	2,600	ND	590	
179601-23-1	m,p-Xylenes	**21,000**	5,100	**4,800**	1,200	
75-25-2	Bromoform	ND	2,600	ND	250	
100-42-5	Styrene	ND	2,600	ND	600	
95-47-6	o-Xylene	**4,200**	2,600	**960**	590	
111-84-2	n-Nonane	ND	2,600	ND	490	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2,600	ND	370	
98-82-8	Cumene	**3,200**	2,600	**640**	520	
80-56-8	alpha-Pinene	ND	2,600	ND	460	
103-65-1	n-Propylbenzene	ND	2,600	ND	520	
622-96-8	4-Ethyltoluene	ND	2,600	ND	520	
108-67-8	1,3,5-Trimethylbenzene	ND	2,600	ND	520	
95-63-6	1,2,4-Trimethylbenzene	ND	2,600	ND	520	
100-44-7	Benzyl Chloride	ND	2,600	ND	500	
541-73-1	1,3-Dichlorobenzene	ND	2,600	ND	430	
106-46-7	1,4-Dichlorobenzene	ND	2,600	ND	430	
95-50-1	1,2-Dichlorobenzene	**4,300**	2,600	**720**	430	
5989-27-5	d-Limonene	ND	2,600	ND	460	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2,600	ND	270	
120-82-1	1,2,4-Trichlorobenzene	ND	2,600	ND	350	
91-20-3	Naphthalene	ND	2,600	ND	490	
87-68-3	Hexachlorobutadiene	ND	2,600	ND	240	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 016 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-002

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00030 Liter(s)
Test Notes:
Container ID: 1SC00763

Initial Pressure (psig): -1.82 Final Pressure (psig): 5.56

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	2,600	ND	1,500	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	2,600	ND	530	
74-87-3	Chloromethane	ND	2,600	ND	1,300	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	2,600	ND	370	
75-01-4	Vinyl Chloride	ND	2,600	ND	1,000	
106-99-0	1,3-Butadiene	ND	2,600	ND	1,200	
74-83-9	Bromomethane	ND	2,600	ND	670	
75-00-3	Chloroethane	ND	2,600	ND	990	
64-17-5	Ethanol	ND	26,000	ND	14,000	
75-05-8	Acetonitrile	ND	2,600	ND	1,600	
107-02-8	Acrolein	ND	10,000	ND	4,600	
67-64-1	Acetone	ND	26,000	ND	11,000	
75-69-4	Trichlorofluoromethane	ND	2,600	ND	470	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	26,000	ND	11,000	
107-13-1	Acrylonitrile	ND	2,600	ND	1,200	
75-35-4	1,1-Dichloroethene	ND	2,600	ND	660	
75-09-2	Methylene Chloride	ND	2,600	ND	750	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	2,600	ND	840	
76-13-1	Trichlorotrifluoroethane	ND	2,600	ND	340	
75-15-0	Carbon Disulfide	ND	26,000	ND	8,400	
156-60-5	trans-1,2-Dichloroethene	ND	2,600	ND	660	
75-34-3	1,1-Dichloroethane	ND	2,600	ND	650	
1634-04-4	Methyl tert-Butyl Ether	ND	2,600	ND	730	
108-05-4	Vinyl Acetate	ND	26,000	ND	7,400	
78-93-3	2-Butanone (MEK)	ND	26,000	ND	8,900	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 016 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-002

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00030 Liter(s)
Test Notes:
Container ID: 1SC00763

Initial Pressure (psig): -1.82 Final Pressure (psig): 5.56

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	2,600	ND	660	
141-78-6	Ethyl Acetate	ND	5,200	ND	1,500	
110-54-3	n-Hexane	ND	2,600	ND	740	
67-66-3	Chloroform	ND	2,600	ND	540	
109-99-9	Tetrahydrofuran (THF)	ND	2,600	ND	890	
107-06-2	1,2-Dichloroethane	ND	2,600	ND	650	
71-55-6	1,1,1-Trichloroethane	ND	2,600	ND	480	
71-43-2	Benzene	**410,000**	2,600	**130,000**	820	
56-23-5	Carbon Tetrachloride	ND	2,600	ND	420	
110-82-7	Cyclohexane	ND	5,200	ND	1,500	
78-87-5	1,2-Dichloropropane	ND	2,600	ND	570	
75-27-4	Bromodichloromethane	ND	2,600	ND	390	
79-01-6	Trichloroethene	ND	2,600	ND	490	
123-91-1	1,4-Dioxane	ND	2,600	ND	730	
80-62-6	Methyl Methacrylate	ND	5,200	ND	1,300	
142-82-5	n-Heptane	ND	2,600	ND	640	
10061-01-5	cis-1,3-Dichloropropene	ND	2,600	ND	580	
108-10-1	4-Methyl-2-pentanone	ND	2,600	ND	640	
10061-02-6	trans-1,3-Dichloropropene	ND	2,600	ND	580	
79-00-5	1,1,2-Trichloroethane	ND	2,600	ND	480	
108-88-3	Toluene	**180,000**	2,600	**48,000**	690	
591-78-6	2-Hexanone	ND	2,600	ND	640	
124-48-1	Dibromochloromethane	ND	2,600	ND	310	
106-93-4	1,2-Dibromoethane	ND	2,600	ND	340	
123-86-4	n-Butyl Acetate	ND	2,600	ND	550	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303718
Client Sample ID: **2-3620 016 (250g)** ALS Sample ID: P1303718-002
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00030 Liter(s)
Test Notes:
Container ID: 1SC00763

Initial Pressure (psig): -1.82 Final Pressure (psig): 5.56

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	2,600	ND	560	
127-18-4	Tetrachloroethene	ND	2,600	ND	390	
108-90-7	Chlorobenzene	ND	2,600	ND	570	
100-41-4	Ethylbenzene	**3,200**	2,600	**730**	600	
179601-23-1	m,p-Xylenes	**35,000**	5,200	**8,000**	1,200	
75-25-2	Bromoform	ND	2,600	ND	250	
100-42-5	Styrene	ND	2,600	ND	610	
95-47-6	o-Xylene	**7,100**	2,600	**1,600**	600	
111-84-2	n-Nonane	ND	2,600	ND	500	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2,600	ND	380	
98-82-8	Cumene	**5,400**	2,600	**1,100**	530	
80-56-8	alpha-Pinene	ND	2,600	ND	470	
103-65-1	n-Propylbenzene	ND	2,600	ND	530	
622-96-8	4-Ethyltoluene	ND	2,600	ND	530	
108-67-8	1,3,5-Trimethylbenzene	**2,600**	2,600	**530**	530	
95-63-6	1,2,4-Trimethylbenzene	**3,100**	2,600	**640**	530	
100-44-7	Benzyl Chloride	ND	2,600	ND	510	
541-73-1	1,3-Dichlorobenzene	ND	2,600	ND	440	
106-46-7	1,4-Dichlorobenzene	ND	2,600	ND	440	
95-50-1	1,2-Dichlorobenzene	**8,600**	2,600	**1,400**	440	
5989-27-5	d-Limonene	ND	2,600	ND	470	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2,600	ND	270	
120-82-1	1,2,4-Trichlorobenzene	ND	2,600	ND	350	
91-20-3	Naphthalene	ND	2,600	ND	500	
87-68-3	Hexachlorobutadiene	ND	2,600	ND	250	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 017 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-003

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00050 Liter(s)
Test Notes:
Container ID: 1SC00678

Initial Pressure (psig): -2.18 Final Pressure (psig): 5.42

Canister Dilution Factor: 1.61

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	1,600	ND	940	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1,600	ND	330	
74-87-3	Chloromethane	ND	1,600	ND	780	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1,600	ND	230	
75-01-4	Vinyl Chloride	ND	1,600	ND	630	
106-99-0	1,3-Butadiene	ND	1,600	ND	730	
74-83-9	Bromomethane	ND	1,600	ND	410	
75-00-3	Chloroethane	ND	1,600	ND	610	
64-17-5	Ethanol	ND	16,000	ND	8,500	
75-05-8	Acetonitrile	ND	1,600	ND	960	
107-02-8	Acrolein	ND	6,400	ND	2,800	
67-64-1	Acetone	ND	16,000	ND	6,800	
75-69-4	Trichlorofluoromethane	ND	1,600	ND	290	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	16,000	ND	6,600	
107-13-1	Acrylonitrile	ND	1,600	ND	740	
75-35-4	1,1-Dichloroethene	ND	1,600	ND	410	
75-09-2	Methylene Chloride	ND	1,600	ND	460	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1,600	ND	510	
76-13-1	Trichlorotrifluoroethane	ND	1,600	ND	210	
75-15-0	Carbon Disulfide	ND	16,000	ND	5,200	
156-60-5	trans-1,2-Dichloroethene	ND	1,600	ND	410	
75-34-3	1,1-Dichloroethane	ND	1,600	ND	400	
1634-04-4	Methyl tert-Butyl Ether	ND	1,600	ND	450	
108-05-4	Vinyl Acetate	ND	16,000	ND	4,600	
78-93-3	2-Butanone (MEK)	ND	16,000	ND	5,500	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 017 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-003

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00050 Liter(s)
Test Notes:
Container ID: 1SC00678

Initial Pressure (psig): -2.18 Final Pressure (psig): 5.42

Canister Dilution Factor: 1.61

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1,600	ND	410	
141-78-6	Ethyl Acetate	ND	3,200	ND	890	
110-54-3	n-Hexane	ND	1,600	ND	460	
67-66-3	Chloroform	ND	1,600	ND	330	
109-99-9	Tetrahydrofuran (THF)	ND	1,600	ND	550	
107-06-2	1,2-Dichloroethane	ND	1,600	ND	400	
71-55-6	1,1,1-Trichloroethane	ND	1,600	ND	300	
71-43-2	Benzene	**270,000**	1,600	**85,000**	500	
56-23-5	Carbon Tetrachloride	ND	1,600	ND	260	
110-82-7	Cyclohexane	ND	3,200	ND	940	
78-87-5	1,2-Dichloropropane	ND	1,600	ND	350	
75-27-4	Bromodichloromethane	ND	1,600	ND	240	
79-01-6	Trichloroethene	ND	1,600	ND	300	
123-91-1	1,4-Dioxane	ND	1,600	ND	450	
80-62-6	Methyl Methacrylate	ND	3,200	ND	790	
142-82-5	n-Heptane	ND	1,600	ND	390	
10061-01-5	cis-1,3-Dichloropropene	ND	1,600	ND	350	
108-10-1	4-Methyl-2-pentanone	ND	1,600	ND	390	
10061-02-6	trans-1,3-Dichloropropene	ND	1,600	ND	350	
79-00-5	1,1,2-Trichloroethane	ND	1,600	ND	300	
108-88-3	Toluene	**92,000**	1,600	**24,000**	430	
591-78-6	2-Hexanone	ND	1,600	ND	390	
124-48-1	Dibromochloromethane	ND	1,600	ND	190	
106-93-4	1,2-Dibromoethane	ND	1,600	ND	210	
123-86-4	n-Butyl Acetate	ND	1,600	ND	340	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303718
Client Sample ID: **2-3620 017 (250g)** ALS Sample ID: P1303718-003
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00050 Liter(s)
Test Notes:
Container ID: 1SC00678

Initial Pressure (psig): -2.18 Final Pressure (psig): 5.42

Canister Dilution Factor: 1.61

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1,600	ND	340	
127-18-4	Tetrachloroethene	ND	1,600	ND	240	
108-90-7	Chlorobenzene	ND	1,600	ND	350	
100-41-4	Ethylbenzene	ND	1,600	ND	370	
179601-23-1	m,p-Xylenes	**13,000**	3,200	**3,000**	740	
75-25-2	Bromoform	ND	1,600	ND	160	
100-42-5	Styrene	ND	1,600	ND	380	
95-47-6	o-Xylene	**2,600**	1,600	**590**	370	
111-84-2	n-Nonane	ND	1,600	ND	310	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1,600	ND	230	
98-82-8	Cumene	**2,100**	1,600	**420**	330	
80-56-8	alpha-Pinene	ND	1,600	ND	290	
103-65-1	n-Propylbenzene	ND	1,600	ND	330	
622-96-8	4-Ethyltoluene	ND	1,600	ND	330	
108-67-8	1,3,5-Trimethylbenzene	ND	1,600	ND	330	
95-63-6	1,2,4-Trimethylbenzene	ND	1,600	ND	330	
100-44-7	Benzyl Chloride	ND	1,600	ND	310	
541-73-1	1,3-Dichlorobenzene	ND	1,600	ND	270	
106-46-7	1,4-Dichlorobenzene	ND	1,600	ND	270	
95-50-1	1,2-Dichlorobenzene	**1,700**	1,600	**290**	270	
5989-27-5	d-Limonene	ND	1,600	ND	290	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1,600	ND	170	
120-82-1	1,2,4-Trichlorobenzene	ND	1,600	ND	220	
91-20-3	Naphthalene	ND	1,600	ND	310	
87-68-3	Hexachlorobutadiene	ND	1,600	ND	150	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 018 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-004

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00050 Liter(s)
Test Notes:
Container ID: 1SC00920

Initial Pressure (psig): -2.13 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.58

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	1,600	ND	920	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1,600	ND	320	
74-87-3	Chloromethane	ND	1,600	ND	770	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	1,600	ND	230	
75-01-4	Vinyl Chloride	ND	1,600	ND	620	
106-99-0	1,3-Butadiene	ND	1,600	ND	710	
74-83-9	Bromomethane	ND	1,600	ND	410	
75-00-3	Chloroethane	ND	1,600	ND	600	
64-17-5	Ethanol	ND	16,000	ND	8,400	
75-05-8	Acetonitrile	ND	1,600	ND	940	
107-02-8	Acrolein	ND	6,300	ND	2,800	
67-64-1	Acetone	ND	16,000	ND	6,700	
75-69-4	Trichlorofluoromethane	ND	1,600	ND	280	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	16,000	ND	6,400	
107-13-1	Acrylonitrile	ND	1,600	ND	730	
75-35-4	1,1-Dichloroethene	ND	1,600	ND	400	
75-09-2	Methylene Chloride	ND	1,600	ND	450	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	1,600	ND	500	
76-13-1	Trichlorotrifluoroethane	ND	1,600	ND	210	
75-15-0	Carbon Disulfide	ND	16,000	ND	5,100	
156-60-5	trans-1,2-Dichloroethene	ND	1,600	ND	400	
75-34-3	1,1-Dichloroethane	ND	1,600	ND	390	
1634-04-4	Methyl tert-Butyl Ether	ND	1,600	ND	440	
108-05-4	Vinyl Acetate	ND	16,000	ND	4,500	
78-93-3	2-Butanone (MEK)	ND	16,000	ND	5,400	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 018 (250g)** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303718-004

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00050 Liter(s)
Test Notes:
Container ID: 1SC00920

Initial Pressure (psig): -2.13 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.58

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	1,600	ND	400	
141-78-6	Ethyl Acetate	ND	3,200	ND	880	
110-54-3	n-Hexane	ND	1,600	ND	450	
67-66-3	Chloroform	ND	1,600	ND	320	
109-99-9	Tetrahydrofuran (THF)	ND	1,600	ND	540	
107-06-2	1,2-Dichloroethane	ND	1,600	ND	390	
71-55-6	1,1,1-Trichloroethane	ND	1,600	ND	290	
71-43-2	Benzene	**300,000**	1,600	**94,000**	490	
56-23-5	Carbon Tetrachloride	ND	1,600	ND	250	
110-82-7	Cyclohexane	ND	3,200	ND	920	
78-87-5	1,2-Dichloropropane	ND	1,600	ND	340	
75-27-4	Bromodichloromethane	ND	1,600	ND	240	
79-01-6	Trichloroethene	ND	1,600	ND	290	
123-91-1	1,4-Dioxane	ND	1,600	ND	440	
80-62-6	Methyl Methacrylate	ND	3,200	ND	770	
142-82-5	n-Heptane	ND	1,600	ND	390	
10061-01-5	cis-1,3-Dichloropropene	ND	1,600	ND	350	
108-10-1	4-Methyl-2-pentanone	ND	1,600	ND	390	
10061-02-6	trans-1,3-Dichloropropene	ND	1,600	ND	350	
79-00-5	1,1,2-Trichloroethane	ND	1,600	ND	290	
108-88-3	Toluene	**120,000**	1,600	**31,000**	420	
591-78-6	2-Hexanone	ND	1,600	ND	390	
124-48-1	Dibromochloromethane	ND	1,600	ND	190	
106-93-4	1,2-Dibromoethane	ND	1,600	ND	210	
123-86-4	n-Butyl Acetate	ND	1,600	ND	330	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303718
Client Sample ID: **2-3620 018 (250g)** ALS Sample ID: P1303718-004
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 8/22/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/23/13
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00050 Liter(s)
Test Notes:
Container ID: 1SC00920

Initial Pressure (psig): -2.13 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.58

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	1,600	ND	340	
127-18-4	Tetrachloroethene	ND	1,600	ND	230	
108-90-7	Chlorobenzene	ND	1,600	ND	340	
100-41-4	Ethylbenzene	**1,900**	1,600	**450**	360	
179601-23-1	m,p-Xylenes	**21,000**	3,200	**4,900**	730	
75-25-2	Bromoform	ND	1,600	ND	150	
100-42-5	Styrene	ND	1,600	ND	370	
95-47-6	o-Xylene	**4,300**	1,600	**980**	360	
111-84-2	n-Nonane	ND	1,600	ND	300	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1,600	ND	230	
98-82-8	Cumene	**3,400**	1,600	**700**	320	
80-56-8	alpha-Pinene	ND	1,600	ND	280	
103-65-1	n-Propylbenzene	ND	1,600	ND	320	
622-96-8	4-Ethyltoluene	ND	1,600	ND	320	
108-67-8	1,3,5-Trimethylbenzene	ND	1,600	ND	320	
95-63-6	1,2,4-Trimethylbenzene	**1,800**	1,600	**360**	320	
100-44-7	Benzyl Chloride	ND	1,600	ND	310	
541-73-1	1,3-Dichlorobenzene	ND	1,600	ND	260	
106-46-7	1,4-Dichlorobenzene	ND	1,600	ND	260	
95-50-1	1,2-Dichlorobenzene	**4,700**	1,600	**780**	260	
5989-27-5	d-Limonene	ND	1,600	ND	280	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1,600	ND	160	
120-82-1	1,2,4-Trichlorobenzene	ND	1,600	ND	210	
91-20-3	Naphthalene	ND	1,600	ND	300	
87-68-3	Hexachlorobutadiene	ND	1,600	ND	150	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130830-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1303718

Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130830-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA

Analyst: Lusine Hakobyan Date Analyzed: 8/30/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303718

Client Sample ID: **Method Blank** ALS Sample ID: P130830-MB

Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA

Analyst: Lusine Hakobyan Date Analyzed: 8/30/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Project ID: P1303718

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 8/22/13
Analyst: Lusine Hakobyan Date(s) Received: 8/23/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 8/30/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130830-MB	**107**	**104**	**107**	70-130	
Lab Control Sample	P130830-LCS	**101**	**99**	**107**	70-130	
2-3620 015 (250g)	P1303718-001	**103**	**102**	**100**	70-130	
2-3620 016 (250g)	P1303718-002	**105**	**106**	**101**	70-130	
2-3620 017 (250g)	P1303718-003	**106**	**105**	**104**	70-130	
2-3620 018 (250g)	P1303718-004	**104**	**105**	**107**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

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LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130830-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
115-07-1	Propene	200	**199**	**100**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**210**	**103**	63-115	
74-87-3	Chloromethane	198	**204**	**103**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**206**	**101**	65-115	
75-01-4	Vinyl Chloride	200	**208**	**104**	64-122	
106-99-0	1,3-Butadiene	212	**213**	**100**	57-141	
74-83-9	Bromomethane	200	**168**	**84**	68-122	
75-00-3	Chloroethane	202	**204**	**101**	66-120	
64-17-5	Ethanol	1,020	**962**	**94**	58-126	
75-05-8	Acetonitrile	202	**184**	**91**	64-136	
107-02-8	Acrolein	214	**182**	**85**	58-129	
67-64-1	Acetone	1,080	**880**	**81**	60-114	
75-69-4	Trichlorofluoromethane	198	**176**	**89**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**397**	**95**	54-118	
107-13-1	Acrylonitrile	208	**207**	**100**	72-143	
75-35-4	1,1-Dichloroethene	214	**199**	**93**	69-119	
75-09-2	Methylene Chloride	216	**178**	**82**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**204**	**94**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**207**	**97**	69-117	
75-15-0	Carbon Disulfide	196	**179**	**91**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**203**	**96**	70-126	
75-34-3	1,1-Dichloroethane	208	**188**	**90**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**208**	**98**	69-120	
108-05-4	Vinyl Acetate	1,020	**931**	**91**	58-160	
78-93-3	2-Butanone (MEK)	218	**189**	**87**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130830-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**199**	**93**	70-119	
141-78-6	Ethyl Acetate	426	**419**	**98**	72-129	
110-54-3	n-Hexane	210	**172**	**82**	63-115	
67-66-3	Chloroform	214	**197**	**92**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**200**	**97**	60-126	
107-06-2	1,2-Dichloroethane	210	**196**	**93**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**202**	**98**	68-120	
71-43-2	Benzene	220	**190**	**86**	69-117	
56-23-5	Carbon Tetrachloride	210	**210**	**100**	65-134	
110-82-7	Cyclohexane	420	**391**	**93**	69-114	
78-87-5	1,2-Dichloropropane	212	**202**	**95**	70-116	
75-27-4	Bromodichloromethane	214	**233**	**109**	71-126	
79-01-6	Trichloroethene	208	**201**	**97**	71-119	
123-91-1	1,4-Dioxane	218	**203**	**93**	72-126	
80-62-6	Methyl Methacrylate	420	**451**	**107**	75-136	
142-82-5	n-Heptane	214	**187**	**87**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**240**	**106**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**203**	**93**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**235**	**109**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**214**	**102**	72-119	
108-88-3	Toluene	210	**196**	**93**	65-116	
591-78-6	2-Hexanone	222	**202**	**91**	62-132	
124-48-1	Dibromochloromethane	220	**239**	**109**	66-140	
106-93-4	1,2-Dibromoethane	216	**216**	**100**	69-130	
123-86-4	n-Butyl Acetate	224	**207**	**92**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303718
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130830-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/30/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**201**	**97**	66-118	
127-18-4	Tetrachloroethene	196	**186**	**95**	63-123	
108-90-7	Chlorobenzene	216	**202**	**94**	66-118	
100-41-4	Ethylbenzene	212	**209**	**99**	66-119	
179601-23-1	m,p-Xylenes	420	**423**	**101**	64-118	
75-25-2	Bromoform	216	**264**	**122**	64-140	
100-42-5	Styrene	218	**231**	**106**	68-132	
95-47-6	o-Xylene	206	**207**	**100**	65-120	
111-84-2	n-Nonane	206	**204**	**99**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**205**	**101**	63-128	
98-82-8	Cumene	204	**208**	**102**	65-121	
80-56-8	alpha-Pinene	208	**216**	**104**	66-123	
103-65-1	n-Propylbenzene	202	**206**	**102**	65-121	
622-96-8	4-Ethyltoluene	212	**218**	**103**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**216**	**102**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**214**	**101**	64-131	
100-44-7	Benzyl Chloride	222	**255**	**115**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**217**	**98**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**206**	**96**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**208**	**95**	63-126	
5989-27-5	d-Limonene	210	**226**	**108**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**226**	**107**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**204**	**93**	59-146	
91-20-3	Naphthalene	204	**188**	**92**	56-143	
87-68-3	Hexachlorobutadiene	218	**216**	**99**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Response Factor Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : CH2M Hill
Analyst : MC

Service Request : P1303718
Instrument : GC13
Date Acquired : 8/23/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup		%RSD	Continuing Calibration Standards Summary (ppbv)											
			MB					dup		ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std 2000ppb s27-08161301		std 2000ppb s27-08161301									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						1755.19	11.9%	2007.689	0.8%								
Carbonyl_Sulfide	1.900	5.000	ND	P						1771.75	12.8%	2024.471	0.4%								
Methyl_Mercaptan	2.200	5.000	ND	P						1760.28	12.9%	1933.474	4.4%								
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						7:38 AM		10:13 AM									
Carbon_Disulfide	1.100	2.500	ND	P						08231301.D		08231312.D									
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			8:13 AM																		
DataFile			08231305.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	%R	%RPD	Actual
Hydrogen_Sulfide	1624.24	79.4%					2045.54
Carbonyl_Sulfide	1648.80	81.7%					2017.48
Methyl_Mercaptan	1725.27	91.4%					1887.74
Acqisition Time	7:43 AM						
DataFile	08231302.D						

MC 8/23/13

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16082813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Thu Aug 29 09:01:52 2013
Response Via : Initial Calibration

Calibration Files
0.08=08281306.D 0.10=08281307.D 0.20=08281308.D 0.40=08281309.D 1.0 =08281310.D 5.0 =08281311.D
25 =08281312.D 50 =08281313.D 100 =08281314.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------										
2)	T	Propene	2.353	2.377	1.989	1.864	2.139	1.880	1.956	1.670	1.504	1.970	14.67
3)	T	Dichlorodifluo...	3.373	3.330	3.229	3.095	3.634	3.243	3.152	2.860	2.630	3.172	9.23
4)	T	Chloromethane	2.946	3.093	2.855	2.562	3.252	2.794	2.846	2.657	2.375	2.820	9.48
5)	T	1,2-Dichloro-1...	1.469	1.534	1.440	1.279	1.559	1.477	1.381	1.275	1.289	1.412	7.81
6)	T	Vinyl Chloride	2.678	2.398	2.465	2.242	2.725	2.414	2.331	2.237	2.155	2.405	8.10
7)	T	1,3-Butadiene	1.954	2.040	1.798	1.388	2.157	1.768	1.734	1.528	1.431	1.755	15.30
8)	T	Bromomethane		2.572	2.033	1.560	1.672	1.405	1.344	1.263	1.240	1.636	28.07
9)	T	Chloroethane	1.281	1.319	1.252	1.178	1.292	1.200	1.129	1.085	1.047	1.198	8.03
10)	T	Ethanol	2.042	1.873	1.470	1.112	1.559	1.230	1.207	1.083	0.988	1.396	26.38
11)	T	Acetonitrile	5.144	5.058	4.462	3.941	4.447	3.762	3.782	3.385	3.061	4.116	17.37
12)	T	Acrolein	1.618	1.583	1.343	1.269	1.186	1.068	1.061	1.003	0.864	1.222	21.09
13)	T	Acetone	1.779	1.712	1.684	1.591	1.387	1.213	1.170	1.080	1.013	1.403	21.05
14)	T	Trichlorofluor...	2.772	2.880	2.751	2.574	2.696	2.515	2.168	2.106	2.088	2.505	12.30
15)	T	2-Propanol (Is...	5.329	5.216	5.141	4.891	5.182	4.791	4.699	4.377	4.019	4.849	8.93
16)	T	Acrylonitrile	2.569	2.280	2.081	2.276	2.479	2.249	2.299	2.122	2.045	2.267	7.68
17)	T	1,1-Dichloroet...	1.428	1.463	1.458	1.358	1.496	1.377	1.281	1.298	1.233	1.377	6.67
18)	T	2-Methyl-2-Pro...	5.283	4.986	4.957	4.892	4.609	4.313	4.147	3.869	3.586	4.516	12.66
19)	T	Methylene Chlo...			2.226	1.841	1.906	1.647	1.558	1.465	1.398	1.720	16.88
20)	T	3-Chloro-1-pro...	2.468	2.676	2.573	2.543	2.637	2.504	2.286	2.334	2.340	2.484	5.60
21)	T	Trichlorotrifl...	1.045	1.111	1.201	1.090	1.280	1.112	1.070	1.073	1.019	1.111	7.32
22)	T	Carbon Disulfide	8.255	8.088	6.983	6.473	6.767	6.188	5.971	5.795	5.325	6.649	15.00
23)	T	trans-1,2-Dich...	2.265	2.258	2.133	2.170	2.324	2.213	2.044	2.031	2.046	2.165	5.01
24)	T	1,1-Dichloroet...	2.874	2.910	2.789	2.646	2.779	2.483	2.382	2.270	2.334	2.607	9.41
25)	T	Methyl tert-Bu...	4.520	4.599	4.372	4.219	4.626	4.358	4.297	4.036	3.911	4.326	5.62
26)	T	Vinyl Acetate	0.336	0.319	0.342	0.327	0.329	0.296	0.302	0.286	0.294	0.315	6.44
27)	T	2-Butanone (MEK)	1.067	1.206	1.053	1.068	0.911	0.854	0.841	0.802	0.808	0.957	15.14
28)	T	cis-1,2-Dichlo...	2.180	2.086	2.021	2.116	2.194	1.948	1.950	1.835	1.863	2.022	6.51
29)	T	Diisopropyl Ether	1.107	1.074	1.056	1.120	1.077	0.996	0.974	0.912	0.914	1.026	7.73
30)	T	Ethyl Acetate	0.403	0.489	0.526	0.550	0.531	0.492	0.479	0.458	0.458	0.487	9.26
31)	T	n-Hexane				2.473	2.189	1.733	1.450	1.443	1.504	1.798	24.18

Method Path : I:\MS16\METHODS\
Method File : R16082813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

32)	T	Chloroform	2.805	2.690	2.458	2.504	2.531	2.305	2.293	2.174	2.183	2.438	8.99
33)	S	1,2-Dichloroet...	1.736	1.698	1.725	1.748	1.727	1.700	1.630	1.692	1.699	1.706	2.02
34)	T	Tetrahydrofura...	0.775	0.851	0.876	0.920	0.925	0.857	0.826	0.798	0.813	0.849	6.09
35)	T	Ethyl tert-But...	1.659	1.651	1.638	1.590	1.791	1.628	1.607	1.527	1.492	1.620	5.26
36)	T	1,2-Dichloroet...	2.205	2.004	2.037	1.996	2.119	1.799	1.725	1.720	1.720	1.925	9.72
37)	IR	1,4-Difluorobenzen...	----------ISTD----------										
38)	T	1,1,1-Trichlor...	0.487	0.473	0.459	0.466	0.483	0.455	0.477	0.430	0.418	0.461	5.10
39)	T	Isopropyl Acetate	0.201	0.218	0.207	0.206	0.196	0.191	0.189	0.176	0.169	0.195	7.99
40)	T	1-Butanol	0.360	0.382	0.372	0.419	0.323	0.354	0.348	0.316	0.305	0.353	10.14
41)	T	Benzene	1.360	1.365	1.207	1.185	1.167	1.027	1.019	0.957	0.950	1.137	14.02
42)	T	Carbon Tetrach...	0.388	0.375	0.375	0.377	0.385	0.386	0.397	0.367	0.359	0.379	3.04
43)	T	Cyclohexane	0.535	0.518	0.482	0.454	0.474	0.458	0.448	0.416	0.400	0.465	9.40
44)	T	tert-Amyl Meth...	0.951	0.962	0.914	0.864	0.966	0.957	0.959	0.890	0.837	0.922	5.22
45)	T	1,2-Dichloropr...	0.350	0.331	0.313	0.310	0.332	0.304	0.308	0.291	0.282	0.314	6.80
46)	T	Bromodichlorom...	0.372	0.376	0.347	0.359	0.398	0.406	0.411	0.396	0.381	0.383	5.64
47)	T	Trichloroethene	0.279	0.273	0.306	0.280	0.305	0.274	0.279	0.264	0.264	0.281	5.43
48)	T	1,4-Dioxane	0.270	0.239	0.288	0.283	0.249	0.245	0.246	0.230	0.214	0.252	9.68
49)	T	2,2,4-Trimethy...	1.451	1.442	1.345	1.290	1.549	1.458	1.526	1.352	1.270	1.409	7.08
50)	T	Methyl Methacr...	0.089	0.094	0.109	0.112	0.118	0.121	0.123	0.118	0.112	0.111	10.69
51)	T	n-Heptane	0.329	0.287	0.268	0.289	0.282	0.248	0.245	0.223	0.223	0.266	13.06
52)	T	cis-1,3-Dichlo...	0.443	0.437	0.445	0.419	0.479	0.486	0.486	0.477	0.456	0.459	5.31
53)	T	4-Methyl-2-pen...	0.377	0.331	0.370	0.382	0.296	0.309	0.314	0.297	0.271	0.327	12.22
54)	T	trans-1,3-Dich...	0.382	0.398	0.387	0.406	0.432	0.461	0.487	0.462	0.432	0.427	8.65
55)	T	1,1,2-Trichlor...	0.287	0.265	0.266	0.265	0.291	0.281	0.299	0.279	0.258	0.277	5.00
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------										
57)	S	Toluene-d8 (SS2)	2.415	2.410	2.349	2.179	2.396	2.222	2.388	2.323	2.371	2.339	3.62
58)	T	Toluene	2.854	2.883	2.653	2.385	2.646	2.273	2.336	2.253	2.244	2.503	10.34
59)	T	2-Hexanone	2.197	2.190	2.254	2.307	1.763	1.604	1.755	1.627	1.585	1.920	16.05
60)	T	Dibromochlorom...	0.569	0.607	0.596	0.595	0.626	0.609	0.679	0.652	0.641	0.619	5.42
61)	T	1,2-Dibromoethane	0.708	0.716	0.641	0.662	0.670	0.642	0.687	0.654	0.641	0.669	4.31
62)	T	n-Butyl Acetate	2.459	2.355	2.138	2.442	1.916	1.837	1.935	1.800	1.777	2.073	13.54
63)	T	n-Octane	0.627	0.555	0.576	0.586	0.588	0.562	0.540	0.520	0.524	0.564	6.05
64)	T	Tetrachloroethene	0.822	0.734	0.724	0.672	0.718	0.664	0.650	0.638	0.651	0.697	8.46
65)	T	Chlorobenzene	1.904	1.844	1.721	1.657	1.662	1.573	1.614	1.524	1.502	1.667	8.22
66)	T	Ethylbenzene	3.012	3.077	2.937	2.869	2.909	2.880	2.932	2.751	2.688	2.895	4.13
67)	T	m- & p-Xylenes	2.349	2.308	2.193	2.274	2.211	2.248	2.310	2.162	2.131	2.243	3.29
68)	T	Bromoform	0.508	0.485	0.432	0.481	0.473	0.509	0.572	0.557	0.575	0.510	9.57
69)	T	Styrene	1.673	1.557	1.575	1.632	1.652	1.724	1.828	1.709	1.708	1.673	4.92
70)	T	o-Xylene	2.635	2.511	2.467	2.425	2.391	2.381	2.453	2.262	2.246	2.419	4.96

Method Path : I:\MS16\METHODS\
Method File : R16082813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

71)	T	n-Nonane	1.855	1.681	1.637	1.647	1.636	1.631	1.633	1.501	1.468	1.632	6.73
72)	T	1,1,2,2-Tetrac...	1.307	1.254	1.239	1.253	1.291	1.265	1.267	1.199	1.173	1.250	3.36
73)	S	Bromofluoroben...	0.903	0.895	0.895	0.893	0.875	0.897	0.911	0.903	0.925	0.900	1.50
74)	T	Cumene	3.218	3.281	2.918	2.976	2.979	2.975	3.041	2.854	2.828	3.008	5.08
75)	T	alpha-Pinene	1.448	1.347	1.307	1.341	1.465	1.511	1.573	1.484	1.484	1.440	6.19
76)	T	n-Propylbenzene	4.006	3.826	3.666	3.775	3.892	3.813	3.870	3.620	3.482	3.772	4.21
77)	T	3-Ethyltoluene	2.938	2.963	2.696	2.713	2.809	2.883	2.942	2.828	2.685	2.829	3.91
78)	T	4-Ethyltoluene	2.934	2.871	2.767	2.683	2.788	2.748	2.903	2.603	2.634	2.770	4.22
79)	T	1,3,5-Trimethy...	2.568	2.534	2.289	2.302	2.378	2.383	2.470	2.281	2.222	2.381	5.06
80)	T	alpha-Methylst...	0.856	0.873	0.798	0.819	1.197	1.302	1.388	1.278	1.261	1.086	22.33
81)	T	2-Ethyltoluene	2.855	2.765	2.740	2.734	2.885	2.825	2.923	2.670	2.598	2.777	3.78
82)	T	1,2,4-Trimethy...	2.541	2.515	2.382	2.343	2.441	2.469	2.603	2.401	2.379	2.453	3.53
83)	T	n-Decane	1.632	1.515	1.468	1.498	1.563	1.579	1.592	1.435	1.369	1.517	5.53
84)	T	Benzyl Chloride	1.789	1.812	1.724	1.725	1.890	2.156	2.411	2.216	2.157	1.987	12.65
85)	T	1,3-Dichlorobe...	1.436	1.498	1.359	1.340	1.363	1.340	1.416	1.287	1.273	1.368	5.23
86)	T	1,4-Dichlorobe...	1.617	1.678	1.460	1.381	1.391	1.377	1.457	1.334	1.306	1.445	8.74
87)	T	sec-Butylbenzene	3.290	3.200	3.236	3.125	3.234	3.256	3.320	2.996	2.859	3.169	4.77
88)	T	4-Isopropyltol...	3.175	3.078	2.937	2.958	2.968	3.078	3.166	2.901	2.843	3.011	3.90
89)	T	1,2,3-Trimethy...	2.773	2.630	2.462	2.497	2.591	2.557	2.642	2.390	2.331	2.541	5.38
90)	T	1,2-Dichlorobe...	1.635	1.450	1.341	1.352	1.376	1.329	1.387	1.255	1.228	1.373	8.66
91)	T	d-Limonene	0.745	0.723	0.753	0.745	1.021	1.113	1.149	1.037	0.997	0.920	19.12
92)	T	1,2-Dibromo-3-...	0.518	0.493	0.507	0.513	0.459	0.498	0.519	0.482	0.477	0.496	4.13
93)	T	n-Undecane	1.791	1.758	1.678	1.600	1.664	1.742	1.718	1.531	1.450	1.659	6.80
94)	T	1,2,4-Trichlor...	1.370	1.255	1.216	1.076	0.995	1.004	1.094	1.006	1.000	1.113	12.25
95)	T	Naphthalene	5.185	4.889	4.325	4.091	3.637	3.708	3.863	3.493	3.334	4.058	15.62
96)	T	n-Dodecane	1.968	1.870	1.772	1.825	1.744	1.788	1.681	1.494	1.426	1.730	10.04
97)	T	Hexachlorobuta...	0.618	0.673	0.630	0.588	0.602	0.578	0.610	0.566	0.574	0.604	5.54
98)	T	Cyclohexanone	1.687	1.675	1.447	1.448	1.093	1.075	1.015	0.959	0.928	1.259	24.30
99)	T	tert-Butylbenzene	2.328	2.353	2.148	2.239	2.327	2.285	2.383	2.214	2.209	2.276	3.44
100)	T	n-Butylbenzene	2.787	2.942	2.770	2.854	2.624	2.746	2.748	2.495	2.388	2.706	6.45

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\30\08301302.D
Acq On : 30 Aug 2013 3:37 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-08281301 (9/26)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 30 08:28:22 2013
Quant Method : I:\MS16\METHODS\R16082813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 29 09:01:52 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	95	-0.01
2	T	Propene	1.970	1.837	6.8	89	0.00
3	T	Dichlorodifluoromethane (CF	3.172	3.042	4.1	91	0.00
4	T	Chloromethane	2.820	2.764	2.0	92	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.412	1.394	1.3	95	0.00
6	T	Vinyl Chloride	2.405	2.375	1.2	96	0.00
7	T	1,3-Butadiene	1.755	1.665	5.1	91	0.00
8	T	Bromomethane	1.636	1.343	17.9	95	-0.01
9	T	Chloroethane	1.198	1.129	5.8	95	-0.01
10	T	Ethanol	1.396	1.224	12.3	96	-0.07
11	T	Acetonitrile	4.116	3.515	14.6	88	-0.04
12	T	Acrolein	1.222	0.974	20.3	87	-0.03
13	T	Acetone	1.403	1.094	22.0	88	-0.04
14	T	Trichlorofluoromethane	2.505	2.089	16.6	91	0.00
15	T	2-Propanol (Isopropanol)	4.849	4.429	8.7	89	-0.05
16	T	Acrylonitrile	2.267	2.133	5.9	88	-0.03
17	T	1,1-Dichloroethene	1.377	1.219	11.5	90	0.00
18	T	2-Methyl-2-Propanol (tert-B	4.516	3.841	14.9	88	-0.05
19	T	Methylene Chloride	1.720	1.464	14.9	89	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.484	2.143	13.7	89	-0.01
21	T	Trichlorotrifluoroethane	1.111	1.022	8.0	90	0.00
22	T	Carbon Disulfide	6.649	5.643	15.1	89	-0.01
23	T	trans-1,2-Dichloroethene	2.165	1.914	11.6	89	-0.02
24	T	1,1-Dichloroethane	2.607	2.179	16.4	86	-0.01
25	T	Methyl tert-Butyl Ether	4.326	4.063	6.1	89	-0.02
26	T	Vinyl Acetate	0.315	0.268	14.9	84	-0.03
27	T	2-Butanone (MEK)	0.957	0.796	16.8	90	-0.02
28	T	cis-1,2-Dichloroethene	2.022	1.771	12.4	86	-0.01
29	T	Diisopropyl Ether	1.026	0.909	11.4	88	-0.01
30	T	Ethyl Acetate	0.487	0.450	7.6	89	-0.02
31	T	n-Hexane	1.798	1.317	26.8	86	0.00
32	T	Chloroform	2.438	2.140	12.2	88	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.706	1.674	1.9	97	0.00
34	T	Tetrahydrofuran (THF)	0.849	0.780	8.1	89	-0.01
35	T	Ethyl tert-Butyl Ether	1.620	1.537	5.1	90	-0.01
36	T	1,2-Dichloroethane	1.925	1.683	12.6	92	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	99	0.00
38	T	1,1,1-Trichloroethane	0.461	0.441	4.3	91	0.00
39	T	Isopropyl Acetate	0.195	0.178	8.7	93	-0.01

VH 8/30/13

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\30\08301302.D
Acq On : 30 Aug 2013 3:37 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-08281301 (9/26)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 30 08:28:22 2013
Quant Method : I:\MS16\METHODS\R16082813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 29 09:01:52 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	1-Butanol	0.353	0.306	13.3	87	-0.03
41	T	Benzene	1.137	0.953	16.2	92	0.00
42	T	Carbon Tetrachloride	0.379	0.373	1.6	93	0.00
43	T	Cyclohexane	0.465	0.413	11.2	91	-0.01
44	T	tert-Amyl Methyl Ether	0.922	0.920	0.2	95	0.00
45	T	1,2-Dichloropropane	0.314	0.292	7.0	94	0.00
46	T	Bromodichloromethane	0.383	0.394	-2.9	95	0.00
47	T	Trichloroethene	0.281	0.260	7.5	92	0.00
48	T	1,4-Dioxane	0.252	0.228	9.5	92	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.409	1.406	0.2	91	-0.01
50	T	Methyl Methacrylate	0.111	0.115	-3.6	92	-0.01
51	T	n-Heptane	0.266	0.219	17.7	88	0.00
52	T	cis-1,3-Dichloropropene	0.459	0.468	-2.0	95	0.00
53	T	4-Methyl-2-pentanone	0.327	0.288	11.9	91	-0.01
54	T	trans-1,3-Dichloropropene	0.427	0.449	-5.2	91	0.00
55	T	1,1,2-Trichloroethane	0.277	0.275	0.7	91	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	100	0.00
57	S	Toluene-d8 (SS2)	2.339	2.321	0.8	97	0.00
58	T	Toluene	2.503	2.275	9.1	97	0.00
59	T	2-Hexanone	1.920	1.585	17.4	90	-0.01
60	T	Dibromochloromethane	0.619	0.636	-2.7	94	0.00
61	T	1,2-Dibromoethane	0.669	0.652	2.5	95	0.00
62	T	n-Butyl Acetate	2.073	1.764	14.9	91	0.00
63	T	n-Octane	0.564	0.524	7.1	97	0.00
64	T	Tetrachloroethene	0.697	0.634	9.0	98	0.00
65	T	Chlorobenzene	1.667	1.487	10.8	92	0.00
66	T	Ethylbenzene	2.895	2.705	6.6	92	0.00
67	T	m- & p-Xylenes	2.243	2.140	4.6	93	0.00
68	T	Bromoform	0.510	0.545	-6.9	95	0.00
69	T	Styrene	1.673	1.709	-2.2	94	0.00
70	T	o-Xylene	2.419	2.284	5.6	93	-0.01
71	T	n-Nonane	1.632	1.533	6.1	94	0.00
72	T	1,1,2,2-Tetrachloroethane	1.250	1.230	1.6	97	0.00
73	S	Bromofluorobenzene (SS3)	0.900	0.963	-7.0	106	0.00
74	T	Cumene	3.008	2.902	3.5	96	0.00
75	T	alpha-Pinene	1.440	1.477	-2.6	94	0.00
76	T	n-Propylbenzene	3.772	3.708	1.7	96	0.00
77	T	3-Ethyltoluene	2.829	2.815	0.5	96	0.00
78	T	4-Ethyltoluene	2.770	2.776	-0.2	96	0.00

LH 8/30/13

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\30\08301302.D
Acq On : 30 Aug 2013 3:37 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-08281301 (9/26)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 30 08:28:22 2013
Quant Method : I:\MS16\METHODS\R16082813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 29 09:01:52 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	T	1,3,5-Trimethylbenzene	2.381	2.354	1.1	95	-0.01
80	T	alpha-Methylstyrene	1.086	1.299	-19.6	94	-0.01
81	T	2-Ethyltoluene	2.777	2.773	0.1	95	0.00
82	T	1,2,4-Trimethylbenzene	2.453	2.438	0.6	94	-0.01
83	T	n-Decane	1.517	1.484	2.2	93	0.00
84	T	Benzyl Chloride	1.987	2.243	-12.9	93	-0.01
85	T	1,3-Dichlorobenzene	1.368	1.324	3.2	94	-0.01
86	T	1,4-Dichlorobenzene	1.445	1.364	5.6	94	0.00
87	T	sec-Butylbenzene	3.169	3.111	1.8	94	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.011	2.968	1.4	94	0.00
89	T	1,2,3-Trimethylbenzene	2.541	2.462	3.1	93	0.00
90	T	1,2-Dichlorobenzene	1.373	1.291	6.0	93	0.00
91	T	d-Limonene	0.920	1.060	-15.2	92	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.496	0.506	-2.0	98	0.00
93	T	n-Undecane	1.659	1.586	4.4	92	0.00
94	T	1,2,4-Trichlorobenzene	1.113	1.018	8.5	93	0.00
95	T	Naphthalene	4.058	3.601	11.3	93	0.00
96	T	n-Dodecane	1.730	1.518	12.3	90	0.00
97	T	Hexachlorobutadiene	0.604	0.571	5.5	94	0.00
98	T	Cyclohexanone	1.259	0.947	24.8	93	-0.01
99	T	tert-Butylbenzene	2.276	2.249	1.2	94	0.00
100	T	n-Butylbenzene	2.706	2.614	3.4	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

VM 8/30/13

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LABORATORY REPORT

September 4, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on August 22, 2013. For your reference, these analyses have been assigned our service request number P1303695.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 2:52 pm, Sep 04, 2013

Kate Aguilera
Project Manager

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www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon #2-3620

Service Request No: P1303695

CASE NARRATIVE

The samples were received intact under chain of custody on August 22, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon #2-3620
Service Request: P1303695

Date Received: 8/22/2013
Time Received: 07:25

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
011 2-3620 (250g)	P1303695-001	Air	8/21/2013	13:45	1SC01059	0.34	5.66	X	
012 2-3620 (250g)	P1303695-002	Air	8/21/2013	14:30	1SS00016	-0.53	5.32	X	
013 2-3620 (250g)	P1303695-003	Air	8/21/2013	15:15	1SC00917	-1.04	5.12	X	
014 2-3620 (250g)	P1303695-004	Air	8/21/2013	16:00	1SC00611	-1.86	5.33	X	
2-3620 011 (250g)	P1303695-005	Air	8/21/2013	13:45					X
2-3620 012 (250g)	P1303695-006	Air	8/21/2013	14:30					X
2-3620 013 (250g)	P1303695-007	Air	8/21/2013	15:15					X
2-3620 014 (250g)	P1303695-008	Air	8/21/2013	16:00					X

Air - Chain of Custody Record & Analytical Service Request

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2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No: P1303695

Company Name & Address (Reporting Information)	CH2M Hill 1717 Arch Street, Suite 4400 Philadelphia, PA 19103
Project Name	Pfizer Tier IV
Project Number	RECON # 2-3620
Project Manager	Richard Traver
P.O. # / Billing Information	
Phone	215 640 9105
Fax	215 640 9305
Email Address for Result Reporting	richard.traver@CH2M.com
Sampler (Print & Sign)	Glenn R. Knierim
ALS Contact:	

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Analytical Summa Canisters	Comments e.g. Actual Preservative or specific instructions
011 2-3620 (250 g)	(1) +0.24	8-21-13	1345 CDT	ISC01059	OA01175	-29	-1	1l	x	1	TO-15 started 8-20-13 24-hr
012	(2) -0.64	8-21-13	1430 CDT	ISC00016	OA01174	-26	-10	1l	x	1	24-hr
013	(3) -1.14	8-21-13	1515 CDT	ISC00917	OA00047	-25	-3	1l	x	1	24-hr
014	(4) -2.00	8-21-13	1600 CDT	ISC00611	OA00403	-27	-2	1l	x	1	24-hr
—	—	—	—	—	—	—	—	—	—	—	—
2-3620 011 (250 g)	(5)	8-21-13	1345 CDT	—	—	—	—	1l	—	x	15 min - Tedlar
012	(6)		1430 CDT	—	—	—	—	1l	—	x	
013	(7)		1515 CDT	—	—	—	—	1l	—	x	
014	(8)		1600 CDT	—	—	—	—	1l	—	x	

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____
Tier II (Results + QC Summaries _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Glenn R. Knierim	Date: 8-21-13	Time:	Received by: (Signature)	FedEx 8026 7628 7514	Date: 8-21-13	Time:
Relinquished by: (Signature)	FedEx	Date:	Time:	Received by: (Signature)		Date: 8/22/13	Time: 0125

Cooler / Blank Temperature _____ °C

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ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1303695

Project: Pfizer Tier IV / Recon #2-3620

Sample(s) received on: 8/22/13 Date opened: 8/22/13 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☐	☒	☐
2	Container(s) **supplied by CAS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Top of box, covering opening. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1303695-001.01	1.0 L Source Can					
P1303695-002.01	1.0 L Silonite Can					
P1303695-003.01	1.0 L Source Can					
P1303695-004.01	1.0 L Source Can					
P1303695-005.01	1 L Zefon Bag					
P1303695-006.01	1 L Zefon Bag					
P1303695-007.01	1 L Zefon Bag					
P1303695-008.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers):

Canisters were received without ID information, and are assigned by the canister serial numbers listed on COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 011 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303695
ALS Sample ID: P1303695-005

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/21/13
Time Collected: 13:45
Date Received: 8/22/13
Date Analyzed: 8/22/13
Time Analyzed: 09:03
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**160**	7.8	**50**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**41**	17	**12**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 012 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303695
ALS Sample ID: P1303695-006

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/21/13
Time Collected: 14:30
Date Received: 8/22/13
Date Analyzed: 8/22/13
Time Analyzed: 09:22
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**310**	7.8	**100**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**94**	17	**27**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 013 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303695
ALS Sample ID: P1303695-007

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/21/13
Time Collected: 15:15
Date Received: 8/22/13
Date Analyzed: 8/22/13
Time Analyzed: 09:43
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**43**	12	**17**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**51**	13	**20**	5.0	
75-15-0	Carbon Disulfide	**980**	7.8	**310**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**19**	16	**6.1**	5.0	
110-02-1	Thiophene	**220**	17	**64**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	**82**	20	**20**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**53**	23	**12**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 014 (250g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303695
ALS Sample ID: P1303695-008

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/21/13
Time Collected: 16:00
Date Received: 8/22/13
Date Analyzed: 8/22/13
Time Analyzed: 10:00
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**22**	13	**8.8**	5.0	
75-15-0	Carbon Disulfide	**540**	7.8	**170**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**130**	17	**39**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	**44**	20	**11**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303695
ALS Sample ID: P130822-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/22/13
Time Analyzed: 08:20
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1303695
ALS Sample ID: P130822-LCS

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 8/22/13
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**1,700**	**83**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**1,730**	**86**	63-138	
74-93-1	Methyl Mercaptan	1,890	**1,780**	**94**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **011 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-001

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes: 0.000025 Liter(s)
Container ID: 1SC01059

Initial Pressure (psig): 0.34 Final Pressure (psig): 5.66

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	14,000	ND	7,800	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	14,000	ND	2,700	
74-87-3	Chloromethane	ND	14,000	ND	6,500	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	14,000	ND	1,900	
75-01-4	Vinyl Chloride	ND	14,000	ND	5,300	
106-99-0	1,3-Butadiene	ND	14,000	ND	6,100	
74-83-9	Bromomethane	ND	14,000	ND	3,500	
75-00-3	Chloroethane	ND	14,000	ND	5,100	
64-17-5	Ethanol	ND	140,000	ND	72,000	
75-05-8	Acetonitrile	ND	14,000	ND	8,000	
107-02-8	Acrolein	ND	54,000	ND	24,000	
67-64-1	Acetone	ND	140,000	ND	57,000	
75-69-4	Trichlorofluoromethane	ND	14,000	ND	2,400	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	140,000	ND	55,000	
107-13-1	Acrylonitrile	ND	14,000	ND	6,200	
75-35-4	1,1-Dichloroethene	ND	14,000	ND	3,400	
75-09-2	Methylene Chloride	ND	14,000	ND	3,900	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	14,000	ND	4,300	
76-13-1	Trichlorotrifluoroethane	ND	14,000	ND	1,800	
75-15-0	Carbon Disulfide	ND	140,000	ND	43,000	
156-60-5	trans-1,2-Dichloroethene	ND	14,000	ND	3,400	
75-34-3	1,1-Dichloroethane	ND	14,000	ND	3,300	
1634-04-4	Methyl tert-Butyl Ether	ND	14,000	ND	3,700	
108-05-4	Vinyl Acetate	ND	140,000	ND	38,000	
78-93-3	2-Butanone (MEK)	ND	140,000	ND	46,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **011 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-001

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes: 0.000025 Liter(s)
Container ID: 1SC01059

Initial Pressure (psig): 0.34 Final Pressure (psig): 5.66

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	14,000	ND	3,400	
141-78-6	Ethyl Acetate	ND	27,000	ND	7,500	
110-54-3	n-Hexane	ND	14,000	ND	3,800	
67-66-3	Chloroform	ND	14,000	ND	2,800	
109-99-9	Tetrahydrofuran (THF)	ND	14,000	ND	4,600	
107-06-2	1,2-Dichloroethane	ND	14,000	ND	3,300	
71-55-6	1,1,1-Trichloroethane	ND	14,000	ND	2,500	
71-43-2	Benzene	**2,700,000**	27,000	**840,000**	8,500	**D**
56-23-5	Carbon Tetrachloride	ND	14,000	ND	2,100	
110-82-7	Cyclohexane	ND	27,000	ND	7,800	
78-87-5	1,2-Dichloropropane	ND	14,000	ND	2,900	
75-27-4	Bromodichloromethane	ND	14,000	ND	2,000	
79-01-6	Trichloroethene	ND	14,000	ND	2,500	
123-91-1	1,4-Dioxane	ND	14,000	ND	3,700	
80-62-6	Methyl Methacrylate	ND	27,000	ND	6,600	
142-82-5	n-Heptane	ND	14,000	ND	3,300	
10061-01-5	cis-1,3-Dichloropropene	ND	14,000	ND	3,000	
108-10-1	4-Methyl-2-pentanone	ND	14,000	ND	3,300	
10061-02-6	trans-1,3-Dichloropropene	ND	14,000	ND	3,000	
79-00-5	1,1,2-Trichloroethane	ND	14,000	ND	2,500	
108-88-3	Toluene	**330,000**	14,000	**87,000**	3,600	
591-78-6	2-Hexanone	ND	14,000	ND	3,300	
124-48-1	Dibromochloromethane	ND	14,000	ND	1,600	
106-93-4	1,2-Dibromoethane	ND	14,000	ND	1,800	
123-86-4	n-Butyl Acetate	ND	14,000	ND	2,800	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Client: **CH2M Hill** ALS Project ID: P1303695
Client Sample ID: **011 2-3620 (250g)** ALS Sample ID: P1303695-001
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code:	EPA TO-15	Date Collected:	8/21/13
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16	Date Received:	8/22/13
Analyst:	Lusine Hakobyan	Date Analyzed:	8/29/13
Sample Type:	1.0 L Summa Canister	Volume(s) Analyzed:	0.000050 Liter(s)
Test Notes:			0.000025 Liter(s)
Container ID:	1SC01059		

Initial Pressure (psig): 0.34 Final Pressure (psig): 5.66

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	14,000	ND	2,900	
127-18-4	Tetrachloroethene	ND	14,000	ND	2,000	
108-90-7	Chlorobenzene	ND	14,000	ND	2,900	
100-41-4	Ethylbenzene	ND	14,000	ND	3,100	
179601-23-1	m,p-Xylenes	ND	27,000	ND	6,200	
75-25-2	Bromoform	ND	14,000	ND	1,300	
100-42-5	Styrene	ND	14,000	ND	3,200	
95-47-6	o-Xylene	ND	14,000	ND	3,100	
111-84-2	n-Nonane	ND	14,000	ND	2,600	
79-34-5	1,1,2,2-Tetrachloroethane	ND	14,000	ND	2,000	
98-82-8	Cumene	ND	14,000	ND	2,700	
80-56-8	alpha-Pinene	ND	14,000	ND	2,400	
103-65-1	n-Propylbenzene	ND	14,000	ND	2,700	
622-96-8	4-Ethyltoluene	ND	14,000	ND	2,700	
108-67-8	1,3,5-Trimethylbenzene	ND	14,000	ND	2,700	
95-63-6	1,2,4-Trimethylbenzene	ND	14,000	ND	2,700	
100-44-7	Benzyl Chloride	ND	14,000	ND	2,600	
541-73-1	1,3-Dichlorobenzene	ND	14,000	ND	2,200	
106-46-7	1,4-Dichlorobenzene	ND	14,000	ND	2,200	
95-50-1	1,2-Dichlorobenzene	ND	14,000	ND	2,200	
5989-27-5	d-Limonene	ND	14,000	ND	2,400	
96-12-8	1,2-Dibromo-3-chloropropane	ND	14,000	ND	1,400	
120-82-1	1,2,4-Trichlorobenzene	ND	14,000	ND	1,800	
91-20-3	Naphthalene	ND	14,000	ND	2,600	
87-68-3	Hexachlorobutadiene	ND	14,000	ND	1,300	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **012 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-002

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: Volume(s) Analyzed: 1.0000040 Liter(s)
Test Notes:
Container ID: 1SS00016

Initial Pressure (psig): -0.53 Final Pressure (psig): 5.32

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	180,000	ND	100,000	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	180,000	ND	36,000	
74-87-3	Chloromethane	ND	180,000	ND	85,000	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	180,000	ND	25,000	
75-01-4	Vinyl Chloride	ND	180,000	ND	69,000	
106-99-0	1,3-Butadiene	ND	180,000	ND	80,000	
74-83-9	Bromomethane	ND	180,000	ND	45,000	
75-00-3	Chloroethane	ND	180,000	ND	67,000	
64-17-5	Ethanol	ND	1,800,000	ND	940,000	
75-05-8	Acetonitrile	ND	180,000	ND	110,000	
107-02-8	Acrolein	ND	710,000	ND	310,000	
67-64-1	Acetone	ND	1,800,000	ND	740,000	
75-69-4	Trichlorofluoromethane	ND	180,000	ND	31,000	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1,800,000	ND	720,000	
107-13-1	Acrylonitrile	ND	180,000	ND	81,000	
75-35-4	1,1-Dichloroethene	ND	180,000	ND	44,000	
75-09-2	Methylene Chloride	ND	180,000	ND	51,000	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	180,000	ND	56,000	
76-13-1	Trichlorotrifluoroethane	ND	180,000	ND	23,000	
75-15-0	Carbon Disulfide	ND	1,800,000	ND	570,000	
156-60-5	trans-1,2-Dichloroethene	ND	180,000	ND	44,000	
75-34-3	1,1-Dichloroethane	ND	180,000	ND	44,000	
1634-04-4	Methyl tert-Butyl Ether	ND	180,000	ND	49,000	
108-05-4	Vinyl Acetate	ND	1,800,000	ND	500,000	
78-93-3	2-Butanone (MEK)	ND	1,800,000	ND	600,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **012 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-002

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: Volume(s) Analyzed: 1.0000040 Liter(s)
Test Notes:
Container ID: 1SS00016

Initial Pressure (psig): -0.53 Final Pressure (psig): 5.32

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	180,000	ND	44,000	
141-78-6	Ethyl Acetate	ND	350,000	ND	98,000	
110-54-3	n-Hexane	ND	180,000	ND	50,000	
67-66-3	Chloroform	ND	180,000	ND	36,000	
109-99-9	Tetrahydrofuran (THF)	ND	180,000	ND	60,000	
107-06-2	1,2-Dichloroethane	ND	180,000	ND	44,000	
71-55-6	1,1,1-Trichloroethane	ND	180,000	ND	32,000	
71-43-2	Benzene	**24,000,000**	180,000	**7,700,000**	55,000	
56-23-5	Carbon Tetrachloride	ND	180,000	ND	28,000	
110-82-7	Cyclohexane	ND	350,000	ND	100,000	
78-87-5	1,2-Dichloropropane	ND	180,000	ND	38,000	
75-27-4	Bromodichloromethane	ND	180,000	ND	26,000	
79-01-6	Trichloroethene	ND	180,000	ND	33,000	
123-91-1	1,4-Dioxane	ND	180,000	ND	49,000	
80-62-6	Methyl Methacrylate	ND	350,000	ND	86,000	
142-82-5	n-Heptane	ND	180,000	ND	43,000	
10061-01-5	cis-1,3-Dichloropropene	ND	180,000	ND	39,000	
108-10-1	4-Methyl-2-pentanone	ND	180,000	ND	43,000	
10061-02-6	trans-1,3-Dichloropropene	ND	180,000	ND	39,000	
79-00-5	1,1,2-Trichloroethane	ND	180,000	ND	32,000	
108-88-3	Toluene	**3,300,000**	180,000	**880,000**	47,000	
591-78-6	2-Hexanone	ND	180,000	ND	43,000	
124-48-1	Dibromochloromethane	ND	180,000	ND	21,000	
106-93-4	1,2-Dibromoethane	ND	180,000	ND	23,000	
123-86-4	n-Butyl Acetate	ND	180,000	ND	37,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill** ALS Project ID: P1303695
Client Sample ID: **012 2-3620 (250g)** ALS Sample ID: P1303695-002
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: Volume(s) Analyzed: 1.0000040 Liter(s)
Test Notes:
Container ID: 1SS00016

Initial Pressure (psig): -0.53 Final Pressure (psig): 5.32

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	180,000	ND	38,000	
127-18-4	Tetrachloroethene	ND	180,000	ND	26,000	
108-90-7	Chlorobenzene	ND	180,000	ND	38,000	
100-41-4	Ethylbenzene	ND	180,000	ND	41,000	
179601-23-1	m,p-Xylenes	ND	350,000	ND	81,000	
75-25-2	Bromoform	ND	180,000	ND	17,000	
100-42-5	Styrene	ND	180,000	ND	41,000	
95-47-6	o-Xylene	ND	180,000	ND	41,000	
111-84-2	n-Nonane	ND	180,000	ND	34,000	
79-34-5	1,1,2,2-Tetrachloroethane	ND	180,000	ND	26,000	
98-82-8	Cumene	ND	180,000	ND	36,000	
80-56-8	alpha-Pinene	ND	180,000	ND	32,000	
103-65-1	n-Propylbenzene	ND	180,000	ND	36,000	
622-96-8	4-Ethyltoluene	ND	180,000	ND	36,000	
108-67-8	1,3,5-Trimethylbenzene	ND	180,000	ND	36,000	
95-63-6	1,2,4-Trimethylbenzene	ND	180,000	ND	36,000	
100-44-7	Benzyl Chloride	ND	180,000	ND	34,000	
541-73-1	1,3-Dichlorobenzene	ND	180,000	ND	29,000	
106-46-7	1,4-Dichlorobenzene	ND	180,000	ND	29,000	
95-50-1	1,2-Dichlorobenzene	ND	180,000	ND	29,000	
5989-27-5	d-Limonene	ND	180,000	ND	32,000	
96-12-8	1,2-Dibromo-3-chloropropane	ND	180,000	ND	18,000	
120-82-1	1,2,4-Trichlorobenzene	ND	180,000	ND	24,000	
91-20-3	Naphthalene	ND	180,000	ND	34,000	
87-68-3	Hexachlorobutadiene	ND	180,000	ND	17,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **013 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-003

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.0000060 Liter(s)
Test Notes:
Container ID: 1SC00917

Initial Pressure (psig): -1.04 Final Pressure (psig): 5.12

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	120,000	ND	70,000	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	120,000	ND	24,000	
74-87-3	Chloromethane	ND	120,000	ND	59,000	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	120,000	ND	17,000	
75-01-4	Vinyl Chloride	ND	120,000	ND	47,000	
106-99-0	1,3-Butadiene	ND	120,000	ND	55,000	
74-83-9	Bromomethane	ND	120,000	ND	31,000	
75-00-3	Chloroethane	ND	120,000	ND	46,000	
64-17-5	Ethanol	ND	1,200,000	ND	640,000	
75-05-8	Acetonitrile	ND	120,000	ND	72,000	
107-02-8	Acrolein	ND	480,000	ND	210,000	
67-64-1	Acetone	ND	1,200,000	ND	510,000	
75-69-4	Trichlorofluoromethane	ND	120,000	ND	22,000	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1,200,000	ND	490,000	
107-13-1	Acrylonitrile	ND	120,000	ND	56,000	
75-35-4	1,1-Dichloroethene	ND	120,000	ND	30,000	
75-09-2	Methylene Chloride	ND	120,000	ND	35,000	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	120,000	ND	39,000	
76-13-1	Trichlorotrifluoroethane	ND	120,000	ND	16,000	
75-15-0	Carbon Disulfide	ND	1,200,000	ND	390,000	
156-60-5	trans-1,2-Dichloroethene	ND	120,000	ND	30,000	
75-34-3	1,1-Dichloroethane	ND	120,000	ND	30,000	
1634-04-4	Methyl tert-Butyl Ether	ND	120,000	ND	34,000	
108-05-4	Vinyl Acetate	ND	1,200,000	ND	340,000	
78-93-3	2-Butanone (MEK)	ND	1,200,000	ND	410,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **013 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-003

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.0000060 Liter(s)
Test Notes:
Container ID: 1SC00917

Initial Pressure (psig): -1.04 Final Pressure (psig): 5.12

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	120,000	ND	30,000	
141-78-6	Ethyl Acetate	ND	240,000	ND	67,000	
110-54-3	n-Hexane	ND	120,000	ND	34,000	
67-66-3	Chloroform	ND	120,000	ND	25,000	
109-99-9	Tetrahydrofuran (THF)	ND	120,000	ND	41,000	
107-06-2	1,2-Dichloroethane	ND	120,000	ND	30,000	
71-55-6	1,1,1-Trichloroethane	ND	120,000	ND	22,000	
71-43-2	Benzene	**22,000,000**	120,000	**6,800,000**	38,000	
56-23-5	Carbon Tetrachloride	ND	120,000	ND	19,000	
110-82-7	Cyclohexane	ND	240,000	ND	70,000	
78-87-5	1,2-Dichloropropane	ND	120,000	ND	26,000	
75-27-4	Bromodichloromethane	ND	120,000	ND	18,000	
79-01-6	Trichloroethene	ND	120,000	ND	22,000	
123-91-1	1,4-Dioxane	ND	120,000	ND	34,000	
80-62-6	Methyl Methacrylate	ND	240,000	ND	59,000	
142-82-5	n-Heptane	ND	120,000	ND	29,000	
10061-01-5	cis-1,3-Dichloropropene	ND	120,000	ND	27,000	
108-10-1	4-Methyl-2-pentanone	ND	120,000	ND	29,000	
10061-02-6	trans-1,3-Dichloropropene	ND	120,000	ND	27,000	
79-00-5	1,1,2-Trichloroethane	ND	120,000	ND	22,000	
108-88-3	Toluene	**2,600,000**	120,000	**680,000**	32,000	
591-78-6	2-Hexanone	ND	120,000	ND	30,000	
124-48-1	Dibromochloromethane	ND	120,000	ND	14,000	
106-93-4	1,2-Dibromoethane	ND	120,000	ND	16,000	
123-86-4	n-Butyl Acetate	ND	120,000	ND	25,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303695
Client Sample ID: **013 2-3620 (250g)** ALS Sample ID: P1303695-003
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.0000060 Liter(s)
Test Notes:
Container ID: 1SC00917

Initial Pressure (psig): -1.04 Final Pressure (psig): 5.12

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	120,000	ND	26,000	
127-18-4	Tetrachloroethene	ND	120,000	ND	18,000	
108-90-7	Chlorobenzene	ND	120,000	ND	26,000	
100-41-4	Ethylbenzene	ND	120,000	ND	28,000	
179601-23-1	m,p-Xylenes	ND	240,000	ND	56,000	
75-25-2	Bromoform	ND	120,000	ND	12,000	
100-42-5	Styrene	ND	120,000	ND	28,000	
95-47-6	o-Xylene	ND	120,000	ND	28,000	
111-84-2	n-Nonane	ND	120,000	ND	23,000	
79-34-5	1,1,2,2-Tetrachloroethane	ND	120,000	ND	18,000	
98-82-8	Cumene	ND	120,000	ND	25,000	
80-56-8	alpha-Pinene	ND	120,000	ND	22,000	
103-65-1	n-Propylbenzene	ND	120,000	ND	25,000	
622-96-8	4-Ethyltoluene	ND	120,000	ND	25,000	
108-67-8	1,3,5-Trimethylbenzene	ND	120,000	ND	25,000	
95-63-6	1,2,4-Trimethylbenzene	ND	120,000	ND	25,000	
100-44-7	Benzyl Chloride	ND	120,000	ND	23,000	
541-73-1	1,3-Dichlorobenzene	ND	120,000	ND	20,000	
106-46-7	1,4-Dichlorobenzene	ND	120,000	ND	20,000	
95-50-1	1,2-Dichlorobenzene	ND	120,000	ND	20,000	
5989-27-5	d-Limonene	ND	120,000	ND	22,000	
96-12-8	1,2-Dibromo-3-chloropropane	ND	120,000	ND	13,000	
120-82-1	1,2,4-Trichlorobenzene	ND	120,000	ND	16,000	
91-20-3	Naphthalene	ND	120,000	ND	23,000	
87-68-3	Hexachlorobutadiene	ND	120,000	ND	11,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **014 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-004

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.0000040 Liter(s)
Test Notes:
Container ID: 1SC00611

Initial Pressure (psig): -1.86 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.56

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	200,000	ND	110,000	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	200,000	ND	39,000	
74-87-3	Chloromethane	ND	200,000	ND	94,000	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	200,000	ND	28,000	
75-01-4	Vinyl Chloride	ND	200,000	ND	76,000	
106-99-0	1,3-Butadiene	ND	200,000	ND	88,000	
74-83-9	Bromomethane	ND	200,000	ND	50,000	
75-00-3	Chloroethane	ND	200,000	ND	74,000	
64-17-5	Ethanol	ND	2,000,000	ND	1,000,000	
75-05-8	Acetonitrile	ND	200,000	ND	120,000	
107-02-8	Acrolein	ND	780,000	ND	340,000	
67-64-1	Acetone	ND	2,000,000	ND	820,000	
75-69-4	Trichlorofluoromethane	ND	200,000	ND	35,000	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2,000,000	ND	790,000	
107-13-1	Acrylonitrile	ND	200,000	ND	90,000	
75-35-4	1,1-Dichloroethene	ND	200,000	ND	49,000	
75-09-2	Methylene Chloride	ND	200,000	ND	56,000	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	200,000	ND	62,000	
76-13-1	Trichlorotrifluoroethane	ND	200,000	ND	25,000	
75-15-0	Carbon Disulfide	ND	2,000,000	ND	630,000	
156-60-5	trans-1,2-Dichloroethene	ND	200,000	ND	49,000	
75-34-3	1,1-Dichloroethane	ND	200,000	ND	48,000	
1634-04-4	Methyl tert-Butyl Ether	ND	200,000	ND	54,000	
108-05-4	Vinyl Acetate	ND	2,000,000	ND	550,000	
78-93-3	2-Butanone (MEK)	ND	2,000,000	ND	660,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **014 2-3620 (250g)** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1303695-004

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.0000040 Liter(s)
Test Notes:
Container ID: 1SC00611

Initial Pressure (psig): -1.86 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.56

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	200,000	ND	49,000	
141-78-6	Ethyl Acetate	ND	390,000	ND	110,000	
110-54-3	n-Hexane	ND	200,000	ND	55,000	
67-66-3	Chloroform	ND	200,000	ND	40,000	
109-99-9	Tetrahydrofuran (THF)	ND	200,000	ND	66,000	
107-06-2	1,2-Dichloroethane	ND	200,000	ND	48,000	
71-55-6	1,1,1-Trichloroethane	ND	200,000	ND	36,000	
71-43-2	Benzene	**32,000,000**	200,000	**10,000,000**	61,000	
56-23-5	Carbon Tetrachloride	ND	200,000	ND	31,000	
110-82-7	Cyclohexane	ND	390,000	ND	110,000	
78-87-5	1,2-Dichloropropane	ND	200,000	ND	42,000	
75-27-4	Bromodichloromethane	ND	200,000	ND	29,000	
79-01-6	Trichloroethene	ND	200,000	ND	36,000	
123-91-1	1,4-Dioxane	ND	200,000	ND	54,000	
80-62-6	Methyl Methacrylate	ND	390,000	ND	95,000	
142-82-5	n-Heptane	ND	200,000	ND	48,000	
10061-01-5	cis-1,3-Dichloropropene	ND	200,000	ND	43,000	
108-10-1	4-Methyl-2-pentanone	ND	200,000	ND	48,000	
10061-02-6	trans-1,3-Dichloropropene	ND	200,000	ND	43,000	
79-00-5	1,1,2-Trichloroethane	ND	200,000	ND	36,000	
108-88-3	Toluene	**4,100,000**	200,000	**1,100,000**	52,000	
591-78-6	2-Hexanone	ND	200,000	ND	48,000	
124-48-1	Dibromochloromethane	ND	200,000	ND	23,000	
106-93-4	1,2-Dibromoethane	ND	200,000	ND	25,000	
123-86-4	n-Butyl Acetate	ND	200,000	ND	41,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303695
Client Sample ID: **014 2-3620 (250g)** ALS Sample ID: P1303695-004
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 8/21/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/22/13
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.0000040 Liter(s)
Test Notes:
Container ID: 1SC00611

Initial Pressure (psig): -1.86 Final Pressure (psig): 5.33

Canister Dilution Factor: 1.56

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	200,000	ND	42,000	
127-18-4	Tetrachloroethene	ND	200,000	ND	29,000	
108-90-7	Chlorobenzene	ND	200,000	ND	42,000	
100-41-4	Ethylbenzene	ND	200,000	ND	45,000	
179601-23-1	m,p-Xylenes	ND	390,000	ND	90,000	
75-25-2	Bromoform	ND	200,000	ND	19,000	
100-42-5	Styrene	ND	200,000	ND	46,000	
95-47-6	o-Xylene	ND	200,000	ND	45,000	
111-84-2	n-Nonane	ND	200,000	ND	37,000	
79-34-5	1,1,2,2-Tetrachloroethane	ND	200,000	ND	28,000	
98-82-8	Cumene	ND	200,000	ND	40,000	
80-56-8	alpha-Pinene	ND	200,000	ND	35,000	
103-65-1	n-Propylbenzene	ND	200,000	ND	40,000	
622-96-8	4-Ethyltoluene	ND	200,000	ND	40,000	
108-67-8	1,3,5-Trimethylbenzene	ND	200,000	ND	40,000	
95-63-6	1,2,4-Trimethylbenzene	ND	200,000	ND	40,000	
100-44-7	Benzyl Chloride	ND	200,000	ND	38,000	
541-73-1	1,3-Dichlorobenzene	ND	200,000	ND	32,000	
106-46-7	1,4-Dichlorobenzene	ND	200,000	ND	32,000	
95-50-1	1,2-Dichlorobenzene	ND	200,000	ND	32,000	
5989-27-5	d-Limonene	ND	200,000	ND	35,000	
96-12-8	1,2-Dibromo-3-chloropropane	ND	200,000	ND	20,000	
120-82-1	1,2,4-Trichlorobenzene	ND	200,000	ND	26,000	
91-20-3	Naphthalene	ND	200,000	ND	37,000	
87-68-3	Hexachlorobutadiene	ND	200,000	ND	18,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130829-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1303695

Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130829-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA

Analyst: Lusine Hakobyan Date Analyzed: 8/29/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303695

Client Sample ID: **Method Blank** ALS Sample ID: P130829-MB

Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA

Analyst: Lusine Hakobyan Date Analyzed: 8/29/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Project ID: P1303695

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 8/21/13
Analyst: Lusine Hakobyan Date(s) Received: 8/22/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 8/29/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130829-MB	**105**	**103**	**104**	70-130	
Lab Control Sample	P130829-LCS	**97**	**98**	**107**	70-130	
011 2-3620 (250g)	P1303695-001	**104**	**106**	**102**	70-130	
012 2-3620 (250g)	P1303695-002	**100**	**99**	**101**	70-130	
013 2-3620 (250g)	P1303695-003	**94**	**99**	**112**	70-130	
014 2-3620 (250g)	P1303695-004	**100**	**101**	**101**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130829-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**194**	**97**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**206**	**101**	63-115	
74-87-3	Chloromethane	198	**193**	**97**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**199**	**98**	65-115	
75-01-4	Vinyl Chloride	200	**198**	**99**	64-122	
106-99-0	1,3-Butadiene	212	**203**	**96**	57-141	
74-83-9	Bromomethane	200	**170**	**85**	68-122	
75-00-3	Chloroethane	202	**201**	**100**	66-120	
64-17-5	Ethanol	1,020	**998**	**98**	58-126	
75-05-8	Acetonitrile	202	**192**	**95**	64-136	
107-02-8	Acrolein	214	**191**	**89**	58-129	
67-64-1	Acetone	1,080	**923**	**85**	60-114	
75-69-4	Trichlorofluoromethane	198	**177**	**89**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**410**	**98**	54-118	
107-13-1	Acrylonitrile	208	**213**	**102**	72-143	
75-35-4	1,1-Dichloroethene	214	**202**	**94**	69-119	
75-09-2	Methylene Chloride	216	**187**	**87**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**205**	**95**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**215**	**100**	69-117	
75-15-0	Carbon Disulfide	196	**185**	**94**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**208**	**98**	70-126	
75-34-3	1,1-Dichloroethane	208	**192**	**92**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**222**	**105**	69-120	
108-05-4	Vinyl Acetate	1,020	**939**	**92**	58-160	
78-93-3	2-Butanone (MEK)	218	**189**	**87**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130829-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**204**	**95**	70-119	
141-78-6	Ethyl Acetate	426	**412**	**97**	72-129	
110-54-3	n-Hexane	210	**168**	**80**	63-115	
67-66-3	Chloroform	214	**196**	**92**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**203**	**99**	60-126	
107-06-2	1,2-Dichloroethane	210	**193**	**92**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**221**	**107**	68-120	
71-43-2	Benzene	220	**202**	**92**	69-117	
56-23-5	Carbon Tetrachloride	210	**231**	**110**	65-134	
110-82-7	Cyclohexane	420	**431**	**103**	69-114	
78-87-5	1,2-Dichloropropane	212	**211**	**100**	70-116	
75-27-4	Bromodichloromethane	214	**245**	**114**	71-126	
79-01-6	Trichloroethene	208	**212**	**102**	71-119	
123-91-1	1,4-Dioxane	218	**218**	**100**	72-126	
80-62-6	Methyl Methacrylate	420	**482**	**115**	75-136	
142-82-5	n-Heptane	214	**198**	**93**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**253**	**112**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**214**	**98**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**251**	**116**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**231**	**110**	72-119	
108-88-3	Toluene	210	**201**	**96**	65-116	
591-78-6	2-Hexanone	222	**201**	**91**	62-132	
124-48-1	Dibromochloromethane	220	**243**	**110**	66-140	
106-93-4	1,2-Dibromoethane	216	**221**	**102**	69-130	
123-86-4	n-Butyl Acetate	224	**206**	**92**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303695
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130829-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/29/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**203**	**98**	66-118	
127-18-4	Tetrachloroethene	196	**189**	**96**	63-123	
108-90-7	Chlorobenzene	216	**205**	**95**	66-118	
100-41-4	Ethylbenzene	212	**214**	**101**	66-119	
179601-23-1	m,p-Xylenes	420	**425**	**101**	64-118	
75-25-2	Bromoform	216	**264**	**122**	64-140	
100-42-5	Styrene	218	**233**	**107**	68-132	
95-47-6	o-Xylene	206	**208**	**101**	65-120	
111-84-2	n-Nonane	206	**204**	**99**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**214**	**106**	63-128	
98-82-8	Cumene	204	**210**	**103**	65-121	
80-56-8	alpha-Pinene	208	**218**	**105**	66-123	
103-65-1	n-Propylbenzene	202	**212**	**105**	65-121	
622-96-8	4-Ethyltoluene	212	**228**	**108**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**224**	**106**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**223**	**105**	64-131	
100-44-7	Benzyl Chloride	222	**266**	**120**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**227**	**102**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**215**	**100**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**217**	**100**	63-126	
5989-27-5	d-Limonene	210	**236**	**112**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**233**	**110**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**212**	**96**	59-146	
91-20-3	Naphthalene	204	**195**	**96**	56-143	
87-68-3	Hexachlorobutadiene	218	**226**	**104**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : CH2M Hill
Analyst : MC

Service Request : P1303695
Instrument : GC13
Date Acquired : 8/22/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std 2000ppb s27-08161301		std 2000ppb s27-08161301									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						1824.94	8.4%	1491.146	25.1%								
Carbonyl_Sulfide	1.900	5.000	ND	P						1827.38	10.1%	1507.205	25.8%								
Methyl_Mercaptan	2.200	5.000	ND	P						1802.56	10.9%	1501.016	25.8%								
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						7:40 AM		10:39 AM									
Carbon_Disulfide	1.100	2.500	ND	P						08221301.D		08221314.D									
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			8:20 AM																		
DataFile			08221305.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	1702.10	83.2%					2045.54
Carbonyl_Sulfide	1728.40	85.7%					2017.48
Methyl_Mercaptan	1776.25	94.1%					1887.74
Acqisition Time	7:46 AM						
DataFile	08221302.D						

MC 8/22/13

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16082813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Thu Aug 29 09:01:52 2013
Response Via : Initial Calibration

Calibration Files
0.08=08281306.D 0.10=08281307.D 0.20=08281308.D 0.40=08281309.D 1.0 =08281310.D 5.0 =08281311.D
25 =08281312.D 50 =08281313.D 100 =08281314.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	----------	ISTD	----------	----------	----------	----------	----------	----------		
2)	T	Propene	2.353	2.377	1.989	1.864	2.139	1.880	1.956	1.670	1.504	1.970	14.67
3)	T	Dichlorodifluo...	3.373	3.330	3.229	3.095	3.634	3.243	3.152	2.860	2.630	3.172	9.23
4)	T	Chloromethane	2.946	3.093	2.855	2.562	3.252	2.794	2.846	2.657	2.375	2.820	9.48
5)	T	1,2-Dichloro-1...	1.469	1.534	1.440	1.279	1.559	1.477	1.381	1.275	1.289	1.412	7.81
6)	T	Vinyl Chloride	2.678	2.398	2.465	2.242	2.725	2.414	2.331	2.237	2.155	2.405	8.10
7)	T	1,3-Butadiene	1.954	2.040	1.798	1.388	2.157	1.768	1.734	1.528	1.431	1.755	15.30
8)	T	Bromomethane		2.572	2.033	1.560	1.672	1.405	1.344	1.263	1.240	1.636	28.07
9)	T	Chloroethane	1.281	1.319	1.252	1.178	1.292	1.200	1.129	1.085	1.047	1.198	8.03
10)	T	Ethanol	2.042	1.873	1.470	1.112	1.559	1.230	1.207	1.083	0.988	1.396	26.38
11)	T	Acetonitrile	5.144	5.058	4.462	3.941	4.447	3.762	3.782	3.385	3.061	4.116	17:37
12)	T	Acrolein	1.618	1.583	1.343	1.269	1.186	1.068	1.061	1.003	0.864	1.222	21.09
13)	T	Acetone	1.779	1.712	1.684	1.591	1.387	1.213	1.170	1.080	1.013	1.403	21.05
14)	T	Trichlorofluor...	2.772	2.880	2.751	2.574	2.696	2.515	2.168	2.106	2.088	2.505	12.30
15)	T	2-Propanol (Is...	5.329	5.216	5.141	4.891	5.182	4.791	4.699	4.377	4.019	4.849	8.93
16)	T	Acrylonitrile	2.569	2.280	2.081	2.276	2.479	2.249	2.299	2.122	2.045	2.267	7.68
17)	T	1,1-Dichloroet...	1.428	1.463	1.458	1.358	1.496	1.377	1.281	1.298	1.233	1.377	6.67
18)	T	2-Methyl-2-Pro...	5.283	4.986	4.957	4.892	4.609	4.313	4.147	3.869	3.586	4.516	12.66
19)	T	Methylene Chlo...			2.226	1.841	1.906	1.647	1.558	1.465	1.398	1.720	16.88
20)	T	3-Chloro-1-pro...	2.468	2.676	2.573	2.543	2.637	2.504	2.286	2.334	2.340	2.484	5.60
21)	T	Trichlorotrifl...	1.045	1.111	1.201	1.090	1.280	1.112	1.070	1.073	1.019	1.111	7.32
22)	T	Carbon Disulfide	8.255	8.088	6.983	6.473	6.767	6.188	5.971	5.795	5.325	6.649	15.00
23)	T	trans-1,2-Dich...	2.265	2.258	2.133	2.170	2.324	2.213	2.044	2.031	2.046	2.165	5.01
24)	T	1,1-Dichloroet...	2.874	2.910	2.789	2.646	2.779	2.483	2.382	2.270	2.334	2.607	9.41
25)	T	Methyl tert-Bu...	4.520	4.599	4.372	4.219	4.626	4.358	4.297	4.036	3.911	4.326	5.62
26)	T	Vinyl Acetate	0.336	0.319	0.342	0.327	0.329	0.296	0.302	0.286	0.294	0.315	6.44
27)	T	2-Butanone (MEK)	1.067	1.206	1.053	1.068	0.911	0.854	0.841	0.802	0.808	0.957	15.14
28)	T	cis-1,2-Dichlo...	2.180	2.086	2.021	2.116	2.194	1.948	1.950	1.835	1.863	2.022	6.51
29)	T	Diisopropyl Ether	1.107	1.074	1.056	1.120	1.077	0.996	0.974	0.912	0.914	1.026	7.73
30)	T	Ethyl Acetate	0.403	0.489	0.526	0.550	0.531	0.492	0.479	0.458	0.458	0.487	9.26
31)	T	n-Hexane				2.473	2.189	1.733	1.450	1.443	1.504	1.798	24.18

Method Path : I:\MS16\METHODS\
Method File : R16082813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

32)	T	Chloroform	2.805	2.690	2.458	2.504	2.531	2.305	2.293	2.174	2.183	2.438	8.99
33)	S	1,2-Dichloroet...	1.736	1.698	1.725	1.748	1.727	1.700	1.630	1.692	1.699	1.706	2.02
34)	T	Tetrahydrofura...	0.775	0.851	0.876	0.920	0.925	0.857	0.826	0.798	0.813	0.849	6.09
35)	T	Ethyl tert-But...	1.659	1.651	1.638	1.590	1.791	1.628	1.607	1.527	1.492	1.620	5.26
36)	T	1,2-Dichloroet...	2.205	2.004	2.037	1.996	2.119	1.799	1.725	1.720	1.720	1.925	9.72
37)	IR	1,4-Difluorobenzen...	----------ISTD----------										
38)	T	1,1,1-Trichlor...	0.487	0.473	0.459	0.466	0.483	0.455	0.477	0.430	0.418	0.461	5.10
39)	T	Isopropyl Acetate	0.201	0.218	0.207	0.206	0.196	0.191	0.189	0.176	0.169	0.195	7.99
40)	T	1-Butanol	0.360	0.382	0.372	0.419	0.323	0.354	0.348	0.316	0.305	0.353	10.14
41)	T	Benzene	1.360	1.365	1.207	1.185	1.167	1.027	1.019	0.957	0.950	1.137	14.02
42)	T	Carbon Tetrach...	0.388	0.375	0.375	0.377	0.385	0.386	0.397	0.367	0.359	0.379	3.04
43)	T	Cyclohexane	0.535	0.518	0.482	0.454	0.474	0.458	0.448	0.416	0.400	0.465	9.40
44)	T	tert-Amyl Meth...	0.951	0.962	0.914	0.864	0.966	0.957	0.959	0.890	0.837	0.922	5.22
45)	T	1,2-Dichloropr...	0.350	0.331	0.313	0.310	0.332	0.304	0.308	0.291	0.282	0.314	6.80
46)	T	Bromodichlorom...	0.372	0.376	0.347	0.359	0.398	0.406	0.411	0.396	0.381	0.383	5.64
47)	T	Trichloroethene	0.279	0.273	0.306	0.280	0.305	0.274	0.279	0.264	0.264	0.281	5.43
48)	T	1,4-Dioxane	0.270	0.239	0.288	0.283	0.249	0.245	0.246	0.230	0.214	0.252	9.68
49)	T	2,2,4-Trimethy...	1.451	1.442	1.345	1.290	1.549	1.458	1.526	1.352	1.270	1.409	7.08
50)	T	Methyl Methacr...	0.089	0.094	0.109	0.112	0.118	0.121	0.123	0.118	0.112	0.111	10.69
51)	T	n-Heptane	0.329	0.287	0.268	0.289	0.282	0.248	0.245	0.223	0.223	0.266	13.06
52)	T	cis-1,3-Dichlo...	0.443	0.437	0.445	0.419	0.479	0.486	0.486	0.477	0.456	0.459	5.31
53)	T	4-Methyl-2-pen...	0.377	0.331	0.370	0.382	0.296	0.309	0.314	0.297	0.271	0.327	12.22
54)	T	trans-1,3-Dich...	0.382	0.398	0.387	0.406	0.432	0.461	0.487	0.462	0.432	0.427	8.65
55)	T	1,1,2-Trichlor...	0.287	0.265	0.266	0.265	0.291	0.281	0.299	0.279	0.258	0.277	5.00
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------										
57)	S	Toluene-d8 (SS2)	2.415	2.410	2.349	2.179	2.396	2.222	2.388	2.323	2.371	2.339	3.62
58)	T	Toluene	2.854	2.883	2.653	2.385	2.646	2.273	2.336	2.253	2.244	2.503	10.34
59)	T	2-Hexanone	2.197	2.190	2.254	2.307	1.763	1.604	1.755	1.627	1.585	1.920	16.05
60)	T	Dibromochlorom...	0.569	0.607	0.596	0.595	0.626	0.609	0.679	0.652	0.641	0.619	5.42
61)	T	1,2-Dibromoethane	0.708	0.716	0.641	0.662	0.670	0.642	0.687	0.654	0.641	0.669	4.31
62)	T	n-Butyl Acetate	2.459	2.355	2.138	2.442	1.916	1.837	1.935	1.800	1.777	2.073	13.54
63)	T	n-Octane	0.627	0.555	0.576	0.586	0.588	0.562	0.540	0.520	0.524	0.564	6.05
64)	T	Tetrachloroethene	0.822	0.734	0.724	0.672	0.718	0.664	0.650	0.638	0.651	0.697	8.46
65)	T	Chlorobenzene	1.904	1.844	1.721	1.657	1.662	1.573	1.614	1.524	1.502	1.667	8.22
66)	T	Ethylbenzene	3.012	3.077	2.937	2.869	2.909	2.880	2.932	2.751	2.688	2.895	4.13
67)	T	m- & p-Xylenes	2.349	2.308	2.193	2.274	2.211	2.248	2.310	2.162	2.131	2.243	3.29
68)	T	Bromoform	0.508	0.485	0.432	0.481	0.473	0.509	0.572	0.557	0.575	0.510	9.57
69)	T	Styrene	1.673	1.557	1.575	1.632	1.652	1.724	1.828	1.709	1.708	1.673	4.92
70)	T	o-Xylene	2.635	2.511	2.467	2.425	2.391	2.381	2.453	2.262	2.246	2.419	4.96

Method Path : I:\MS16\METHODS\
Method File : R16082813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

71)	T	n-Nonane	1.855	1.681	1.637	1.647	1.636	1.631	1.633	1.501	1.468	1.632	6.73
72)	T	1,1,2,2-Tetrac...	1.307	1.254	1.239	1.253	1.291	1.265	1.267	1.199	1.173	1.250	3.36
73)	S	Bromofluoroben...	0.903	0.895	0.895	0.893	0.875	0.897	0.911	0.903	0.925	0.900	1.50
74)	T	Cumene	3.218	3.281	2.918	2.976	2.979	2.975	3.041	2.854	2.828	3.008	5.08
75)	T	alpha-Pinene	1.448	1.347	1.307	1.341	1.465	1.511	1.573	1.484	1.484	1.440	6.19
76)	T	n-Propylbenzene	4.006	3.826	3.666	3.775	3.892	3.813	3.870	3.620	3.482	3.772	4.21
77)	T	3-Ethyltoluene	2.938	2.963	2.696	2.713	2.809	2.883	2.942	2.828	2.685	2.829	3.91
78)	T	4-Ethyltoluene	2.934	2.871	2.767	2.683	2.788	2.748	2.903	2.603	2.634	2.770	4.22
79)	T	1,3,5-Trimethy...	2.568	2.534	2.289	2.302	2.378	2.383	2.470	2.281	2.222	2.381	5.06
80)	T	alpha-Methylst...	0.856	0.873	0.798	0.819	1.197	1.302	1.388	1.278	1.261	1.086	22.33
81)	T	2-Ethyltoluene	2.855	2.765	2.740	2.734	2.885	2.825	2.923	2.670	2.598	2.777	3.78
82)	T	1,2,4-Trimethy...	2.541	2.515	2.382	2.343	2.441	2.469	2.603	2.401	2.379	2.453	3.53
83)	T	n-Decane	1.632	1.515	1.468	1.498	1.563	1.579	1.592	1.435	1.369	1.517	5.53
84)	T	Benzyl Chloride	1.789	1.812	1.724	1.725	1.890	2.156	2.411	2.216	2.157	1.987	12.65
85)	T	1,3-Dichlorobe...	1.436	1.498	1.359	1.340	1.363	1.340	1.416	1.287	1.273	1.368	5.23
86)	T	1,4-Dichlorobe...	1.617	1.678	1.460	1.381	1.391	1.377	1.457	1.334	1.306	1.445	8.74
87)	T	sec-Butylbenzene	3.290	3.200	3.236	3.125	3.234	3.256	3.320	2.996	2.859	3.169	4.77
88)	T	4-Isopropyltol...	3.175	3.078	2.937	2.958	2.968	3.078	3.166	2.901	2.843	3.011	3.90
89)	T	1,2,3-Trimethy...	2.773	2.630	2.462	2.497	2.591	2.557	2.642	2.390	2.331	2.541	5.38
90)	T	1,2-Dichlorobe...	1.635	1.450	1.341	1.352	1.376	1.329	1.387	1.255	1.228	1.373	8.66
91)	T	d-Limonene	0.745	0.723	0.753	0.745	1.021	1.113	1.149	1.037	0.997	0.920	19.12
92)	T	1,2-Dibromo-3-...	0.518	0.493	0.507	0.513	0.459	0.498	0.519	0.482	0.477	0.496	4.13
93)	T	n-Undecane	1.791	1.758	1.678	1.600	1.664	1.742	1.718	1.531	1.450	1.659	6.80
94)	T	1,2,4-Trichlor...	1.370	1.255	1.216	1.076	0.995	1.004	1.094	1.006	1.000	1.113	12.25
95)	T	Naphthalene	5.185	4.889	4.325	4.091	3.637	3.708	3.863	3.493	3.334	4.058	15.62
96)	T	n-Dodecane	1.968	1.870	1.772	1.825	1.744	1.788	1.681	1.494	1.426	1.730	10.04
97)	T	Hexachlorobuta...	0.618	0.673	0.630	0.588	0.602	0.578	0.610	0.566	0.574	0.604	5.54
98)	T	Cyclohexanone	1.687	1.675	1.447	1.448	1.093	1.075	1.015	0.959	0.928	1.259	24.30
99)	T	tert-Butylbenzene	2.328	2.353	2.148	2.239	2.327	2.285	2.383	2.214	2.209	2.276	3.44
100)	T	n-Butylbenzene	2.787	2.942	2.770	2.854	2.624	2.746	2.748	2.495	2.388	2.706	6.45

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\29\08291302.D
Acq On : 29 Aug 2013 2:30 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-08281301 (9/26)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 29 09:09:56 2013
Quant Method : I:\MS16\METHODS\R16082813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 29 09:01:52 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	84	-0.02
2	T	Propene	1.970	1.956	0.7	84	-0.01
3	T	Dichlorodifluoromethane (CF	3.172	3.261	-2.8	87	-0.02
4	T	Chloromethane	2.820	2.812	0.3	83	-0.02
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.412	1.428	-1.1	87	-0.02
6	T	Vinyl Chloride	2.405	2.417	-0.5	87	-0.02
7	T	1,3-Butadiene	1.755	1.647	6.2	80	-0.02
8	T	Bromomethane	1.636	1.402	14.3	88	-0.02
9	T	Chloroethane	1.198	1.197	0.1	89	-0.02
10	T	Ethanol	1.396	1.308	6.3	91	-0.07
11	T	Acetonitrile	4.116	3.665	11.0	81	-0.05
12	T	Acrolein	1.222	1.070	12.4	85	-0.03
13	T	Acetone	1.403	1.158	17.5	83	-0.04
14	T	Trichlorofluoromethane	2.505	2.178	13.1	84	-0.01
15	T	2-Propanol (Isopropanol)	4.849	4.698	3.1	84	-0.05
16	T	Acrylonitrile	2.267	2.195	3.2	80	-0.04
17	T	1,1-Dichloroethene	1.377	1.261	8.4	83	-0.01
18	T	2-Methyl-2-Propanol (tert-B	4.516	4.144	8.2	84	-0.05
19	T	Methylene Chloride	1.720	1.592	7.4	86	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.484	2.243	9.7	82	-0.02
21	T	Trichlorotrifluoroethane	1.111	1.098	1.2	86	-0.01
22	T	Carbon Disulfide	6.649	6.018	9.5	85	-0.01
23	T	trans-1,2-Dichloroethene	2.165	2.011	7.1	83	-0.02
24	T	1,1-Dichloroethane	2.607	2.276	12.7	80	-0.01
25	T	Methyl tert-Butyl Ether	4.326	4.362	-0.8	85	-0.02
26	T	Vinyl Acetate	0.315	0.282	10.5	78	-0.03
27	T	2-Butanone (MEK)	0.957	0.829	13.4	83	-0.02
28	T	cis-1,2-Dichloroethene	2.022	1.816	10.2	78	-0.01
29	T	Diisopropyl Ether	1.026	0.936	8.8	81	-0.02
30	T	Ethyl Acetate	0.487	0.475	2.5	83	-0.02
31	T	n-Hexane	1.798	1.393	22.5	81	0.00
32	T	Chloroform	2.438	2.228	8.6	82	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.706	1.716	-0.6	88	-0.01
34	T	Tetrahydrofuran (THF)	0.849	0.802	5.5	81	-0.02
35	T	Ethyl tert-Butyl Ether	1.620	1.599	1.3	83	-0.01
36	T	1,2-Dichloroethane	1.925	1.785	7.3	87	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	90	0.00
38	T	1,1,1-Trichloroethane	0.461	0.448	2.8	84	0.00
39	T	Isopropyl Acetate	0.195	0.184	5.6	88	-0.01

MH 8/29/13

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\29\08291302.D
Acq On : 29 Aug 2013 2:30 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-08281301 (9/26)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 29 09:09:56 2013
Quant Method : I:\MS16\METHODS\R16082813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 29 09:01:52 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	1-Butanol	0.353	0.333	5.7	86	-0.03
41	T	Benzene	1.137	0.962	15.4	85	-0.01
42	T	Carbon Tetrachloride	0.379	0.378	0.3	85	-0.01
43	T	Cyclohexane	0.465	0.438	5.8	88	-0.01
44	T	tert-Amyl Methyl Ether	0.922	0.947	-2.7	89	0.00
45	T	1,2-Dichloropropane	0.314	0.303	3.5	88	-0.01
46	T	Bromodichloromethane	0.383	0.411	-7.3	90	0.00
47	T	Trichloroethene	0.281	0.269	4.3	87	0.00
48	T	1,4-Dioxane	0.252	0.237	6.0	87	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.409	1.418	-0.6	83	-0.01
50	T	Methyl Methacrylate	0.111	0.119	-7.2	87	-0.01
51	T	n-Heptane	0.266	0.223	16.2	81	0.00
52	T	cis-1,3-Dichloropropene	0.459	0.488	-6.3	90	0.00
53	T	4-Methyl-2-pentanone	0.327	0.304	7.0	87	-0.01
54	T	trans-1,3-Dichloropropene	0.427	0.468	-9.6	86	0.00
55	T	1,1,2-Trichloroethane	0.277	0.288	-4.0	87	-0.01
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	96	0.00
57	S	Toluene-d8 (SS2)	2.339	2.256	3.5	91	0.00
58	T	Toluene	2.503	2.253	10.0	93	0.00
59	T	2-Hexanone	1.920	1.645	14.3	90	-0.01
60	T	Dibromochloromethane	0.619	0.640	-3.4	91	0.00
61	T	1,2-Dibromoethane	0.669	0.646	3.4	90	0.00
62	T	n-Butyl Acetate	2.073	1.822	12.1	90	0.00
63	T	n-Octane	0.564	0.520	7.8	92	0.00
64	T	Tetrachloroethene	0.697	0.628	9.9	93	0.00
65	T	Chlorobenzene	1.667	1.511	9.4	90	0.00
66	T	Ethylbenzene	2.895	2.764	4.5	91	0.00
67	T	m- & p-Xylenes	2.243	2.204	1.7	92	0.00
68	T	Bromoform	0.510	0.564	-10.6	95	-0.01
69	T	Styrene	1.673	1.769	-5.7	93	0.00
70	T	o-Xylene	2.419	2.367	2.1	93	-0.01
71	T	n-Nonane	1.632	1.550	5.0	91	0.00
72	T	1,1,2,2-Tetrachloroethane	1.250	1.217	2.6	92	0.00
73	S	Bromofluorobenzene (SS3)	0.900	0.963	-7.0	101	0.00
74	T	Cumene	3.008	2.970	1.3	94	0.00
75	T	alpha-Pinene	1.440	1.524	-5.8	93	0.00
76	T	n-Propylbenzene	3.772	3.720	1.4	92	0.00
77	T	3-Ethyltoluene	2.829	2.796	1.2	91	0.00
78	T	4-Ethyltoluene	2.770	2.757	0.5	91	0.00

LH 8/29/13

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\29\08291302.D
Acq On : 29 Aug 2013 2:30 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-08281301 (9/26)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 29 09:09:56 2013
Quant Method : I:\MS16\METHODS\R16082813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 29 09:01:52 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	T	1,3,5-Trimethylbenzene	2.381	2.333	2.0	91	-0.01
80	T	alpha-Methylstyrene	1.086	1.306	-20.3	90	-0.01
81	T	2-Ethyltoluene	2.777	2.758	0.7	91	0.00
82	T	1,2,4-Trimethylbenzene	2.453	2.457	-0.2	91	-0.01
83	T	n-Decane	1.517	1.482	2.3	89	0.00
84	T	Benzyl Chloride	1.987	2.270	-14.2	90	-0.01
85	T	1,3-Dichlorobenzene	1.368	1.339	2.1	91	-0.01
86	T	1,4-Dichlorobenzene	1.445	1.380	4.5	91	0.00
87	T	sec-Butylbenzene	3.169	3.131	1.2	91	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.011	2.985	0.9	91	0.00
89	T	1,2,3-Trimethylbenzene	2.541	2.507	1.3	91	0.00
90	T	1,2-Dichlorobenzene	1.373	1.308	4.7	91	0.00
91	T	d-Limonene	0.920	1.071	-16.4	90	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.496	0.505	-1.8	94	0.00
93	T	n-Undecane	1.659	1.590	4.2	89	0.00
94	T	1,2,4-Trichlorobenzene	1.113	1.042	6.4	92	0.00
95	T	Naphthalene	4.058	3.679	9.3	91	0.00
96	T	n-Dodecane	1.730	1.552	10.3	89	0.00
97	T	Hexachlorobutadiene	0.604	0.586	3.0	92	0.00
98	T	Cyclohexanone	1.259	0.964	23.4	91	-0.01
99	T	tert-Butylbenzene	2.276	2.248	1.2	91	0.00
100	T	n-Butylbenzene	2.706	2.612	3.5	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

LH 8/29/13

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LABORATORY REPORT

August 28, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon 2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on August 15, 2013. For your reference, these analyses have been assigned our service request number P1303594.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 2:20 pm, Aug 29, 2013

Kate Aguilera
Project Manager

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Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon 2-3620

Service Request No: P1303594

CASE NARRATIVE

The samples were received intact under chain of custody on August 15, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon 2-3620
Service Request: P1303594

Date Received: 8/15/2013
Time Received: 07:37

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
2-3620 015 (1800g)	P1303594-001	Air	8/14/2013	14:00	1SC00931	-3.69	5.35	X	
2-3620 016 (1800g)	P1303594-002	Air	8/14/2013	15:20	1SC00535	-1.98	5.53	X	
2-3620 018 (1800g)	P1303594-003	Air	8/14/2013	17:15	1SC00171	-3.02	5.14	X	
2-3620 015 (1800g)	P1303594-004	Air	8/14/2013	14:00					X
2-3620 016 (1800g)	P1303594-005	Air	8/14/2013	15:20					X
2-3620 017 (1800g)	P1303594-006	Air	8/14/2013	16:50					X
2-3620 018 (1800g)	P1303594-007	Air	8/14/2013	17:15					X
2-3620 017 (1800g)	P1303594-008	Air	8/14/2013	16:50	1SC00843	-2.56	5.18	X	

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

ALS
2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No P1303594

Company Name & Address (Reporting Information): CH2M Hill, 1717 Arch Street; Suite 4400, Philadelphia, PA 19103

Project Name: Pfizer Tier IV

Project Number: RECON 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information

Phone: 215 640 9105 Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2M.com / start

Sampler (Print & Sign): Glenn Knieriem

ALS Contact:

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Malodorous Compounds	Comments e.g. Actual Preservative or specific instructions
2-3620 015 (1800g)	1 -3.66	8-14-13	1400	ISC 00931	OA01620	-28	-5	1l	x	—	15 min
016 (1800g)	2 -1.95		1520	ISC 00535	OA01688	-29	-4	1l	x	—	
~~017 (1800g)~~			~~1630~~	~~ISC 01155~~ 8-14 MK	~~OA01673~~			~~1l~~	~~x~~	~~—~~	OA01673 MK 8-14
018	3 -2.95		1715	~~ISC 00417~~ ISC 00171	OA01690	-29	-8	1l	x	—	15 min
—	—	—	—	—	—	—	—	—	—	—	—
2-3620 015 (1800g)	4	8-14-13	1400	—	—	—	—	1l	—	x	15 min
016 (1800g)	5		1520	—	—	—	—	1l	—	x	
017 (1800g)	6		1650	—	—	—	—	1l	—	x	
018	7		1715	—	—	—	—	1l	—	x	
~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~x~~	~~—~~	~~15 min~~ MK 8-14
2-3620 017 (1800g)	8 -2.50 +0.01 +0.15	8-14-13	1650	ISC 00843	~~OA01690~~ 8-14 MK OA01623	-28	-5	1l	x	—	15 min

Report Tier Levels - please select

Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Knieriem	8-14	1830	FedEx 8026 3628 7087	8-14	1830
Fallon			[signature]	8/15/13	0737

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1303594

Project: Pfizer Tier IV / Recon 2-3620

Sample(s) received on: 8/15/13 Date opened: 8/15/13 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by CAS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Top of box, covering opening. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1303594-001.01	1.0 L Source Can					
P1303594-002.01	1.0 L Source Can					
P1303594-003.01	1.0 L Source Can					
P1303594-004.01	1 L Zefon Bag					
P1303594-005.01	1 L Zefon Bag					
P1303594-006.01	1 L Zefon Bag					
P1303594-007.01	1 L Zefon Bag					
P1303594-008.01	1.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 015 (1800g)**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1303594
ALS Sample ID: P1303594-004

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/14/13
Time Collected: 14:00
Date Received: 8/15/13
Date Analyzed: 8/15/13
Time Analyzed: 10:32
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**18**	7.0	**13**	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**270**	7.8	**88**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**70**	17	**20**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**32**	23	**7.0**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 016 (1800g)**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1303594
ALS Sample ID: P1303594-005

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/14/13
Time Collected: 15:20
Date Received: 8/15/13
Date Analyzed: 8/15/13
Time Analyzed: 10:48
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**19**	7.0	**13**	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**340**	7.8	**110**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**82**	17	**24**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	**22**	20	**5.5**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**55**	23	**12**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 017 (1800g)**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1303594
ALS Sample ID: P1303594-006

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/14/13
Time Collected: 16:50
Date Received: 8/15/13
Date Analyzed: 8/15/13
Time Analyzed: 11:07
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**12**	7.0	**8.7**	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**320**	7.8	**100**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**80**	17	**23**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**50**	23	**11**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 018 (1800g)**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1303594
ALS Sample ID: P1303594-007

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/14/13
Time Collected: 17:15
Date Received: 8/15/13
Date Analyzed: 8/15/13
Time Analyzed: 11:25
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**350**	7.8	**110**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**92**	17	**27**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	**25**	20	**6.3**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**54**	23	**12**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1303594
ALS Sample ID: P130815-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/15/13
Time Analyzed: 08:39
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130815-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 8/15/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**2,140**	**104**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**2,130**	**105**	63-138	
74-93-1	Methyl Mercaptan	1,890	**2,180**	**115**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 015 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-001

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/15/13
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.015 Liter(s)
Test Notes:
Container ID: 1SC00931

Initial Pressure (psig): -3.69 Final Pressure (psig): 5.35

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	61	ND	35	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	61	ND	12	
74-87-3	Chloromethane	ND	61	ND	29	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	61	ND	8.7	
75-01-4	Vinyl Chloride	ND	61	ND	24	
106-99-0	1,3-Butadiene	ND	61	ND	27	
74-83-9	Bromomethane	ND	61	ND	16	
75-00-3	Chloroethane	ND	61	ND	23	
64-17-5	Ethanol	ND	610	ND	320	
75-05-8	Acetonitrile	ND	61	ND	36	
107-02-8	Acrolein	ND	240	ND	110	
67-64-1	Acetone	ND	610	ND	260	
75-69-4	Trichlorofluoromethane	ND	61	ND	11	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	610	ND	250	
107-13-1	Acrylonitrile	ND	61	ND	28	
75-35-4	1,1-Dichloroethene	ND	61	ND	15	
75-09-2	Methylene Chloride	ND	61	ND	17	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	61	ND	19	
76-13-1	Trichlorotrifluoroethane	ND	61	ND	7.9	
75-15-0	Carbon Disulfide	ND	610	ND	190	
156-60-5	trans-1,2-Dichloroethene	ND	61	ND	15	
75-34-3	1,1-Dichloroethane	ND	61	ND	15	
1634-04-4	Methyl tert-Butyl Ether	ND	61	ND	17	
108-05-4	Vinyl Acetate	ND	610	ND	170	
78-93-3	2-Butanone (MEK)	ND	610	ND	210	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 015 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-001

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/15/13
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.015 Liter(s)
Test Notes:
Container ID: 1SC00931

Initial Pressure (psig): -3.69 Final Pressure (psig): 5.35

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	61	ND	15	
141-78-6	Ethyl Acetate	ND	120	ND	34	
110-54-3	n-Hexane	ND	61	ND	17	
67-66-3	Chloroform	ND	61	ND	12	
109-99-9	Tetrahydrofuran (THF)	ND	61	ND	21	
107-06-2	1,2-Dichloroethane	ND	61	ND	15	
71-55-6	1,1,1-Trichloroethane	ND	61	ND	11	
71-43-2	Benzene	**12,000**	61	**3,700**	19	
56-23-5	Carbon Tetrachloride	ND	61	ND	9.6	
110-82-7	Cyclohexane	ND	120	ND	35	
78-87-5	1,2-Dichloropropane	ND	61	ND	13	
75-27-4	Bromodichloromethane	ND	61	ND	9.1	
79-01-6	Trichloroethene	ND	61	ND	11	
123-91-1	1,4-Dioxane	ND	61	ND	17	
80-62-6	Methyl Methacrylate	ND	120	ND	30	
142-82-5	n-Heptane	ND	61	ND	15	
10061-01-5	cis-1,3-Dichloropropene	ND	61	ND	13	
108-10-1	4-Methyl-2-pentanone	ND	61	ND	15	
10061-02-6	trans-1,3-Dichloropropene	ND	61	ND	13	
79-00-5	1,1,2-Trichloroethane	ND	61	ND	11	
108-88-3	Toluene	**10,000**	61	**2,700**	16	
591-78-6	2-Hexanone	ND	61	ND	15	
124-48-1	Dibromochloromethane	ND	61	ND	7.1	
106-93-4	1,2-Dibromoethane	ND	61	ND	7.9	
123-86-4	n-Butyl Acetate	ND	61	ND	13	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303594
Client Sample ID: **2-3620 015 (1800g)** ALS Sample ID: P1303594-001
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/15/13
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.015 Liter(s)
Test Notes:
Container ID: 1SC00931

Initial Pressure (psig): -3.69 Final Pressure (psig): 5.35

Canister Dilution Factor: 1.82

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	61	ND	13	
127-18-4	Tetrachloroethene	ND	61	ND	8.9	
108-90-7	Chlorobenzene	ND	61	ND	13	
100-41-4	Ethylbenzene	**440**	61	**100**	14	
179601-23-1	m,p-Xylenes	**4,900**	120	**1,100**	28	
75-25-2	Bromoform	ND	61	ND	5.9	
100-42-5	Styrene	ND	61	ND	14	
95-47-6	o-Xylene	**1,200**	61	**280**	14	
111-84-2	n-Nonane	ND	61	ND	12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	61	ND	8.8	
98-82-8	Cumene	**1,000**	61	**210**	12	
80-56-8	alpha-Pinene	ND	61	ND	11	
103-65-1	n-Propylbenzene	ND	61	ND	12	
622-96-8	4-Ethyltoluene	**86**	61	**18**	12	
108-67-8	1,3,5-Trimethylbenzene	**690**	61	**140**	12	
95-63-6	1,2,4-Trimethylbenzene	**1,000**	61	**210**	12	
100-44-7	Benzyl Chloride	ND	61	ND	12	
541-73-1	1,3-Dichlorobenzene	**65**	61	**11**	10	
106-46-7	1,4-Dichlorobenzene	**350**	61	**59**	10	
95-50-1	1,2-Dichlorobenzene	**3,600**	61	**590**	10	
5989-27-5	d-Limonene	ND	61	ND	11	
96-12-8	1,2-Dibromo-3-chloropropane	ND	61	ND	6.3	
120-82-1	1,2,4-Trichlorobenzene	ND	61	ND	8.2	
91-20-3	Naphthalene	**2,300**	61	**440**	12	
87-68-3	Hexachlorobutadiene	ND	61	ND	5.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 016 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-002

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.015 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00535

Initial Pressure (psig): -1.98 Final Pressure (psig): 5.53

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	53	ND	31	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	53	ND	11	
74-87-3	Chloromethane	ND	53	ND	26	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	53	ND	7.6	
75-01-4	Vinyl Chloride	ND	53	ND	21	
106-99-0	1,3-Butadiene	ND	53	ND	24	
74-83-9	Bromomethane	ND	53	ND	14	
75-00-3	Chloroethane	ND	53	ND	20	
64-17-5	Ethanol	ND	530	ND	280	
75-05-8	Acetonitrile	ND	53	ND	32	
107-02-8	Acrolein	ND	210	ND	92	
67-64-1	Acetone	ND	530	ND	220	
75-69-4	Trichlorofluoromethane	ND	53	ND	9.4	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	530	ND	220	
107-13-1	Acrylonitrile	ND	53	ND	24	
75-35-4	1,1-Dichloroethene	ND	53	ND	13	
75-09-2	Methylene Chloride	ND	53	ND	15	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	53	ND	17	
76-13-1	Trichlorotrifluoroethane	ND	53	ND	6.9	
75-15-0	Carbon Disulfide	ND	530	ND	170	
156-60-5	trans-1,2-Dichloroethene	ND	53	ND	13	
75-34-3	1,1-Dichloroethane	ND	53	ND	13	
1634-04-4	Methyl tert-Butyl Ether	ND	53	ND	15	
108-05-4	Vinyl Acetate	ND	530	ND	150	
78-93-3	2-Butanone (MEK)	ND	530	ND	180	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620 016 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-002

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.015 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00535

Initial Pressure (psig): -1.98 Final Pressure (psig): 5.53

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	53	ND	13	
141-78-6	Ethyl Acetate	ND	110	ND	29	
110-54-3	n-Hexane	ND	53	ND	15	
67-66-3	Chloroform	ND	53	ND	11	
109-99-9	Tetrahydrofuran (THF)	ND	53	ND	18	
107-06-2	1,2-Dichloroethane	ND	53	ND	13	
71-55-6	1,1,1-Trichloroethane	ND	53	ND	9.7	
71-43-2	Benzene	**12,000**	53	**3,600**	17	
56-23-5	Carbon Tetrachloride	ND	53	ND	8.4	
110-82-7	Cyclohexane	ND	110	ND	31	
78-87-5	1,2-Dichloropropane	ND	53	ND	11	
75-27-4	Bromodichloromethane	ND	53	ND	7.9	
79-01-6	Trichloroethene	ND	53	ND	9.9	
123-91-1	1,4-Dioxane	ND	53	ND	15	
80-62-6	Methyl Methacrylate	ND	110	ND	26	
142-82-5	n-Heptane	ND	53	ND	13	
10061-01-5	cis-1,3-Dichloropropene	ND	53	ND	12	
108-10-1	4-Methyl-2-pentanone	ND	53	ND	13	
10061-02-6	trans-1,3-Dichloropropene	ND	53	ND	12	
79-00-5	1,1,2-Trichloroethane	ND	53	ND	9.7	
108-88-3	Toluene	**12,000**	160	**3,300**	42	**D**
591-78-6	2-Hexanone	ND	53	ND	13	
124-48-1	Dibromochloromethane	ND	53	ND	6.2	
106-93-4	1,2-Dibromoethane	ND	53	ND	6.9	
123-86-4	n-Butyl Acetate	ND	53	ND	11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Client: **CH2M Hill** ALS Project ID: P1303594
Client Sample ID: **2-3620 016 (1800g)** ALS Sample ID: P1303594-002
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.015 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00535

Initial Pressure (psig): -1.98 Final Pressure (psig): 5.53

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	53	ND	11	
127-18-4	Tetrachloroethene	ND	53	ND	7.8	
108-90-7	Chlorobenzene	ND	53	ND	12	
100-41-4	Ethylbenzene	**680**	53	**160**	12	
179601-23-1	m,p-Xylenes	**7,700**	110	**1,800**	24	
75-25-2	Bromoform	ND	53	ND	5.1	
100-42-5	Styrene	ND	53	ND	12	
95-47-6	o-Xylene	**2,000**	53	**470**	12	
111-84-2	n-Nonane	ND	53	ND	10	
79-34-5	1,1,2,2-Tetrachloroethane	ND	53	ND	7.7	
98-82-8	Cumene	**1,700**	53	**340**	11	
80-56-8	alpha-Pinene	ND	53	ND	9.5	
103-65-1	n-Propylbenzene	ND	53	ND	11	
622-96-8	4-Ethyltoluene	**160**	53	**32**	11	
108-67-8	1,3,5-Trimethylbenzene	**1,300**	53	**270**	11	
95-63-6	1,2,4-Trimethylbenzene	**2,000**	53	**410**	11	
100-44-7	Benzyl Chloride	ND	53	ND	10	
541-73-1	1,3-Dichlorobenzene	**140**	53	**24**	8.8	
106-46-7	1,4-Dichlorobenzene	**790**	53	**130**	8.8	
95-50-1	1,2-Dichlorobenzene	**8,300**	53	**1,400**	8.8	
5989-27-5	d-Limonene	ND	53	ND	9.5	
96-12-8	1,2-Dibromo-3-chloropropane	ND	53	ND	5.5	
120-82-1	1,2,4-Trichlorobenzene	ND	53	ND	7.1	
91-20-3	Naphthalene	**7,300**	53	**1,400**	10	
87-68-3	Hexachlorobutadiene	ND	53	ND	5.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 018 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-003

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.015 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00171

Initial Pressure (psig): -3.02 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	57	ND	33	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	57	ND	11	
74-87-3	Chloromethane	ND	57	ND	27	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	57	ND	8.1	
75-01-4	Vinyl Chloride	ND	57	ND	22	
106-99-0	1,3-Butadiene	ND	57	ND	26	
74-83-9	Bromomethane	ND	57	ND	15	
75-00-3	Chloroethane	ND	57	ND	21	
64-17-5	Ethanol	ND	570	ND	300	
75-05-8	Acetonitrile	ND	57	ND	34	
107-02-8	Acrolein	ND	230	ND	99	
67-64-1	Acetone	ND	570	ND	240	
75-69-4	Trichlorofluoromethane	ND	57	ND	10	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	570	ND	230	
107-13-1	Acrylonitrile	ND	57	ND	26	
75-35-4	1,1-Dichloroethene	ND	57	ND	14	
75-09-2	Methylene Chloride	ND	57	ND	16	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	57	ND	18	
76-13-1	Trichlorotrifluoroethane	ND	57	ND	7.4	
75-15-0	Carbon Disulfide	ND	570	ND	180	
156-60-5	trans-1,2-Dichloroethene	ND	57	ND	14	
75-34-3	1,1-Dichloroethane	ND	57	ND	14	
1634-04-4	Methyl tert-Butyl Ether	ND	57	ND	16	
108-05-4	Vinyl Acetate	ND	570	ND	160	
78-93-3	2-Butanone (MEK)	ND	570	ND	190	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620 018 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-003

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.015 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00171

Initial Pressure (psig): -3.02 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	57	ND	14	
141-78-6	Ethyl Acetate	ND	110	ND	31	
110-54-3	n-Hexane	ND	57	ND	16	
67-66-3	Chloroform	ND	57	ND	12	
109-99-9	Tetrahydrofuran (THF)	ND	57	ND	19	
107-06-2	1,2-Dichloroethane	ND	57	ND	14	
71-55-6	1,1,1-Trichloroethane	ND	57	ND	10	
71-43-2	Benzene	**9,900**	57	**3,100**	18	
56-23-5	Carbon Tetrachloride	ND	57	ND	9.0	
110-82-7	Cyclohexane	ND	110	ND	33	
78-87-5	1,2-Dichloropropane	ND	57	ND	12	
75-27-4	Bromodichloromethane	ND	57	ND	8.5	
79-01-6	Trichloroethene	ND	57	ND	11	
123-91-1	1,4-Dioxane	ND	57	ND	16	
80-62-6	Methyl Methacrylate	ND	110	ND	28	
142-82-5	n-Heptane	ND	57	ND	14	
10061-01-5	cis-1,3-Dichloropropene	ND	57	ND	12	
108-10-1	4-Methyl-2-pentanone	ND	57	ND	14	
10061-02-6	trans-1,3-Dichloropropene	ND	57	ND	12	
79-00-5	1,1,2-Trichloroethane	ND	57	ND	10	
108-88-3	Toluene	**15,000**	170	**4,000**	45	**D**
591-78-6	2-Hexanone	ND	57	ND	14	
124-48-1	Dibromochloromethane	ND	57	ND	6.7	
106-93-4	1,2-Dibromoethane	ND	57	ND	7.4	
123-86-4	n-Butyl Acetate	ND	57	ND	12	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Client: **CH2M Hill** ALS Project ID: P1303594
Client Sample ID: **2-3620 018 (1800g)** ALS Sample ID: P1303594-003
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.015 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00171

Initial Pressure (psig): -3.02 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	57	ND	12	
127-18-4	Tetrachloroethene	ND	57	ND	8.4	
108-90-7	Chlorobenzene	**66**	57	**14**	12	
100-41-4	Ethylbenzene	**980**	57	**230**	13	
179601-23-1	m,p-Xylenes	**11,000**	110	**2,600**	26	
75-25-2	Bromoform	ND	57	ND	5.5	
100-42-5	Styrene	ND	57	ND	13	
95-47-6	o-Xylene	**3,000**	57	**680**	13	
111-84-2	n-Nonane	ND	57	ND	11	
79-34-5	1,1,2,2-Tetrachloroethane	ND	57	ND	8.3	
98-82-8	Cumene	**2,600**	57	**520**	12	
80-56-8	alpha-Pinene	ND	57	ND	10	
103-65-1	n-Propylbenzene	**65**	57	**13**	12	
622-96-8	4-Ethyltoluene	**220**	57	**45**	12	
108-67-8	1,3,5-Trimethylbenzene	**1,800**	57	**370**	12	
95-63-6	1,2,4-Trimethylbenzene	**2,700**	57	**540**	12	
100-44-7	Benzyl Chloride	ND	57	ND	11	
541-73-1	1,3-Dichlorobenzene	**180**	57	**30**	9.4	
106-46-7	1,4-Dichlorobenzene	**990**	57	**160**	9.4	
95-50-1	1,2-Dichlorobenzene	**10,000**	57	**1,700**	9.4	
5989-27-5	d-Limonene	ND	57	ND	10	
96-12-8	1,2-Dibromo-3-chloropropane	ND	57	ND	5.9	
120-82-1	1,2,4-Trichlorobenzene	ND	57	ND	7.6	
91-20-3	Naphthalene	**6,600**	57	**1,300**	11	
87-68-3	Hexachlorobutadiene	ND	57	ND	5.3	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 017 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-008

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.020 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00843

Initial Pressure (psig): -2.56 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	41	ND	24	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	41	ND	8.3	
74-87-3	Chloromethane	ND	41	ND	20	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	41	ND	5.9	
75-01-4	Vinyl Chloride	ND	41	ND	16	
106-99-0	1,3-Butadiene	ND	41	ND	19	
74-83-9	Bromomethane	ND	41	ND	11	
75-00-3	Chloroethane	ND	41	ND	16	
64-17-5	Ethanol	ND	410	ND	220	
75-05-8	Acetonitrile	ND	41	ND	24	
107-02-8	Acrolein	ND	160	ND	72	
67-64-1	Acetone	ND	410	ND	170	
75-69-4	Trichlorofluoromethane	ND	41	ND	7.3	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	410	ND	170	
107-13-1	Acrylonitrile	ND	41	ND	19	
75-35-4	1,1-Dichloroethene	ND	41	ND	10	
75-09-2	Methylene Chloride	ND	41	ND	12	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	41	ND	13	
76-13-1	Trichlorotrifluoroethane	ND	41	ND	5.4	
75-15-0	Carbon Disulfide	ND	410	ND	130	
156-60-5	trans-1,2-Dichloroethene	ND	41	ND	10	
75-34-3	1,1-Dichloroethane	ND	41	ND	10	
1634-04-4	Methyl tert-Butyl Ether	ND	41	ND	11	
108-05-4	Vinyl Acetate	ND	410	ND	120	
78-93-3	2-Butanone (MEK)	ND	410	ND	140	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620 017 (1800g)** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1303594-008

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.020 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00843

Initial Pressure (psig): -2.56 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	41	ND	10	
141-78-6	Ethyl Acetate	ND	82	ND	23	
110-54-3	n-Hexane	ND	41	ND	12	
67-66-3	Chloroform	ND	41	ND	8.4	
109-99-9	Tetrahydrofuran (THF)	ND	41	ND	14	
107-06-2	1,2-Dichloroethane	ND	41	ND	10	
71-55-6	1,1,1-Trichloroethane	ND	41	ND	7.5	
71-43-2	Benzene	**8,700**	160	**2,700**	51	**D**
56-23-5	Carbon Tetrachloride	ND	41	ND	6.5	
110-82-7	Cyclohexane	ND	82	ND	24	
78-87-5	1,2-Dichloropropane	ND	41	ND	8.9	
75-27-4	Bromodichloromethane	ND	41	ND	6.1	
79-01-6	Trichloroethene	ND	41	ND	7.6	
123-91-1	1,4-Dioxane	ND	41	ND	11	
80-62-6	Methyl Methacrylate	ND	82	ND	20	
142-82-5	n-Heptane	ND	41	ND	10	
10061-01-5	cis-1,3-Dichloropropene	ND	41	ND	9.0	
108-10-1	4-Methyl-2-pentanone	ND	41	ND	10	
10061-02-6	trans-1,3-Dichloropropene	ND	41	ND	9.0	
79-00-5	1,1,2-Trichloroethane	ND	41	ND	7.5	
108-88-3	Toluene	**11,000**	160	**3,000**	44	**D**
591-78-6	2-Hexanone	ND	41	ND	10	
124-48-1	Dibromochloromethane	ND	41	ND	4.8	
106-93-4	1,2-Dibromoethane	ND	41	ND	5.3	
123-86-4	n-Butyl Acetate	ND	41	ND	8.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Client: **CH2M Hill** ALS Project ID: P1303594
Client Sample ID: **2-3620 017 (1800g)** ALS Sample ID: P1303594-008
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/14/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/15/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Analyzed: 8/20 - 8/21/13
Analyst: Lusine Hakobyan Volume(s) Analyzed: 0.020 Liter(s)
Sample Type: 1.0 L Summa Canister 0.0050 Liter(s)
Test Notes:
Container ID: 1SC00843

Initial Pressure (psig): -2.56 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	41	ND	8.8	
127-18-4	Tetrachloroethene	ND	41	ND	6.0	
108-90-7	Chlorobenzene	ND	41	ND	8.9	
100-41-4	Ethylbenzene	**630**	41	**140**	9.4	
179601-23-1	m,p-Xylenes	**7,100**	82	**1,600**	19	
75-25-2	Bromoform	ND	41	ND	4.0	
100-42-5	Styrene	ND	41	ND	9.6	
95-47-6	o-Xylene	**1,900**	41	**430**	9.4	
111-84-2	n-Nonane	ND	41	ND	7.8	
79-34-5	1,1,2,2-Tetrachloroethane	ND	41	ND	6.0	
98-82-8	Cumene	**1,600**	41	**330**	8.3	
80-56-8	alpha-Pinene	ND	41	ND	7.4	
103-65-1	n-Propylbenzene	ND	41	ND	8.3	
622-96-8	4-Ethyltoluene	**140**	41	**28**	8.3	
108-67-8	1,3,5-Trimethylbenzene	**1,100**	41	**230**	8.3	
95-63-6	1,2,4-Trimethylbenzene	**1,600**	41	**330**	8.3	
100-44-7	Benzyl Chloride	ND	41	ND	7.9	
541-73-1	1,3-Dichlorobenzene	**100**	41	**17**	6.8	
106-46-7	1,4-Dichlorobenzene	**560**	41	**92**	6.8	
95-50-1	1,2-Dichlorobenzene	**5,800**	41	**970**	6.8	
5989-27-5	d-Limonene	ND	41	ND	7.4	
96-12-8	1,2-Dibromo-3-chloropropane	ND	41	ND	4.2	
120-82-1	1,2,4-Trichlorobenzene	ND	41	ND	5.5	
91-20-3	Naphthalene	**4,200**	41	**810**	7.8	
87-68-3	Hexachlorobutadiene	ND	41	ND	3.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130820-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1303594

Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130820-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA

Analyst: Lusine Hakobyan Date Analyzed: 8/20/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303594
Client Sample ID: **Method Blank** ALS Sample ID: P130820-MB
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130821-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/21/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1303594

Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130821-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: John Rice Date Analyzed: 8/21/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303594

Client Sample ID: **Method Blank** ALS Sample ID: P130821-MB

Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: John Rice Date Analyzed: 8/21/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Project ID: P1303594

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 8/14/13
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Received: 8/15/13
Analyst: Lusine Hakobyan/John Rice Date(s) Analyzed: 8/20 - 8/21/13
Sample Type: 1.0 L Summa Canister(s)
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130820-MB	**98**	**115**	**111**	70-130	
Method Blank	P130821-MB	**104**	**103**	**100**	70-130	
Lab Control Sample	P130820-LCS	**83**	**105**	**114**	70-130	
Lab Control Sample	P130821-LCS	**98**	**103**	**100**	70-130	
2-3620 015 (1800g)	P1303594-001	**86**	**97**	**111**	70-130	
2-3620 016 (1800g)	P1303594-002	**85**	**101**	**110**	70-130	
2-3620 018 (1800g)	P1303594-003	**85**	**102**	**113**	70-130	
2-3620 017 (1800g)	P1303594-008	**87**	**102**	**113**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130820-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**172**	**86**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**194**	**95**	63-115	
74-87-3	Chloromethane	198	**147**	**74**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**195**	**96**	65-115	
75-01-4	Vinyl Chloride	200	**163**	**82**	64-122	
106-99-0	1,3-Butadiene	212	**171**	**81**	57-141	
74-83-9	Bromomethane	200	**179**	**90**	68-122	
75-00-3	Chloroethane	202	**168**	**83**	66-120	
64-17-5	Ethanol	1,020	**727**	**71**	58-126	
75-05-8	Acetonitrile	202	**145**	**72**	64-136	
107-02-8	Acrolein	214	**173**	**81**	58-129	
67-64-1	Acetone	1,080	**820**	**76**	60-114	
75-69-4	Trichlorofluoromethane	198	**165**	**83**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**334**	**80**	54-118	
107-13-1	Acrylonitrile	208	**171**	**82**	72-143	
75-35-4	1,1-Dichloroethene	214	**191**	**89**	69-119	
75-09-2	Methylene Chloride	216	**183**	**85**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**177**	**82**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**210**	**98**	69-117	
75-15-0	Carbon Disulfide	196	**178**	**91**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**175**	**83**	70-126	
75-34-3	1,1-Dichloroethane	208	**166**	**80**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**175**	**83**	69-120	
108-05-4	Vinyl Acetate	1,020	**979**	**96**	58-160	
78-93-3	2-Butanone (MEK)	218	**182**	**83**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130820-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**175**	**82**	70-119	
141-78-6	Ethyl Acetate	426	**336**	**79**	72-129	
110-54-3	n-Hexane	210	**148**	**70**	63-115	
67-66-3	Chloroform	214	**169**	**79**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**173**	**84**	60-126	
107-06-2	1,2-Dichloroethane	210	**158**	**75**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**191**	**93**	68-120	
71-43-2	Benzene	220	**180**	**82**	69-117	
56-23-5	Carbon Tetrachloride	210	**208**	**99**	65-134	
110-82-7	Cyclohexane	420	**394**	**94**	69-114	
78-87-5	1,2-Dichloropropane	212	**173**	**82**	70-116	
75-27-4	Bromodichloromethane	214	**208**	**97**	71-126	
79-01-6	Trichloroethene	208	**192**	**92**	71-119	
123-91-1	1,4-Dioxane	218	**212**	**97**	72-126	
80-62-6	Methyl Methacrylate	420	**439**	**105**	75-136	
142-82-5	n-Heptane	214	**172**	**80**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**218**	**96**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**199**	**91**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**215**	**100**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**202**	**96**	72-119	
108-88-3	Toluene	210	**201**	**96**	65-116	
591-78-6	2-Hexanone	222	**193**	**87**	62-132	
124-48-1	Dibromochloromethane	220	**249**	**113**	66-140	
106-93-4	1,2-Dibromoethane	216	**227**	**105**	69-130	
123-86-4	n-Butyl Acetate	224	**192**	**86**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130820-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan Date Analyzed: 8/20/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**187**	**90**	66-118	
127-18-4	Tetrachloroethene	196	**209**	**107**	63-123	
108-90-7	Chlorobenzene	216	**215**	**100**	66-118	
100-41-4	Ethylbenzene	212	**212**	**100**	66-119	
179601-23-1	m,p-Xylenes	420	**426**	**101**	64-118	
75-25-2	Bromoform	216	**290**	**134**	64-140	
100-42-5	Styrene	218	**249**	**114**	68-132	
95-47-6	o-Xylene	206	**212**	**103**	65-120	
111-84-2	n-Nonane	206	**178**	**86**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**212**	**105**	63-128	
98-82-8	Cumene	204	**216**	**106**	65-121	
80-56-8	alpha-Pinene	208	**224**	**108**	66-123	
103-65-1	n-Propylbenzene	202	**207**	**102**	65-121	
622-96-8	4-Ethyltoluene	212	**210**	**99**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**226**	**107**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**225**	**106**	64-131	
100-44-7	Benzyl Chloride	222	**265**	**119**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**236**	**106**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**235**	**110**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**236**	**108**	63-126	
5989-27-5	d-Limonene	210	**222**	**106**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**271**	**128**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**235**	**107**	59-146	
91-20-3	Naphthalene	204	**226**	**111**	56-143	
87-68-3	Hexachlorobutadiene	218	**239**	**110**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130821-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/21/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**170**	**85**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**184**	**90**	63-115	
74-87-3	Chloromethane	198	**174**	**88**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**181**	**89**	65-115	
75-01-4	Vinyl Chloride	200	**169**	**85**	64-122	
106-99-0	1,3-Butadiene	212	**176**	**83**	57-141	
74-83-9	Bromomethane	200	**180**	**90**	68-122	
75-00-3	Chloroethane	202	**190**	**94**	66-120	
64-17-5	Ethanol	1,020	**895**	**88**	58-126	
75-05-8	Acetonitrile	202	**172**	**85**	64-136	
107-02-8	Acrolein	214	**195**	**91**	58-129	
67-64-1	Acetone	1,080	**910**	**84**	60-114	
75-69-4	Trichlorofluoromethane	198	**174**	**88**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**385**	**92**	54-118	
107-13-1	Acrylonitrile	208	**194**	**93**	72-143	
75-35-4	1,1-Dichloroethene	214	**201**	**94**	69-119	
75-09-2	Methylene Chloride	216	**171**	**79**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**209**	**97**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**204**	**95**	69-117	
75-15-0	Carbon Disulfide	196	**177**	**90**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**198**	**93**	70-126	
75-34-3	1,1-Dichloroethane	208	**191**	**92**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**204**	**96**	69-120	
108-05-4	Vinyl Acetate	1,020	**1160**	**114**	58-160	
78-93-3	2-Butanone (MEK)	218	**194**	**89**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130821-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/21/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	214	**198**	**93**	70-119	
141-78-6	Ethyl Acetate	426	**391**	**92**	72-129	
110-54-3	n-Hexane	210	**186**	**89**	63-115	
67-66-3	Chloroform	214	**188**	**88**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**172**	**83**	60-126	
107-06-2	1,2-Dichloroethane	210	**189**	**90**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**192**	**93**	68-120	
71-43-2	Benzene	220	**163**	**74**	69-117	
56-23-5	Carbon Tetrachloride	210	**196**	**93**	65-134	
110-82-7	Cyclohexane	420	**393**	**94**	69-114	
78-87-5	1,2-Dichloropropane	212	**193**	**91**	70-116	
75-27-4	Bromodichloromethane	214	**205**	**96**	71-126	
79-01-6	Trichloroethene	208	**190**	**91**	71-119	
123-91-1	1,4-Dioxane	218	**191**	**88**	72-126	
80-62-6	Methyl Methacrylate	420	**404**	**96**	75-136	
142-82-5	n-Heptane	214	**201**	**94**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**221**	**98**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**188**	**86**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**217**	**100**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**197**	**94**	72-119	
108-88-3	Toluene	210	**196**	**93**	65-116	
591-78-6	2-Hexanone	222	**184**	**83**	62-132	
124-48-1	Dibromochloromethane	220	**228**	**104**	66-140	
106-93-4	1,2-Dibromoethane	216	**209**	**97**	69-130	
123-86-4	n-Butyl Acetate	224	**191**	**85**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303594
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130821-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/21/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**207**	**100**	66-118	
127-18-4	Tetrachloroethene	196	**194**	**99**	63-123	
108-90-7	Chlorobenzene	216	**203**	**94**	66-118	
100-41-4	Ethylbenzene	212	**205**	**97**	66-119	
179601-23-1	m,p-Xylenes	420	**407**	**97**	64-118	
75-25-2	Bromoform	216	**245**	**113**	64-140	
100-42-5	Styrene	218	**214**	**98**	68-132	
95-47-6	o-Xylene	206	**197**	**96**	65-120	
111-84-2	n-Nonane	206	**197**	**96**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**197**	**98**	63-128	
98-82-8	Cumene	204	**196**	**96**	65-121	
80-56-8	alpha-Pinene	208	**203**	**98**	66-123	
103-65-1	n-Propylbenzene	202	**193**	**96**	65-121	
622-96-8	4-Ethyltoluene	212	**196**	**92**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**205**	**97**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**198**	**93**	64-131	
100-44-7	Benzyl Chloride	222	**249**	**112**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**202**	**91**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**197**	**92**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**203**	**93**	63-126	
5989-27-5	d-Limonene	210	**204**	**97**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**222**	**105**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**200**	**91**	59-146	
91-20-3	Naphthalene	204	**166**	**81**	56-143	
87-68-3	Hexachlorobutadiene	218	**215**	**99**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : CH2M Hill
Analyst : MC

Service Request : P1303594
Printed : 41502
Instrument : GC13
Date Acquired : 8/15/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std 2000ppb s27-07011304		std 2000ppb s27-07011304									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						1826.00	8.3%	2382.797	19.6%								
Carbonyl_Sulfide	1.900	5.000	ND	P						1865.42	8.2%	2450.744	20.6%								
Methyl_Mercaptan	2.200	5.000	ND	P						1917.92	5.1%	2476.874	22.5%								
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						8:03 AM		11:46 AM									
Carbon_Disulfide	1.100	2.500	ND	P						08151302.D		08151316.D									
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			8:39 AM																		
DataFile			08151306.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	2138.62	104.6%					2045.54
Carbonyl_Sulfide	2127.05	105.4%					2017.48
Methyl_Mercaptan	2178.05	115.4%					1887.74
Acqisition Time	8:08 AM						
DataFile	08151303.D						

M-C 8/16/13

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16070813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Jul 09 15:35:04 2013
Response Via : Initial Calibration

Calibration Files
0.08=07081313.D 0.10=07081314.D 0.20=07081315.D 0.40=07081316.D 1.0 =07081317.D 5.0 =07081318.D
25 =07081319.D 50 =07081320.D 100 =07081321.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------		
2)	T	Propene				1.916	1.967	1.727	1.465	1.043	0.806	1.487	32.00
3)	T	Dichlorodifluo...				3.341	3.497	2.952	2.656	2.037	1.628	2.685	27.36
4)	T	Chloromethane	3.905	3.754	3.349	3.099	3.220	2.699	2.736	2.278	1.934	2.997	21.71
5)	T	1,2-Dichloro-1...	2.073	1.939	1.813	1.666	1.713	1.520	1.452	1.323	1.172	1.630	17.90
6)	T	Vinyl Chloride	3.441	3.306	3.123	2.765	2.815	2.498	2.474	2.135	1.842	2.711	19.60
7)	T	1,3-Butadiene	2.446	2.348	2.089	1.819	1.960	1.708	1.730	1.543	1.403	1.894	18.53
8)	T	Bromomethane			2.422	1.935	1.778	1.477	1.472	1.335	1.314	1.676	23.89
9)	T	Chloroethane	1.755	1.633	1.559	1.428	1.423	1.275	1.246	1.165	1.126	1.401	15.48
10)	T	Ethanol	1.788	1.619	1.413	1.407	1.394	1.248	1.233	1.137	1.055	1.366	16.92
11)	T	Acetonitrile	4.689	4.499	3.880	3.602	3.596	3.353	3.287	3.073	2.919	3.655	16.60
12)	T	Acrolein	1.454	1.249	1.121	1.008	0.921	0.882	1.028	0.991	0.914	1.063	17.44
13)	T	Acetone	1.778	1.704	1.488	1.365	1.299	1.188	1.170	1.080	0.957	1.337	20.74
14)	T	Trichlorofluor...	3.445	3.079	2.818	2.569	2.590	2.424	2.149	2.053	2.071	2.578	18.41
15)	T	2-Propanol (Is...	5.097	4.569	4.302	4.013	4.226	3.870	4.162	3.852	3.431	4.169	11.38
16)	T	Acrylonitrile	2.680	2.619	2.337	2.256	2.275	2.168	2.208	2.098	2.002	2.294	9.82
17)	T	1,1-Dichloroet...	1.894	1.631	1.482	1.450	1.412	1.338	1.331	1.279	1.242	1.451	14.03
18)	T	2-Methyl-2-Pro...	4.878	4.463	4.090	3.833	3.907	3.597	3.950	3.676	3.286	3.964	11.96
19)	T	Methylene Chlo...				1.841	1.796	1.564	1.583	1.528	1.449	1.627	9.59
20)	T	3-Chloro-1-pro...	2.557	2.284	2.117	1.987	2.169	2.071	2.118	2.093	1.973	2.152	8.26
21)	T	Trichlorotrifl...	1.530	1.370	1.301	1.205	1.273	1.160	1.169	1.096	1.066	1.241	11.72
22)	T	Carbon Disulfide			7.638	6.775	6.509	6.020	5.824	5.470	5.198	6.205	13.49
23)	T	trans-1,2-Dich...	2.810	2.602	2.274	2.156	2.286	2.146	2.118	2.092	1.975	2.273	11.77
24)	T	1,1-Dichloroet...	3.621	2.996	2.863	2.652	2.765	2.600	2.503	2.443	2.381	2.758	13.78
25)	T	Methyl tert-Bu...	5.663	5.626	4.679	4.423	4.537	4.193	4.216	4.078	3.841	4.584	14.19
26)	T	Vinyl Acetate	0.313	0.285	0.296	0.290	0.307	0.315	0.324	0.325	0.317	0.308	4.76
27)	T	2-Butanone (MEK)	1.053	1.010	0.974	0.970	1.019	0.922	0.926	0.920	0.916	0.968	5.22
28)	T	cis-1,2-Dichlo...	2.634	2.331	2.087	2.006	2.111	2.034	1.967	1.902	1.825	2.100	11.72
29)	T	Diisopropyl Ether	1.410	1.386	1.199	1.116	1.167	1.084	1.063	1.002	0.919	1.150	14.25
30)	T	Ethyl Acetate	0.565	0.555	0.548	0.536	0.576	0.513	0.507	0.484	0.433	0.524	8.59
31)	T	n-Hexane			2.483	2.341	2.347	2.022	1.681	1.689	1.496	2.008	19.54

Method Path : I:\MS16\METHODS\
Method File : R16070813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

32)	T	Chloroform	3.251	3.108	2.700	2.548	2.600	2.369	2.332	2.284	2.229	2.602	13.97
33)	S	1,2-Dichloroet...	1.439	1.458	1.451	1.465	1.416	1.422	1.407	1.400	1.399	1.428	1.79
34)	T	Tetrahydrofura...	1.115	1.031	0.970	0.949	0.998	0.930	0.911	0.897	0.880	0.964	7.72
35)	T	Ethyl tert-But...	2.092	1.906	1.728	1.705	1.794	1.652	1.672	1.599	1.530	1.742	9.77
36)	T	1,2-Dichloroet...	2.296	2.144	1.950	1.810	1.859	1.703	1.664	1.605	1.548	1.842	13.63
37)	IR	1,4-Difluorobenzen...	----------ISTD----------										
38)	T	1,1,1-Trichlor...	0.548	0.528	0.475	0.446	0.465	0.450	0.441	0.413	0.387	0.461	11.03
39)	T	Isopropyl Acetate	0.218	0.214	0.198	0.186	0.200	0.188	0.190	0.177	0.162	0.193	8.91
40)	T	1-Butanol	0.342	0.320	0.290	0.286	0.307	0.303	0.359	0.328	0.301	0.315	7.66
41)	T	Benzene	1.573	1.554	1.332	1.254	1.231	1.137	1.071	1.035	0.979	1.241	17.29
42)	T	Carbon Tetrach...	0.445	0.419	0.383	0.355	0.388	0.385	0.392	0.368	0.345	0.387	7.96
43)	T	Cyclohexane	0.634	0.548	0.487	0.454	0.498	0.472	0.459	0.431	0.379	0.485	15.03
44)	T	tert-Amyl Meth...	1.168	1.067	0.976	0.907	0.972	0.888	0.922	0.862	0.792	0.950	11.85
45)	T	1,2-Dichloropr...	0.430	0.402	0.360	0.327	0.342	0.315	0.310	0.294	0.277	0.340	14.75
46)	T	Bromodichlorom...	0.457	0.424	0.387	0.378	0.410	0.389	0.395	0.370	0.347	0.395	8.06
47)	T	Trichloroethene	0.423	0.391	0.352	0.323	0.346	0.314	0.306	0.298	0.291	0.338	13.17
48)	T	1,4-Dioxane	0.294	0.265	0.255	0.238	0.253	0.234	0.246	0.233	0.214	0.248	9.11
49)	T	2,2,4-Trimethy...	1.834	1.734	1.562	1.462	1.510	1.460	1.432	1.297	1.132	1.491	14.11
50)	T	Methyl Methacr...	0.137	0.118	0.118	0.116	0.129	0.124	0.127	0.122	0.115	0.123	5.71
51)	T	n-Heptane	0.364	0.345	0.314	0.300	0.309	0.285	0.265	0.254	0.238	0.297	13.96
52)	T	cis-1,3-Dichlo...	0.555	0.499	0.485	0.448	0.509	0.490	0.495	0.460	0.420	0.485	8.02
53)	T	4-Methyl-2-pen...	0.325	0.308	0.298	0.281	0.301	0.290	0.314	0.290	0.255	0.296	6.84
54)	T	trans-1,3-Dich...	0.475	0.418	0.427	0.410	0.440	0.435	0.461	0.431	0.401	0.433	5.44
55)	T	1,1,2-Trichlor...	0.367	0.322	0.327	0.304	0.319	0.291	0.297	0.279	0.259	0.307	10.20
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------										
57)	S	Toluene-d8 (SS2)	2.628	2.518	2.455	2.475	2.539	2.528	2.412	2.384	2.462	2.489	2.95
58)	T	Toluene	4.121	3.600	3.183	2.905	3.067	2.805	2.660	2.510	2.375	3.025	18.26
59)	T	2-Hexanone	2.212	1.994	1.723	1.619	1.698	1.576	1.667	1.566	1.452	1.723	13.71
60)	T	Dibromochlorom...	0.883	0.778	0.717	0.679	0.740	0.723	0.754	0.728	0.712	0.746	7.82
61)	T	1,2-Dibromoethane	0.931	0.832	0.774	0.751	0.804	0.755	0.748	0.718	0.705	0.780	8.84
62)	T	n-Butyl Acetate	2.442	2.254	1.856	1.787	1.887	1.778	1.911	1.785	1.639	1.927	13.28
63)	T	n-Octane	0.761	0.745	0.702	0.645	0.677	0.650	0.613	0.576	0.551	0.658	10.88
64)	T	Tetrachloroethene	1.151	1.045	0.896	0.839	0.895	0.830	0.796	0.765	0.768	0.887	14.78
65)	T	Chlorobenzene	2.585	2.367	2.041	1.933	2.035	1.848	1.823	1.721	1.624	1.998	15.41
66)	T	Ethylbenzene	4.024	3.957	3.442	3.195	3.399	3.170	3.206	3.010	2.702	3.345	12.71
67)	T	m- & p-Xylenes	3.044	3.051	2.617	2.536	2.664	2.474	2.538	2.355	2.044	2.591	12.19
68)	T	Bromoform	0.661	0.660	0.580	0.542	0.610	0.639	0.689	0.662	0.662	0.634	7.45
69)	T	Styrene	2.143	2.073	1.839	1.812	1.976	1.932	2.012	1.893	1.788	1.941	6.24
70)	T	o-Xylene	3.316	3.277	2.810	2.671	2.850	2.659	2.697	2.500	2.238	2.780	12.37

Method Path : I:\MS16\METHODS\
Method File : R16070813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

71)	T	n-Nonane	2.067	1.987	1.708	1.586	1.724	1.606	1.579	1.430	1.247	1.659	15.32
72)	T	1,1,2,2-Tetrac...	1.655	1.591	1.351	1.295	1.438	1.410	1.391	1.288	1.193	1.401	10.46
73)	S	Bromofluoroben...	0.946	0.983	0.946	0.960	0.960	1.025	0.994	0.987	0.989	0.977	2.64
74)	T	Cumene	4.434	4.038	3.559	3.381	3.610	3.543	3.425	3.112	2.748	3.539	13.78
75)	T	alpha-Pinene	1.885	1.925	1.666	1.585	1.715	1.668	1.716	1.601	1.482	1.694	8.28
76)	T	n-Propylbenzene	5.452	5.018	4.309	4.157	4.511	4.551	4.222	3.863	3.258	4.371	14.48
77)	T	3-Ethyltoluene	4.319	3.946	3.285	3.150	3.492	3.455	3.607	3.164	2.663	3.453	13.91
78)	T	4-Ethyltoluene	4.386	3.892	3.217	3.078	3.397	3.390	3.017	2.836	2.742	3.328	15.77
79)	T	1,3,5-Trimethy...	3.343	3.080	2.683	2.589	2.877	2.807	2.689	2.480	2.157	2.745	12.48
80)	T	alpha-Methylst...	1.520	1.372	1.198	1.194	1.412	1.408	1.504	1.383	1.280	1.363	8.68
81)	T	2-Ethyltoluene	4.244	3.882	3.242	3.110	3.511	3.358	3.272	2.953	2.610	3.354	14.49
82)	T	1,2,4-Trimethy...	3.664	3.278	2.743	2.685	2.974	2.852	2.818	2.423	1.909	2.816	17.57
83)	T	n-Decane	2.277	2.108	1.853	1.784	1.901	1.819	1.745	1.418	1.011	1.768	20.96
84)	T	Benzyl Chloride	2.437	2.338	1.992	1.974	2.121	2.254	2.518	2.353	2.090	2.231	8.78
85)	T	1,3-Dichlorobe...	2.200	2.021	1.719	1.650	1.766	1.652	1.637	1.489	1.390	1.725	14.52
86)	T	1,4-Dichlorobe...	2.190	2.025	1.648	1.562	1.728	1.596	1.646	1.519	1.286	1.689	16.01
87)	T	sec-Butylbenzene	4.620	4.467	3.712	3.614	3.934	3.718	3.708	3.303	2.662	3.749	15.53
88)	T	4-Isopropyltol...	4.345	4.087	3.567	3.362	3.696	3.509	3.445	3.118	2.588	3.524	14.53
89)	T	1,2,3-Trimethy...	3.569	3.462	2.884	2.799	3.059	2.864	2.842	2.602	2.235	2.924	13.95
90)	T	1,2-Dichlorobe...	2.017	1.939	1.670	1.532	1.673	1.547	1.541	1.419	1.284	1.625	14.39
91)	T	d-Limonene	1.210	1.185	0.983	0.974	1.135	1.141	1.176	1.066	0.925	1.088	9.65
92)	T	1,2-Dibromo-3-...	0.624	0.564	0.492	0.496	0.550	0.555	0.608	0.540	0.498	0.547	8.69
93)	T	n-Undecane	2.134	2.097	1.694	1.686	1.716	1.701	1.778	1.519	1.256	1.731	15.47
94)	T	1,2,4-Trichlor...	1.596	1.458	1.254	1.194	1.247	1.192	1.237	1.122	1.061	1.262	13.15
95)	T	Naphthalene	5.009	4.441	3.751	3.482	3.877	3.743	4.129	3.681	3.220	3.926	13.66
96)	T	n-Dodecane	1.632	1.485	1.285	1.262	1.288	1.284	1.725	1.524	1.307	1.421	12.31
97)	T	Hexachlorobuta...	0.940	0.896	0.790	0.745	0.777	0.729	0.743	0.680	0.651	0.772	12.16
98)	T	Cyclohexanone	1.756	1.581	1.236	1.093	1.068	1.036	1.107	1.040	1.000	1.213	22.28
99)	T	tert-Butylbenzene	3.441	3.308	2.684	2.550	2.832	2.712	2.619	2.239	1.763	2.683	18.88
100)	T	n-Butylbenzene	3.552	3.447	2.934	2.887	3.139	2.901	2.856	2.601	2.151	2.941	14.33

(#) = Out of Range

Response Factor Report MS09

Method Path : J:\MS09\Methods\
Method File : R9081313.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Aug 14 10:00:59 2013
Response Via : Initial Calibration

Calibration Files
0.08=08131312.D 0.10=08131313.D 0.20=08131314.D 0.40=08131315.D 1.0 =08131316.D 5.0 =08131317.D
25 =08131318.D 50 =08131319.D 100 =08131320.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------			ISTD							
2)	T	Propene	1.896	1.782	1.417	1.631	1.515	1.419	1.482	1.637	1.677	1.606	10.24
3)	T	Dichlorodifluo...	3.178	3.070	3.043	2.962	3.173	2.971	2.927	2.703	2.554	2.953	7.02
4)	T	Chloromethane	2.074	2.310	2.233	2.108	2.384	2.250	2.194	2.036	1.757	2.150	8.61
5)	T	1,2-Dichloro-1...	1.604	1.497	1.439	1.436	1.544	1.417	1.375	1.278	1.245	1.426	8.16
6)	T	Vinyl Chloride	1.892	2.170	2.129	2.123	2.305	2.139	2.026	1.835	1.743	2.040	8.91
7)	T	1,3-Butadiene	1.716	1.654	1.415	1.429	1.577	1.494	1.415	1.273	1.191	1.463	11.61
8)	T	Bromomethane		2.412	1.737	1.474	1.662	1.313	1.470	1.180	1.083	1.541	27.01
9)	T	Chloroethane	1.226	1.074	1.121	1.139	1.194	1.122	1.139	1.084	1.057	1.129	4.86
10)	T	Ethanol	1.405	1.275	1.124	1.096	1.157	1.068	1.042	0.959	0.888	1.113	14.03
11)	T	Acetonitrile	3.897	3.348	2.944	2.859	2.907	2.639	2.580	2.433	2.383	2.888	16.66
12)	T	Acrolein	1.196	1.041	0.881	0.889	0.929	0.835	0.798	0.741	0.724	0.893	16.77
13)	T	Acetone	1.304	1.287	1.152	1.108	1.119	1.019	0.991	0.873	0.789	1.071	16.13
14)	T	Trichlorofluor...	2.918	2.920	2.683	2.640	2.808	2.596	2.561	2.393	2.315	2.648	8.01
15)	T	2-Propanol (Is...			3.884	3.556	3.769	3.596	3.425	2.679	2.266	3.311	18.23
16)	T	Acrylonitrile	2.004	2.003	1.834	1.858	2.038	1.858	1.860	1.744	1.723	1.880	6.00
17)	T	1,1-Dichloroet...	1.278	1.381	1.340	1.321	1.505	1.378	1.401	1.321	1.309	1.359	4.94
18)	T	2-Methyl-2-Pro...				3.413	3.955	3.582	3.465	2.541	1.837	3.132	25.13
19)	T	Methylene Chlo...			2.010	1.799	1.761	1.531	1.533	1.443	1.432	1.644	13.18
20)	T	3-Chloro-1-pro...	1.733	1.893	1.746	1.687	1.925	1.822	1.887	1.772	1.771	1.804	4.55
21)	T	Trichlorotrifl...	1.133	1.161	1.052	1.161	1.262	1.157	1.156	1.078	1.073	1.137	5.59
22)	T	Carbon Disulfide	6.599	6.751	5.958	5.695	6.063	5.555	5.596	5.240	5.059	5.835	9.77
23)	T	trans-1,2-Dich...	2.077	2.179	2.038	2.065	2.263	2.103	2.133	2.034	2.011	2.100	3.82
24)	T	1,1-Dichloroet...	2.623	2.790	2.614	2.534	2.765	2.572	2.605	2.481	2.449	2.604	4.42
25)	T	Methyl tert-Bu...	4.138	4.237	4.148	4.096	4.479	4.243	4.325	3.931	3.195	4.088	9.01
26)	T	Vinyl Acetate	0.209	0.229	0.246	0.276	0.294	0.304	0.305	0.285	0.261	0.268	12.70
27)	T	2-Butanone (MEK)	1.036	1.027	0.959	0.966	1.013	0.939	0.925	0.871	0.867	0.956	6.53
28)	T	cis-1,2-Dichlo...	1.997	2.014	1.912	1.943	2.086	1.920	1.953	1.864	1.832	1.947	4.00
29)	T	Diisopropyl Ether	1.433	1.380	1.424	1.379	1.524	1.155	1.162	1.050	0.913	1.269	16.23
30)	T	Ethyl Acetate	0.562	0.556	0.500	0.544	0.557	0.532	0.526	0.459	0.376	0.512	11.89
31)	T	n-Hexane	2.479	2.578	2.497	2.453	2.516	2.325	2.255	1.986	1.596	2.298	13.90
32)	T	Chloroform	2.653	2.697	2.554	2.518	2.647	2.420	2.447	2.320	2.275	2.503	5.98
33)	S	1,2-Dichloroet...	1.494	1.485	1.482	1.507	1.486	1.499	1.486	1.484	1.490	1.490	0.56
34)	T	Tetrahydrofura...	1.354	1.310	1.088	1.010	1.009	0.923	0.939	0.903	0.890	1.047	16.55
35)	T	Ethyl tert-But...	1.679	1.730	1.601	1.676	1.785	1.694	1.736	1.662	1.619	1.687	3.42
36)	T	1,2-Dichloroet...	1.850	1.925	1.936	1.851	1.970	1.823	1.833	1.744	1.713	1.849	4.62
37)	IR	1,4-Difluorobenzen...	----------			ISTD							
38)	T	1,1,1-Trichlor...	0.436	0.441	0.416	0.408	0.452	0.418	0.429	0.407	0.391	0.422	4.55

Method Path : J:\MS09\Methods\
Method File : R9081313.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.182	0.194	0.188	0.183	0.178	0.174	0.171	0.153	0.132	0.173	11.09
40)	T	1-Butanol			0.409	0.407	0.312	0.307	0.276	0.246	0.218	0.311	23.87
41)	T	Benzene	2.006	2.009	1.276	1.281	1.229	1.093	1.065	0.998	0.940	1.322	30.75
42)	T	Carbon Tetrach...	0.369	0.386	0.374	0.357	0.396	0.368	0.373	0.356	0.345	0.369	4.20
43)	T	Cyclohexane	0.444	0.450	0.431	0.427	0.473	0.435	0.442	0.408	0.356	0.430	7.66
44)	T	tert-Amyl Meth...	0.817	0.859	0.825	0.798	0.862	0.821	0.832	0.787	0.747	0.816	4.38
45)	T	1,2-Dichloropr...	0.298	0.297	0.283	0.281	0.306	0.281	0.288	0.277	0.264	0.286	4.49
46)	T	Bromodichlorom...	0.355	0.389	0.351	0.355	0.394	0.368	0.379	0.361	0.344	0.366	4.83
47)	T	Trichloroethene	0.329	0.344	0.329	0.309	0.347	0.310	0.310	0.295	0.279	0.317	7.11
48)	T	1,4-Dioxane	0.260	0.281	0.256	0.256	0.251	0.235	0.232	0.222	0.208	0.245	9.10
49)	T	2,2,4-Trimethy...	1.267	1.286	1.202	1.184	1.312	1.212	1.239	1.170	1.074	1.216	5.87
50)	T	Methyl Methacr...	0.115	0.118	0.113	0.113	0.121	0.117	0.119	0.112	0.103	0.114	4.59
51)	T	n-Heptane	0.269	0.279	0.271	0.275	0.300	0.273	0.277	0.264	0.245	0.273	5.31
52)	T	cis-1,3-Dichlo...	0.422	0.431	0.419	0.410	0.469	0.451	0.467	0.447	0.425	0.438	4.88
53)	T	4-Methyl-2-pen...	0.296	0.306	0.301	0.289	0.275	0.265	0.261	0.248	0.233	0.275	9.15
54)	T	trans-1,3-Dich...	0.376	0.387	0.360	0.362	0.409	0.407	0.423	0.409	0.396	0.392	5.73
55)	T	1,1,2-Trichlor...	0.283	0.284	0.275	0.278	0.300	0.276	0.278	0.265	0.253	0.277	4.67
56)	IR	Chlorobenzene-d5 (...	----------	ISTD	----------								
57)	S	Toluene-d8 (SS2)	2.620	2.596	2.609	2.599	2.600	2.603	2.619	2.604	2.575	2.603	0.51
58)	T	Toluene	3.299	3.335	3.006	2.901	3.148	2.849	2.856	2.633	2.401	2.936	10.31
59)	T	2-Hexanone	1.908	1.871	1.804	1.816	1.523	1.477	1.390	1.280	1.198	1.585	17.05
60)	T	Dibromochlorom...	0.701	0.726	0.711	0.689	0.783	0.745	0.780	0.732	0.697	0.729	4.73
61)	T	1,2-Dibromoethane	0.756	0.857	0.749	0.739	0.830	0.769	0.781	0.732	0.695	0.767	6.51
62)	T	n-Butyl Acetate	1.931	2.032	1.930	1.928	1.642	1.621	1.566	1.460	1.362	1.719	14.03
63)	T	n-Octane	0.539	0.581	0.573	0.573	0.639	0.593	0.610	0.567	0.512	0.576	6.44
64)	T	Tetrachloroethene	0.832	0.900	0.816	0.824	0.892	0.816	0.832	0.778	0.734	0.825	6.19
65)	T	Chlorobenzene	2.084	2.119	1.956	1.906	2.053	1.885	1.880	1.735	1.606	1.914	8.68
66)	T	Ethylbenzene	3.398	3.389	3.170	3.091	3.447	3.201	3.201	2.928	2.662	3.165	7.91
67)	T	m- & p-Xylenes	2.663	2.720	2.554	2.516	2.816	2.605	2.559	2.331	2.063	2.536	8.82
68)	T	Bromoform	0.511	0.601	0.571	0.552	0.630	0.609	0.650	0.616	0.592	0.593	7.15
69)	T	Styrene	1.992	2.017	1.836	1.865	2.036	1.982	1.955	1.806	1.659	1.905	6.49
70)	T	o-Xylene	2.905	2.900	2.673	2.601	2.927	2.664	2.647	2.435	2.189	2.660	9.06
71)	T	n-Nonane	1.293	1.373	1.297	1.293	1.451	1.350	1.328	1.213	1.056	1.295	8.57
72)	T	1,1,2,2-Tetrac...	1.199	1.264	1.241	1.238	1.361	1.281	1.254	1.157	1.052	1.227	7.04
73)	S	Bromofluoroben...	0.926	0.931	0.934	0.930	0.929	0.923	0.924	0.930	0.927	0.928	0.38
74)	T	Cumene	3.585	3.569	3.444	3.322	3.712	3.397	3.347	3.043	2.713	3.348	9.12
75)	T	alpha-Pinene	1.630	1.681	1.541	1.567	1.752	1.688	1.683	1.540	1.390	1.608	6.84
76)	T	n-Propylbenzene	4.365	4.396	4.173	4.104	4.580	4.189	4.009	3.652	3.232	4.078	10.11
77)	T	3-Ethyltoluene	3.478	3.419	3.222	3.251	3.564	3.262	3.241	2.915	2.630	3.220	8.98
78)	T	4-Ethyltoluene	3.243	3.385	3.245	3.194	3.523	3.226	2.990	2.784	2.413	3.111	10.83
79)	T	1,3,5-Trimethy...	2.851	2.828	2.729	2.667	2.984	2.713	2.635	2.422	2.159	2.665	9.24
80)	T	alpha-Methylst...	1.372	1.399	1.365	1.392	1.544	1.495	1.430	1.320	1.192	1.390	7.26
81)	T	2-Ethyltoluene	3.370	3.388	3.268	3.188	3.534	3.165	3.019	2.769	2.474	3.131	10.62
82)	T	1,2,4-Trimethy...	2.893	2.949	2.826	2.806	3.092	2.799	2.662	2.315	1.935	2.697	13.26
83)	T	n-Decane	1.452	1.470	1.459	1.453	1.630	1.492	1.423	1.256	1.000	1.404	12.75
84)	T	Benzyl Chloride	1.863	1.940	1.853	1.884	2.096	2.166	2.223	2.030	1.707	1.974	8.49
85)	T	1,3-Dichlorobe...	1.759	1.805	1.686	1.599	1.728	1.540	1.490	1.374	1.227	1.579	12.13
86)	T	1,4-Dichlorobe...	1.822	1.914	1.731	1.642	1.791	1.598	1.544	1.428	1.308	1.642	11.89

Method Path : J:\MS09\Methods\
Method File : R9081313.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	3.768	3.764	3.616	3.627	3.970	3.576	3.423	3.119	2.719	3.509	10.84
88)	T	4-Isopropyltol...	3.663	3.640	3.576	3.484	3.865	3.469	3.244	2.788	2.261	3.332	15.16
89)	T	1,2,3-Trimethy...	3.011	3.059	2.870	2.876	3.111	2.826	2.687	2.343	1.935	2.746	13.89
90)	T	1,2-Dichlorobe...	1.691	1.728	1.595	1.589	1.681	1.500	1.463	1.328	1.168	1.527	12.09
91)	T	d-Limonene	0.913	0.953	0.913	0.960	1.085	1.041	1.011	0.924	0.763	0.951	9.75
92)	T	1,2-Dibromo-3-...	0.510	0.531	0.539	0.556	0.587	0.568	0.574	0.536	0.504	0.545	5.19
93)	T	n-Undecane	1.489	1.569	1.531	1.528	1.723	1.619	1.557	1.419	1.199	1.515	9.59
94)	T	1,2,4-Trichlor...	1.501	1.385	1.330	1.310	1.329	1.226	1.189	1.090	0.996	1.262	12.23
95)	T	Naphthalene	6.080	6.034	5.513	5.566	4.679	4.406	4.014	3.637	3.161	4.788	22.26
96)	T	n-Dodecane	1.511	1.649	1.570	1.678	1.720	1.647	1.533	1.392	1.158	1.540	11.35
97)	T	Hexachlorobuta...	0.774	0.773	0.748	0.728	0.760	0.702	0.700	0.656	0.612	0.717	7.72
98)	T	Cyclohexanone	1.510	1.512	1.408	1.375	1.022	0.968	0.879	0.830	0.789	1.144	26.47
99)	T	tert-Butylbenzene	2.755	2.828	2.668	2.637	2.875	2.617	2.452	2.134	1.783	2.528	14.11
100)	T	n-Butylbenzene	3.125	3.252	3.015	3.034	3.202	2.896	2.740	2.495	2.164	2.880	12.42

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\20\08201302.D
Acq On : 20 Aug 2013 9:25 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-07301302 (8/28)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 20 10:10:37 2013
Quant Method : I:\MS16\METHODS\R16070813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 09 15:35:04 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	114	-0.01
2	T	Propene	1.487	1.326	10.8	103	-0.03
3	T	Dichlorodifluoromethane (CF	2.685	2.599	3.2	111	-0.04
4	T	Chloromethane	2.997	2.324	22.5	97	-0.04
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.630	1.533	6.0	120	-0.04
6	T	Vinyl Chloride	2.711	2.264	16.5	104	-0.04
7	T	1,3-Butadiene	1.894	1.526	19.4	100	-0.04
8	T	Bromomethane	1.676	1.492	11.0	115	-0.05
9	T	Chloroethane	1.401	1.164	16.9	106	-0.04
10	T	Ethanol	1.366	0.960	29.7	89	-0.09
11	T	Acetonitrile	3.655	2.583	29.3	89	-0.06
12	T	Acrolein	1.063	0.882	17.0	98	-0.05
13	T	Acetone	1.337	1.032	22.8	100	-0.06
14	T	Trichlorofluoromethane	2.578	2.117	17.9	112	-0.04
15	T	2-Propanol (Isopropanol)	4.169	3.266	21.7	89	-0.07
16	T	Acrylonitrile	2.294	1.852	19.3	95	-0.04
17	T	1,1-Dichloroethene	1.451	1.304	10.1	112	-0.03
18	T	2-Methyl-2-Propanol (tert-B	3.964	3.248	18.1	94	-0.06
19	T	Methylene Chloride	1.627	1.556	4.4	112	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.152	1.771	17.7	95	-0.03
21	T	Trichlorotrifluoroethane	1.241	1.185	4.5	115	-0.02
22	T	Carbon Disulfide	6.205	5.439	12.3	106	-0.02
23	T	trans-1,2-Dichloroethene	2.273	1.978	13.0	106	-0.02
24	T	1,1-Dichloroethane	2.758	2.263	17.9	103	-0.02
25	T	Methyl tert-Butyl Ether	4.584	3.966	13.5	107	-0.02
26	T	Vinyl Acetate	0.308	0.299	2.9	105	-0.04
27	T	2-Butanone (MEK)	0.968	0.831	14.2	102	-0.03
28	T	cis-1,2-Dichloroethene	2.100	1.732	17.5	100	-0.02
29	T	Diisopropyl Ether	1.150	0.998	13.2	107	-0.02
30	T	Ethyl Acetate	0.524	0.429	18.1	96	-0.02
31	T	n-Hexane	2.008	1.518	24.4	103	-0.02
32	T	Chloroform	2.602	2.122	18.4	104	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.428	1.215	14.9	98	-0.02
34	T	Tetrahydrofuran (THF)	0.964	0.815	15.5	102	-0.02
35	T	Ethyl tert-Butyl Ether	1.742	1.541	11.5	105	-0.01
36	T	1,2-Dichloroethane	1.842	1.425	22.6	98	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	110	0.00
38	T	1,1,1-Trichloroethane	0.461	0.418	9.3	104	-0.01
39	T	Isopropyl Acetate	0.193	0.168	13.0	97	-0.02

MH 8/20/13

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\20\08201302.D
Acq On : 20 Aug 2013 9:25 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-07301302 (8/28)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 20 10:10:37 2013
Quant Method : I:\MS16\METHODS\R16070813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 09 15:35:04 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	1-Butanol	0.315	0.315	0.0	97	-0.04
41	T	Benzene	1.241	1.003	19.2	103	-0.01
42	T	Carbon Tetrachloride	0.387	0.381	1.6	107	-0.01
43	T	Cyclohexane	0.485	0.470	3.1	113	-0.01
44	T	tert-Amyl Methyl Ether	0.950	0.860	9.5	103	0.00
45	T	1,2-Dichloropropane	0.340	0.278	18.2	99	-0.01
46	T	Bromodichloromethane	0.395	0.370	6.3	103	0.00
47	T	Trichloroethene	0.338	0.311	8.0	112	-0.01
48	T	1,4-Dioxane	0.248	0.231	6.9	104	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.491	1.287	13.7	99	-0.01
50	T	Methyl Methacrylate	0.123	0.126	-2.4	109	-0.01
51	T	n-Heptane	0.297	0.235	20.9	97	-0.01
52	T	cis-1,3-Dichloropropene	0.485	0.458	5.6	102	0.00
53	T	4-Methyl-2-pentanone	0.296	0.261	11.8	91	-0.01
54	T	trans-1,3-Dichloropropene	0.433	0.420	3.0	100	0.00
55	T	1,1,2-Trichloroethane	0.307	0.285	7.2	106	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	99	0.00
57	S	Toluene-d8 (SS2)	2.489	2.631	-5.7	108	0.00
58	T	Toluene	3.025	2.864	5.3	107	0.00
59	T	2-Hexanone	1.723	1.533	11.0	91	-0.01
60	T	Dibromochloromethane	0.746	0.814	-9.1	107	0.00
61	T	1,2-Dibromoethane	0.780	0.802	-2.8	106	0.00
62	T	n-Butyl Acetate	1.927	1.762	8.6	91	0.00
63	T	n-Octane	0.658	0.589	10.5	95	0.00
64	T	Tetrachloroethene	0.887	0.928	-4.6	116	0.00
65	T	Chlorobenzene	1.998	1.966	1.6	107	0.00
66	T	Ethylbenzene	3.345	3.344	0.0	103	0.00
67	T	m- & p-Xylenes	2.591	2.707	-4.5	106	0.00
68	T	Bromoform	0.634	0.812	-28.1	117	0.00
69	T	Styrene	1.941	2.271	-17.0	112	0.00
70	T	o-Xylene	2.780	2.955	-6.3	109	0.00
71	T	n-Nonane	1.659	1.461	11.9	92	0.00
72	T	1,1,2,2-Tetrachloroethane	1.401	1.477	-5.4	105	0.00
73	S	Bromofluorobenzene (SS3)	0.977	1.144	-17.1	114	0.00
74	T	Cumene	3.539	3.804	-7.5	110	0.00
75	T	alpha-Pinene	1.694	1.849	-9.1	107	0.00
76	T	n-Propylbenzene	4.371	4.502	-3.0	106	0.00
77	T	3-Ethyltoluene	3.453	3.942	-14.2	108	0.00
78	T	4-Ethyltoluene	3.328	3.308	0.6	109	0.00

VM 8/20/13

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2013_08\20\08201302.D
Acq On : 20 Aug 2013 9:25 Operator: LH
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08081301/S25-07301302 (8/28)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 20 10:10:37 2013
Quant Method : I:\MS16\METHODS\R16070813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 09 15:35:04 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	T	1,3,5-Trimethylbenzene	2.745	2.940	-7.1	108	0.00
80	T	alpha-Methylstyrene	1.363	1.615	-18.5	107	0.00
81	T	2-Ethyltoluene	3.354	3.574	-6.6	108	0.00
82	T	1,2,4-Trimethylbenzene	2.816	3.049	-8.3	107	0.00
83	T	n-Decane	1.768	1.682	4.9	96	-0.01
84	T	Benzyl Chloride	2.231	2.668	-19.6	105	0.00
85	T	1,3-Dichlorobenzene	1.725	1.878	-8.9	114	-0.01
86	T	1,4-Dichlorobenzene	1.689	1.883	-11.5	113	0.00
87	T	sec-Butylbenzene	3.749	4.052	-8.1	108	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.524	3.905	-10.8	112	0.00
89	T	1,2,3-Trimethylbenzene	2.924	3.145	-7.6	110	0.00
90	T	1,2-Dichlorobenzene	1.625	1.795	-10.5	116	0.00
91	T	d-Limonene	1.088	1.164	-7.0	98	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.547	0.700	-28.0	114	0.00
93	T	n-Undecane	1.731	1.720	0.6	96	0.00
94	T	1,2,4-Trichlorobenzene	1.262	1.429	-13.2	115	0.00
95	T	Naphthalene	3.926	4.574	-16.5	110	0.00
96	T	n-Dodecane	1.421	1.621	-14.1	93	0.00
97	T	Hexachlorobutadiene	0.772	0.853	-10.5	114	0.00
98	T	Cyclohexanone	1.213	1.076	11.3	96	-0.01
99	T	tert-Butylbenzene	2.683	2.919	-8.8	111	0.00
100	T	n-Butylbenzene	2.941	3.123	-6.2	108	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

MH 8/20/13

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2013_08\21\08211302.D
Acq On : 21 Aug 2013 9:11 Operator: JR
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08071302/S25-07301304 (8/28)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 21 10:36:02 2013
Quant Method : J:\MS09\Methods\R9081313.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Aug 14 10:00:59 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	92	0.00
2	T	Propene	1.606	1.420	11.6	88	0.00
3	T	Dichlorodifluoromethane (CF	2.953	2.759	6.6	87	0.00
4	T	Chloromethane	2.150	1.977	8.0	83	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.426	1.331	6.7	89	0.00
6	T	Vinyl Chloride	2.040	1.783	12.6	81	0.00
7	T	1,3-Butadiene	1.463	1.262	13.7	82	0.00
8	T	Bromomethane	1.541	1.437	6.7	90	0.00
9	T	Chloroethane	1.129	1.124	0.4	91	0.00
10	T	Ethanol	1.113	0.993	10.8	88	0.00
11	T	Acetonitrile	2.888	2.502	13.4	90	0.00
12	T	Acrolein	0.893	0.757	15.2	88	0.00
13	T	Acetone	1.071	0.938	12.4	87	0.00
14	T	Trichlorofluoromethane	2.648	2.477	6.5	89	0.00
15	T	2-Propanol (Isopropanol)	3.311	3.130	5.5	84	0.00
16	T	Acrylonitrile	1.880	1.810	3.7	90	0.00
17	T	1,1-Dichloroethene	1.359	1.383	-1.8	91	0.00
18	T	2-Methyl-2-Propanol (tert-B	3.132	2.790	10.9	74	0.00
19	T	Methylene Chloride	1.644	1.495	9.1	90	0.00
20	T	3-Chloro-1-propene (Allyl C	1.804	1.806	-0.1	88	0.00
21	T	Trichlorotrifluoroethane	1.137	1.140	-0.3	91	0.00
22	T	Carbon Disulfide	5.835	5.456	6.5	90	0.00
23	T	trans-1,2-Dichloroethene	2.100	2.081	0.9	90	0.00
24	T	1,1-Dichloroethane	2.604	2.533	2.7	90	0.00
25	T	Methyl tert-Butyl Ether	4.088	3.693	9.7	79	0.00
26	T	Vinyl Acetate	0.268	0.269	-0.4	81	0.00
27	T	2-Butanone (MEK)	0.956	0.910	4.8	91	0.00
28	T	cis-1,2-Dichloroethene	1.947	1.903	2.3	90	0.00
29	T	Diisopropyl Ether	1.269	1.132	10.8	90	0.00
30	T	Ethyl Acetate	0.512	0.491	4.1	86	0.00
31	T	n-Hexane	2.298	2.141	6.8	88	0.00
32	T	Chloroform	2.503	2.380	4.9	90	0.00
33	S	1,2-Dichloroethane-d4(SS1)	1.490	1.468	1.5	91	0.00
34	T	Tetrahydrofuran (THF)	1.047	0.917	12.4	90	0.00
35	T	Ethyl tert-Butyl Ether	1.687	1.718	-1.8	91	0.00
36	T	1,2-Dichloroethane	1.849	1.769	4.3	89	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	94	0.00
38	T	1,1,1-Trichloroethane	0.422	0.406	3.8	89	0.00
39	T	Isopropyl Acetate	0.173	0.158	8.7	87	0.00
40	T	1-Butanol	0.311	0.254	18.3	87	0.00
41	T	Benzene	1.322	1.025	22.5	91	0.00
42	T	Carbon Tetrachloride	0.369	0.351	4.9	89	0.00
43	T	Cyclohexane	0.430	0.420	2.3	90	0.00
44	T	tert-Amyl Methyl Ether	0.816	0.802	1.7	91	0.00
45	T	1,2-Dichloropropane	0.286	0.273	4.5	90	0.00
46	T	Bromodichloromethane	0.366	0.358	2.2	89	0.00
47	T	Trichloroethene	0.317	0.300	5.4	91	0.00
48	T	1,4-Dioxane	0.245	0.222	9.4	90	0.00
49	T	2,2,4-Trimethylpentane (Iso	1.216	1.181	2.9	90	0.00
50	T	Methyl Methacrylate	0.114	0.115	-0.9	91	0.00

EM 8/23/13

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2013_08\21\08211302.D
Acq On : 21 Aug 2013 9:11 Operator: JR
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08071302/S25-07301304 (8/28)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 21 10:36:02 2013
Quant Method : J:\MS09\Methods\R9081313.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Aug 14 10:00:59 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	n-Heptane	0.273	0.264	3.3	90	0.00
52	T	cis-1,3-Dichloropropene	0.438	0.448	-2.3	91	0.00
53	T	4-Methyl-2-pentanone	0.275	0.248	9.8	89	0.00
54	T	trans-1,3-Dichloropropene	0.392	0.409	-4.3	91	0.00
55	T	1,1,2-Trichloroethane	0.277	0.268	3.2	91	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	91	0.00
57	S	Toluene-d8 (SS2)	2.603	2.686	-3.2	93	0.00
58	T	Toluene	2.936	2.875	2.1	92	0.00
59	T	2-Hexanone	1.585	1.361	14.1	89	0.00
60	T	Dibromochloromethane	0.729	0.777	-6.6	91	0.00
61	T	1,2-Dibromoethane	0.767	0.776	-1.2	91	0.00
62	T	n-Butyl Acetate	1.719	1.498	12.9	87	0.00
63	T	n-Octane	0.576	0.601	-4.3	90	0.00
64	T	Tetrachloroethene	0.825	0.853	-3.4	93	0.00
65	T	Chlorobenzene	1.914	1.886	1.5	91	0.00
66	T	Ethylbenzene	3.165	3.215	-1.6	92	0.00
67	T	m- & p-Xylenes	2.536	2.583	-1.9	92	0.00
68	T	Bromoform	0.593	0.658	-11.0	92	0.00
69	T	Styrene	1.905	1.978	-3.8	92	0.00
70	T	o-Xylene	2.660	2.672	-0.5	92	0.00
71	T	n-Nonane	1.295	1.311	-1.2	90	0.00
72	T	1,1,2,2-Tetrachloroethane	1.227	1.253	-2.1	91	0.00
73	S	Bromofluorobenzene (SS3)	0.928	0.932	-0.4	92	0.00
74	T	Cumene	3.348	3.398	-1.5	92	0.00
75	T	alpha-Pinene	1.608	1.700	-5.7	92	0.00
76	T	n-Propylbenzene	4.078	4.085	-0.2	93	0.00
77	T	3-Ethyltoluene	3.220	3.355	-4.2	94	0.00
78	T	4-Ethyltoluene	3.111	3.028	2.7	92	0.00
79	T	1,3,5-Trimethylbenzene	2.665	2.709	-1.7	94	0.00
80	T	alpha-Methylstyrene	1.390	1.445	-4.0	92	0.00
81	T	2-Ethyltoluene	3.131	3.113	0.6	94	0.00
82	T	1,2,4-Trimethylbenzene	2.697	2.712	-0.6	93	0.00
83	T	n-Decane	1.404	1.429	-1.8	91	0.00
84	T	Benzyl Chloride	1.974	2.246	-13.8	92	0.00
85	T	1,3-Dichlorobenzene	1.579	1.546	2.1	95	0.00
86	T	1,4-Dichlorobenzene	1.642	1.600	2.6	94	0.00
87	T	sec-Butylbenzene	3.509	3.524	-0.4	94	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.332	3.321	0.3	93	0.00
89	T	1,2,3-Trimethylbenzene	2.746	2.742	0.1	93	0.00
90	T	1,2-Dichlorobenzene	1.527	1.506	1.4	94	0.00
91	T	d-Limonene	0.951	1.015	-6.7	91	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.545	0.584	-7.2	93	0.00
93	T	n-Undecane	1.515	1.569	-3.6	92	0.00
94	T	1,2,4-Trichlorobenzene	1.262	1.222	3.2	94	0.00
95	T	Naphthalene	4.788	4.088	14.6	93	0.00
96	T	n-Dodecane	1.540	1.539	0.1	91	0.00
97	T	Hexachlorobutadiene	0.717	0.733	-2.2	95	0.00
98	T	Cyclohexanone	1.144	0.856	25.2	89	0.00
99	T	tert-Butylbenzene	2.528	2.511	0.7	93	0.00
100	T	n-Butylbenzene	2.880	2.790	3.1	93	0.00

8/23/13

Evaluate Continuing Calibration Report

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Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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www.alsglobal.com

LABORATORY REPORT

August 28, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV Bridgewater, NJ / Recon 2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on August 14, 2013. For your reference, these analyses have been assigned our service request number P1303568.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 12:42 pm, Aug 28, 2013

Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV Bridgewater, NJ / Recon 2-3620

Service Request No: P1303568

CASE NARRATIVE

The samples were received intact under chain of custody on August 14, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Service Request: P1303568
Project ID: Pfizer Tier IV Bridgewater, NJ / Recon 2-3620

Date Received: 8/14/2013
Time Received: 07:50

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
2-3620 011 (1200g)	P1303568-001	Air	8/13/2013	13:30	1SC01081	-1.62	5.18	X	
2-3620 012 (1200g)	P1303568-002	Air	8/13/2013	14:50	1SC00440	-2.04	5.14	X	
2-3620 013 (1200g)	P1303568-003	Air	8/13/2013	16:25	1SC00880	-1.78	5.15	X	
2-3620 014 (1200g)	P1303568-004	Air	8/13/2013	18:05	1SC01103	-2.38	5.28	X	
2-3620 011 (1200g)	P1303568-005	Air	8/13/2013	13:30					X
2-3620 012 (1200g)	P1303568-006	Air	8/13/2013	14:50					X
2-3620 013 (1200g)	P1303568-007	Air	8/13/2013	16:25					X
2-3620 014 (1200g)	P1303568-008	Air	8/13/2013	18:05					X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

ALS
2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No P1303568

ALS Contact:

Company Name & Address (Reporting Information): CH2M Hill Suite 4400, 1717 Arch St, Philadelphia, PA 19103

Project Name: Pfizer Tier IV Bridgewater, NJ

Project Number: RECON 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information:

Phone: 215 640 9165 Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2M.com (Start)

Sampler (Print & Sign): Glenn R. Knierian

Analysis Method: TO-15; Malodorous Compounds

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Malodorous Compounds	Comments e.g. Actual Preservative or specific instructions
2-3620 011 (1200g)	1-165	8-13-13	1330 CDT	1SC01081	0A01661	-29	-5	1l	x	-	15 min
012	2-208		1450 CDT	1SC00440	0A01619	-28	-7	1l	x	-	15 min
013	3-182		1625 CDT	1SC00880	0A01664	-29	-8	1l	x	-	15 min
014	4-240		1805 CDT	1SC01103	0A00005	-28	-5	1l	x	-	15 min
-	-	-	-	-	-	-	-	-	-	-	-
2-3620 011 (1200g)	5	8-13-13	1330 CDT	-	-	-	-	1l	-	x	15 min - Tedlar
012	6		1450 CDT	-	-	-	-	1l	-	x	
013	7		1625 CDT	-	-	-	-	1l	-	x	
014	8		1805 CDT	-	-	-	-	1l	-	x	

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
GRK	8-13	1900	Fed Ex 8026 3628 7098	8-13	1900
Fuller			[signature]	8/14/13	0750

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1303568

Project: Pfizer Tier IV Bridgewater, NJ / Recon 2-3620

Sample(s) received on: 8/14/13 Date opened: 8/14/13 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☐	☒	☐
2	Container(s) **supplied by CAS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☐	☒	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1303568-001.01	1.0 L Source Can					
P1303568-002.01	1.0 L Source Can					
P1303568-003.01	1.0 L Source Can					
P1303568-004.01	1.0 L Source Can					
P1303568-005.01	1 L Zefon Bag					
P1303568-006.01	1 L Zefon Bag					
P1303568-007.01	1 L Zefon Bag					
P1303568-008.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers):

Canisters were received without ID information, and are assigned by the canister serial numbers listed on COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 011 (1200g)**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

ALS Project ID: P1303568
ALS Sample ID: P1303568-005

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/13/13
Time Collected: 13:30
Date Received: 8/14/13
Date Analyzed: 8/14/13
Time Analyzed: 09:34
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**37**	7.0	**27**	5.0	
463-58-1	Carbonyl Sulfide	**61**	12	**25**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**930**	13	**370**	5.0	
75-15-0	Carbon Disulfide	**20,000**	7.8	**6,400**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**220**	16	**72**	5.0	
110-02-1	Thiophene	**1,200**	17	**350**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	**23**	18	**6.3**	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**23**	9.6	**5.9**	2.5	
616-44-4	3-Methylthiophene	**180**	20	**44**	5.0	
110-01-0	Tetrahydrothiophene	**39**	18	**11**	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**100**	23	**22**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 012 (1200g)**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

ALS Project ID: P1303568
ALS Sample ID: P1303568-006

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/13/13
Time Collected: 14:50
Date Received: 8/14/13
Date Analyzed: 8/14/13
Time Analyzed: 09:57
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³		MRL µg/m³	Result ppbV		MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**340**		7.0	**240**		5.0	
463-58-1	Carbonyl Sulfide	**27**		12	**11**		5.0	
74-93-1	Methyl Mercaptan		ND	9.8		ND	5.0	
75-08-1	Ethyl Mercaptan		ND	13		ND	5.0	
75-18-3	Dimethyl Sulfide	**470**		13	**180**		5.0	
75-15-0	Carbon Disulfide	**10,000**		7.8	**3,200**		2.5	
75-33-2	Isopropyl Mercaptan		ND	16		ND	5.0	
75-66-1	tert-Butyl Mercaptan		ND	18		ND	5.0	
107-03-9	n-Propyl Mercaptan		ND	16		ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**110**		16	**36**		5.0	
110-02-1	Thiophene	**560**		17	**160**		5.0	
513-44-0	Isobutyl Mercaptan		ND	18		ND	5.0	
352-93-2	Diethyl Sulfide		ND	18		ND	5.0	
109-79-5	n-Butyl Mercaptan		ND	18		ND	5.0	
624-92-0	Dimethyl Disulfide		ND	9.6		ND	2.5	
616-44-4	3-Methylthiophene	**85**		20	**21**		5.0	
110-01-0	Tetrahydrothiophene	**23**		18	**6.4**		5.0	
638-02-8	2,5-Dimethylthiophene		ND	23		ND	5.0	
872-55-9	2-Ethylthiophene	**45**		23	**9.8**		5.0	
110-81-6	Diethyl Disulfide		ND	12		ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 013 (1200g)**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

ALS Project ID: P1303568
ALS Sample ID: P1303568-007

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/13/13
Time Collected: 16:25
Date Received: 8/14/13
Date Analyzed: 8/14/13
Time Analyzed: 10:17
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³		MRL µg/m³	Result ppbV		MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**350**		7.0	**250**		5.0	
463-58-1	Carbonyl Sulfide	**21**		12	**8.7**		5.0	
74-93-1	Methyl Mercaptan		ND	9.8		ND	5.0	
75-08-1	Ethyl Mercaptan		ND	13		ND	5.0	
75-18-3	Dimethyl Sulfide	**530**		13	**210**		5.0	
75-15-0	Carbon Disulfide	**11,000**		7.8	**3,500**		2.5	
75-33-2	Isopropyl Mercaptan		ND	16		ND	5.0	
75-66-1	tert-Butyl Mercaptan		ND	18		ND	5.0	
107-03-9	n-Propyl Mercaptan		ND	16		ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**130**		16	**42**		5.0	
110-02-1	Thiophene	**640**		17	**190**		5.0	
513-44-0	Isobutyl Mercaptan		ND	18		ND	5.0	
352-93-2	Diethyl Sulfide		ND	18		ND	5.0	
109-79-5	n-Butyl Mercaptan		ND	18		ND	5.0	
624-92-0	Dimethyl Disulfide	**10**		9.6	**2.7**		2.5	
616-44-4	3-Methylthiophene	**100**		20	**25**		5.0	
110-01-0	Tetrahydrothiophene	**24**		18	**6.7**		5.0	
638-02-8	2,5-Dimethylthiophene		ND	23		ND	5.0	
872-55-9	2-Ethylthiophene	**34**		23	**7.4**		5.0	
110-81-6	Diethyl Disulfide		ND	12		ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 014 (1200g)**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

ALS Project ID: P1303568
ALS Sample ID: P1303568-008

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 8/13/13
Time Collected: 18:05
Date Received: 8/14/13
Date Analyzed: 8/14/13
Time Analyzed: 10:42
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³		MRL µg/m³	Result ppbV		MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	**140**		7.0	**100**		5.0	
463-58-1	Carbonyl Sulfide	**15**		12	**6.0**		5.0	
74-93-1	Methyl Mercaptan		ND	9.8		ND	5.0	
75-08-1	Ethyl Mercaptan		ND	13		ND	5.0	
75-18-3	Dimethyl Sulfide	**420**		13	**170**		5.0	
75-15-0	Carbon Disulfide	**7,200**		7.8	**2,300**		2.5	
75-33-2	Isopropyl Mercaptan		ND	16		ND	5.0	
75-66-1	tert-Butyl Mercaptan		ND	18		ND	5.0	
107-03-9	n-Propyl Mercaptan		ND	16		ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**95**		16	**30**		5.0	
110-02-1	Thiophene	**520**		17	**150**		5.0	
513-44-0	Isobutyl Mercaptan		ND	18		ND	5.0	
352-93-2	Diethyl Sulfide		ND	18		ND	5.0	
109-79-5	n-Butyl Mercaptan		ND	18		ND	5.0	
624-92-0	Dimethyl Disulfide		ND	9.6		ND	2.5	
616-44-4	3-Methylthiophene	**84**		20	**21**		5.0	
110-01-0	Tetrahydrothiophene	**22**		18	**6.1**		5.0	
638-02-8	2,5-Dimethylthiophene		ND	23		ND	5.0	
872-55-9	2-Ethylthiophene	**37**		23	**8.0**		5.0	
110-81-6	Diethyl Disulfide		ND	12		ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

ALS Project ID: P1303568
ALS Sample ID: P130814-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/14/13
Time Analyzed: 08:28
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P130814-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 8/14/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**2,400**	**117**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**2,460**	**122**	63-138	
74-93-1	Methyl Mercaptan	1,890	**2,450**	**130**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 011 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-001

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC01081

Initial Pressure (psig): -1.62 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	15,000	ND	8,800	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	15,000	ND	3,100	
74-87-3	Chloromethane	ND	15,000	ND	7,400	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	15,000	ND	2,200	
75-01-4	Vinyl Chloride	ND	15,000	ND	5,900	
106-99-0	1,3-Butadiene	ND	15,000	ND	6,900	
74-83-9	Bromomethane	ND	15,000	ND	3,900	
75-00-3	Chloroethane	ND	15,000	ND	5,800	
64-17-5	Ethanol	ND	150,000	ND	81,000	
75-05-8	Acetonitrile	ND	15,000	ND	9,100	
107-02-8	Acrolein	ND	61,000	ND	27,000	
67-64-1	Acetone	ND	150,000	ND	64,000	
75-69-4	Trichlorofluoromethane	ND	15,000	ND	2,700	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	150,000	ND	62,000	
107-13-1	Acrylonitrile	ND	15,000	ND	7,000	
75-35-4	1,1-Dichloroethene	ND	15,000	ND	3,800	
75-09-2	Methylene Chloride	ND	15,000	ND	4,400	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	15,000	ND	4,900	
76-13-1	Trichlorotrifluoroethane	ND	15,000	ND	2,000	
75-15-0	Carbon Disulfide	ND	150,000	ND	49,000	
156-60-5	trans-1,2-Dichloroethene	ND	15,000	ND	3,800	
75-34-3	1,1-Dichloroethane	ND	15,000	ND	3,800	
1634-04-4	Methyl tert-Butyl Ether	ND	15,000	ND	4,200	
108-05-4	Vinyl Acetate	ND	150,000	ND	43,000	
78-93-3	2-Butanone (MEK)	ND	150,000	ND	52,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 011 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-001

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC01081

Initial Pressure (psig): -1.62 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	15,000	ND	3,800	
141-78-6	Ethyl Acetate	ND	30,000	ND	8,400	
110-54-3	n-Hexane	ND	15,000	ND	4,300	
67-66-3	Chloroform	ND	15,000	ND	3,100	
109-99-9	Tetrahydrofuran (THF)	ND	15,000	ND	5,200	
107-06-2	1,2-Dichloroethane	ND	15,000	ND	3,800	
71-55-6	1,1,1-Trichloroethane	ND	15,000	ND	2,800	
71-43-2	Benzene	**2,500,000**	15,000	**790,000**	4,800	
56-23-5	Carbon Tetrachloride	ND	15,000	ND	2,400	
110-82-7	Cyclohexane	ND	30,000	ND	8,800	
78-87-5	1,2-Dichloropropane	ND	15,000	ND	3,300	
75-27-4	Bromodichloromethane	ND	15,000	ND	2,300	
79-01-6	Trichloroethene	ND	15,000	ND	2,800	
123-91-1	1,4-Dioxane	ND	15,000	ND	4,200	
80-62-6	Methyl Methacrylate	ND	30,000	ND	7,400	
142-82-5	n-Heptane	ND	15,000	ND	3,700	
10061-01-5	cis-1,3-Dichloropropene	ND	15,000	ND	3,300	
108-10-1	4-Methyl-2-pentanone	ND	15,000	ND	3,700	
10061-02-6	trans-1,3-Dichloropropene	ND	15,000	ND	3,300	
79-00-5	1,1,2-Trichloroethane	ND	15,000	ND	2,800	
108-88-3	Toluene	**320,000**	15,000	**84,000**	4,000	
591-78-6	2-Hexanone	ND	15,000	ND	3,700	
124-48-1	Dibromochloromethane	ND	15,000	ND	1,800	
106-93-4	1,2-Dibromoethane	ND	15,000	ND	2,000	
123-86-4	n-Butyl Acetate	ND	15,000	ND	3,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303568
Client Sample ID: **2-3620 011 (1200g)** ALS Sample ID: P1303568-001
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC01081

Initial Pressure (psig): -1.62 Final Pressure (psig): 5.18

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	15,000	ND	3,300	
127-18-4	Tetrachloroethene	ND	15,000	ND	2,200	
108-90-7	Chlorobenzene	ND	15,000	ND	3,300	
100-41-4	Ethylbenzene	ND	15,000	ND	3,500	
179601-23-1	m,p-Xylenes	ND	30,000	ND	7,000	
75-25-2	Bromoform	ND	15,000	ND	1,500	
100-42-5	Styrene	ND	15,000	ND	3,600	
95-47-6	o-Xylene	ND	15,000	ND	3,500	
111-84-2	n-Nonane	ND	15,000	ND	2,900	
79-34-5	1,1,2,2-Tetrachloroethane	ND	15,000	ND	2,200	
98-82-8	Cumene	ND	15,000	ND	3,100	
80-56-8	alpha-Pinene	ND	15,000	ND	2,700	
103-65-1	n-Propylbenzene	ND	15,000	ND	3,100	
622-96-8	4-Ethyltoluene	ND	15,000	ND	3,100	
108-67-8	1,3,5-Trimethylbenzene	ND	15,000	ND	3,100	
95-63-6	1,2,4-Trimethylbenzene	ND	15,000	ND	3,100	
100-44-7	Benzyl Chloride	ND	15,000	ND	2,900	
541-73-1	1,3-Dichlorobenzene	ND	15,000	ND	2,500	
106-46-7	1,4-Dichlorobenzene	ND	15,000	ND	2,500	
95-50-1	1,2-Dichlorobenzene	ND	15,000	ND	2,500	
5989-27-5	d-Limonene	ND	15,000	ND	2,700	
96-12-8	1,2-Dibromo-3-chloropropane	ND	15,000	ND	1,600	
120-82-1	1,2,4-Trichlorobenzene	ND	15,000	ND	2,000	
91-20-3	Naphthalene	ND	15,000	ND	2,900	
87-68-3	Hexachlorobutadiene	ND	15,000	ND	1,400	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 012 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-002

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00440

Initial Pressure (psig): -2.04 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	13,000	ND	7,600	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	13,000	ND	2,600	
74-87-3	Chloromethane	ND	13,000	ND	6,300	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	13,000	ND	1,900	
75-01-4	Vinyl Chloride	ND	13,000	ND	5,100	
106-99-0	1,3-Butadiene	ND	13,000	ND	5,900	
74-83-9	Bromomethane	ND	13,000	ND	3,400	
75-00-3	Chloroethane	ND	13,000	ND	5,000	
64-17-5	Ethanol	ND	130,000	ND	69,000	
75-05-8	Acetonitrile	ND	13,000	ND	7,800	
107-02-8	Acrolein	ND	52,000	ND	23,000	
67-64-1	Acetone	ND	130,000	ND	55,000	
75-69-4	Trichlorofluoromethane	ND	13,000	ND	2,300	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	130,000	ND	53,000	
107-13-1	Acrylonitrile	ND	13,000	ND	6,000	
75-35-4	1,1-Dichloroethene	ND	13,000	ND	3,300	
75-09-2	Methylene Chloride	ND	13,000	ND	3,800	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	13,000	ND	4,200	
76-13-1	Trichlorotrifluoroethane	ND	13,000	ND	1,700	
75-15-0	Carbon Disulfide	ND	130,000	ND	42,000	
156-60-5	trans-1,2-Dichloroethene	ND	13,000	ND	3,300	
75-34-3	1,1-Dichloroethane	ND	13,000	ND	3,200	
1634-04-4	Methyl tert-Butyl Ether	ND	13,000	ND	3,600	
108-05-4	Vinyl Acetate	ND	130,000	ND	37,000	
78-93-3	2-Butanone (MEK)	ND	130,000	ND	44,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620 012 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-002

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00440

Initial Pressure (psig): -2.04 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	13,000	ND	3,300	
141-78-6	Ethyl Acetate	ND	26,000	ND	7,300	
110-54-3	n-Hexane	ND	13,000	ND	3,700	
67-66-3	Chloroform	ND	13,000	ND	2,700	
109-99-9	Tetrahydrofuran (THF)	ND	13,000	ND	4,400	
107-06-2	1,2-Dichloroethane	ND	13,000	ND	3,200	
71-55-6	1,1,1-Trichloroethane	ND	13,000	ND	2,400	
71-43-2	Benzene	**2,700,000**	13,000	**850,000**	4,100	
56-23-5	Carbon Tetrachloride	ND	13,000	ND	2,100	
110-82-7	Cyclohexane	ND	26,000	ND	7,600	
78-87-5	1,2-Dichloropropane	ND	13,000	ND	2,800	
75-27-4	Bromodichloromethane	ND	13,000	ND	2,000	
79-01-6	Trichloroethene	ND	13,000	ND	2,400	
123-91-1	1,4-Dioxane	ND	13,000	ND	3,600	
80-62-6	Methyl Methacrylate	ND	26,000	ND	6,400	
142-82-5	n-Heptane	ND	13,000	ND	3,200	
10061-01-5	cis-1,3-Dichloropropene	ND	13,000	ND	2,900	
108-10-1	4-Methyl-2-pentanone	ND	13,000	ND	3,200	
10061-02-6	trans-1,3-Dichloropropene	ND	13,000	ND	2,900	
79-00-5	1,1,2-Trichloroethane	ND	13,000	ND	2,400	
108-88-3	Toluene	**360,000**	13,000	**97,000**	3,500	
591-78-6	2-Hexanone	ND	13,000	ND	3,200	
124-48-1	Dibromochloromethane	ND	13,000	ND	1,500	
106-93-4	1,2-Dibromoethane	ND	13,000	ND	1,700	
123-86-4	n-Butyl Acetate	ND	13,000	ND	2,800	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303568
Client Sample ID: **2-3620 012 (1200g)** ALS Sample ID: P1303568-002
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00440

Initial Pressure (psig): -2.04 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.57

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	13,000	ND	2,800	
127-18-4	Tetrachloroethene	ND	13,000	ND	1,900	
108-90-7	Chlorobenzene	ND	13,000	ND	2,800	
100-41-4	Ethylbenzene	ND	13,000	ND	3,000	
179601-23-1	m,p-Xylenes	ND	26,000	ND	6,000	
75-25-2	Bromoform	ND	13,000	ND	1,300	
100-42-5	Styrene	ND	13,000	ND	3,100	
95-47-6	o-Xylene	ND	13,000	ND	3,000	
111-84-2	n-Nonane	ND	13,000	ND	2,500	
79-34-5	1,1,2,2-Tetrachloroethane	ND	13,000	ND	1,900	
98-82-8	Cumene	ND	13,000	ND	2,700	
80-56-8	alpha-Pinene	ND	13,000	ND	2,300	
103-65-1	n-Propylbenzene	ND	13,000	ND	2,700	
622-96-8	4-Ethyltoluene	ND	13,000	ND	2,700	
108-67-8	1,3,5-Trimethylbenzene	ND	13,000	ND	2,700	
95-63-6	1,2,4-Trimethylbenzene	ND	13,000	ND	2,700	
100-44-7	Benzyl Chloride	ND	13,000	ND	2,500	
541-73-1	1,3-Dichlorobenzene	ND	13,000	ND	2,200	
106-46-7	1,4-Dichlorobenzene	ND	13,000	ND	2,200	
95-50-1	1,2-Dichlorobenzene	ND	13,000	ND	2,200	
5989-27-5	d-Limonene	ND	13,000	ND	2,300	
96-12-8	1,2-Dibromo-3-chloropropane	ND	13,000	ND	1,400	
120-82-1	1,2,4-Trichlorobenzene	ND	13,000	ND	1,800	
91-20-3	Naphthalene	ND	13,000	ND	2,500	
87-68-3	Hexachlorobutadiene	ND	13,000	ND	1,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 013 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-003

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC00880

Initial Pressure (psig): -1.78 Final Pressure (psig): 5.15

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	15,000	ND	9,000	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	15,000	ND	3,100	
74-87-3	Chloromethane	ND	15,000	ND	7,500	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	15,000	ND	2,200	
75-01-4	Vinyl Chloride	ND	15,000	ND	6,000	
106-99-0	1,3-Butadiene	ND	15,000	ND	7,000	
74-83-9	Bromomethane	ND	15,000	ND	4,000	
75-00-3	Chloroethane	ND	15,000	ND	5,800	
64-17-5	Ethanol	ND	150,000	ND	82,000	
75-05-8	Acetonitrile	ND	15,000	ND	9,200	
107-02-8	Acrolein	ND	62,000	ND	27,000	
67-64-1	Acetone	ND	150,000	ND	65,000	
75-69-4	Trichlorofluoromethane	ND	15,000	ND	2,700	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	150,000	ND	63,000	
107-13-1	Acrylonitrile	ND	15,000	ND	7,100	
75-35-4	1,1-Dichloroethene	ND	15,000	ND	3,900	
75-09-2	Methylene Chloride	ND	15,000	ND	4,400	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	15,000	ND	4,900	
76-13-1	Trichlorotrifluoroethane	ND	15,000	ND	2,000	
75-15-0	Carbon Disulfide	ND	150,000	ND	49,000	
156-60-5	trans-1,2-Dichloroethene	ND	15,000	ND	3,900	
75-34-3	1,1-Dichloroethane	ND	15,000	ND	3,800	
1634-04-4	Methyl tert-Butyl Ether	ND	15,000	ND	4,300	
108-05-4	Vinyl Acetate	ND	150,000	ND	44,000	
78-93-3	2-Butanone (MEK)	ND	150,000	ND	52,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620 013 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-003

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC00880

Initial Pressure (psig): -1.78 Final Pressure (psig): 5.15

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	15,000	ND	3,900	
141-78-6	Ethyl Acetate	ND	31,000	ND	8,600	
110-54-3	n-Hexane	ND	15,000	ND	4,400	
67-66-3	Chloroform	ND	15,000	ND	3,200	
109-99-9	Tetrahydrofuran (THF)	ND	15,000	ND	5,200	
107-06-2	1,2-Dichloroethane	ND	15,000	ND	3,800	
71-55-6	1,1,1-Trichloroethane	ND	15,000	ND	2,800	
71-43-2	Benzene	**2,400,000**	15,000	**770,000**	4,800	
56-23-5	Carbon Tetrachloride	ND	15,000	ND	2,400	
110-82-7	Cyclohexane	ND	31,000	ND	9,000	
78-87-5	1,2-Dichloropropane	ND	15,000	ND	3,300	
75-27-4	Bromodichloromethane	ND	15,000	ND	2,300	
79-01-6	Trichloroethene	ND	15,000	ND	2,900	
123-91-1	1,4-Dioxane	ND	15,000	ND	4,300	
80-62-6	Methyl Methacrylate	ND	31,000	ND	7,500	
142-82-5	n-Heptane	ND	15,000	ND	3,800	
10061-01-5	cis-1,3-Dichloropropene	ND	15,000	ND	3,400	
108-10-1	4-Methyl-2-pentanone	ND	15,000	ND	3,800	
10061-02-6	trans-1,3-Dichloropropene	ND	15,000	ND	3,400	
79-00-5	1,1,2-Trichloroethane	ND	15,000	ND	2,800	
108-88-3	Toluene	**270,000**	15,000	**72,000**	4,100	
591-78-6	2-Hexanone	ND	15,000	ND	3,800	
124-48-1	Dibromochloromethane	ND	15,000	ND	1,800	
106-93-4	1,2-Dibromoethane	ND	15,000	ND	2,000	
123-86-4	n-Butyl Acetate	ND	15,000	ND	3,200	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303568
Client Sample ID: **2-3620 013 (1200g)** ALS Sample ID: P1303568-003
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000050 Liter(s)
Test Notes:
Container ID: 1SC00880

Initial Pressure (psig): -1.78 Final Pressure (psig): 5.15

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	15,000	ND	3,300	
127-18-4	Tetrachloroethene	ND	15,000	ND	2,300	
108-90-7	Chlorobenzene	ND	15,000	ND	3,300	
100-41-4	Ethylbenzene	ND	15,000	ND	3,500	
179601-23-1	m,p-Xylenes	ND	31,000	ND	7,100	
75-25-2	Bromoform	ND	15,000	ND	1,500	
100-42-5	Styrene	ND	15,000	ND	3,600	
95-47-6	o-Xylene	ND	15,000	ND	3,500	
111-84-2	n-Nonane	ND	15,000	ND	2,900	
79-34-5	1,1,2,2-Tetrachloroethane	ND	15,000	ND	2,200	
98-82-8	Cumene	ND	15,000	ND	3,100	
80-56-8	alpha-Pinene	ND	15,000	ND	2,800	
103-65-1	n-Propylbenzene	ND	15,000	ND	3,100	
622-96-8	4-Ethyltoluene	ND	15,000	ND	3,100	
108-67-8	1,3,5-Trimethylbenzene	ND	15,000	ND	3,100	
95-63-6	1,2,4-Trimethylbenzene	ND	15,000	ND	3,100	
100-44-7	Benzyl Chloride	ND	15,000	ND	3,000	
541-73-1	1,3-Dichlorobenzene	ND	15,000	ND	2,600	
106-46-7	1,4-Dichlorobenzene	ND	15,000	ND	2,600	
95-50-1	1,2-Dichlorobenzene	ND	15,000	ND	2,600	
5989-27-5	d-Limonene	ND	15,000	ND	2,800	
96-12-8	1,2-Dibromo-3-chloropropane	ND	15,000	ND	1,600	
120-82-1	1,2,4-Trichlorobenzene	ND	15,000	ND	2,100	
91-20-3	Naphthalene	ND	15,000	ND	2,900	
87-68-3	Hexachlorobutadiene	ND	15,000	ND	1,400	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620 014 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-004

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC01103

Initial Pressure (psig): -2.38 Final Pressure (psig): 5.28

Canister Dilution Factor: 1.62

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	14,000	ND	7,800	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	14,000	ND	2,700	
74-87-3	Chloromethane	ND	14,000	ND	6,500	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	14,000	ND	1,900	
75-01-4	Vinyl Chloride	ND	14,000	ND	5,300	
106-99-0	1,3-Butadiene	ND	14,000	ND	6,100	
74-83-9	Bromomethane	ND	14,000	ND	3,500	
75-00-3	Chloroethane	ND	14,000	ND	5,100	
64-17-5	Ethanol	ND	140,000	ND	72,000	
75-05-8	Acetonitrile	ND	14,000	ND	8,000	
107-02-8	Acrolein	ND	54,000	ND	24,000	
67-64-1	Acetone	ND	140,000	ND	57,000	
75-69-4	Trichlorofluoromethane	ND	14,000	ND	2,400	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	140,000	ND	55,000	
107-13-1	Acrylonitrile	ND	14,000	ND	6,200	
75-35-4	1,1-Dichloroethene	ND	14,000	ND	3,400	
75-09-2	Methylene Chloride	ND	14,000	ND	3,900	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	14,000	ND	4,300	
76-13-1	Trichlorotrifluoroethane	ND	14,000	ND	1,800	
75-15-0	Carbon Disulfide	ND	140,000	ND	43,000	
156-60-5	trans-1,2-Dichloroethene	ND	14,000	ND	3,400	
75-34-3	1,1-Dichloroethane	ND	14,000	ND	3,300	
1634-04-4	Methyl tert-Butyl Ether	ND	14,000	ND	3,700	
108-05-4	Vinyl Acetate	ND	140,000	ND	38,000	
78-93-3	2-Butanone (MEK)	ND	140,000	ND	46,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620 014 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-004

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC01103

Initial Pressure (psig): -2.38 Final Pressure (psig): 5.28

Canister Dilution Factor: 1.62

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	14,000	ND	3,400	
141-78-6	Ethyl Acetate	ND	27,000	ND	7,500	
110-54-3	n-Hexane	ND	14,000	ND	3,800	
67-66-3	Chloroform	ND	14,000	ND	2,800	
109-99-9	Tetrahydrofuran (THF)	ND	14,000	ND	4,600	
107-06-2	1,2-Dichloroethane	ND	14,000	ND	3,300	
71-55-6	1,1,1-Trichloroethane	ND	14,000	ND	2,500	
71-43-2	Benzene	**2,800,000**	14,000	**880,000**	4,200	
56-23-5	Carbon Tetrachloride	ND	14,000	ND	2,100	
110-82-7	Cyclohexane	ND	27,000	ND	7,800	
78-87-5	1,2-Dichloropropane	ND	14,000	ND	2,900	
75-27-4	Bromodichloromethane	ND	14,000	ND	2,000	
79-01-6	Trichloroethene	ND	14,000	ND	2,500	
123-91-1	1,4-Dioxane	ND	14,000	ND	3,700	
80-62-6	Methyl Methacrylate	ND	27,000	ND	6,600	
142-82-5	n-Heptane	ND	14,000	ND	3,300	
10061-01-5	cis-1,3-Dichloropropene	ND	14,000	ND	3,000	
108-10-1	4-Methyl-2-pentanone	ND	14,000	ND	3,300	
10061-02-6	trans-1,3-Dichloropropene	ND	14,000	ND	3,000	
79-00-5	1,1,2-Trichloroethane	ND	14,000	ND	2,500	
108-88-3	Toluene	**350,000**	14,000	**93,000**	3,600	
591-78-6	2-Hexanone	ND	14,000	ND	3,300	
124-48-1	Dibromochloromethane	ND	14,000	ND	1,600	
106-93-4	1,2-Dibromoethane	ND	14,000	ND	1,800	
123-86-4	n-Butyl Acetate	ND	14,000	ND	2,800	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303568
Client Sample ID: **2-3620 014 (1200g)** ALS Sample ID: P1303568-004
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC01103

Initial Pressure (psig): -2.38 Final Pressure (psig): 5.28

Canister Dilution Factor: 1.62

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	14,000	ND	2,900	
127-18-4	Tetrachloroethene	ND	14,000	ND	2,000	
108-90-7	Chlorobenzene	ND	14,000	ND	2,900	
100-41-4	Ethylbenzene	ND	14,000	ND	3,100	
179601-23-1	m,p-Xylenes	ND	27,000	ND	6,200	
75-25-2	Bromoform	ND	14,000	ND	1,300	
100-42-5	Styrene	ND	14,000	ND	3,200	
95-47-6	o-Xylene	ND	14,000	ND	3,100	
111-84-2	n-Nonane	ND	14,000	ND	2,600	
79-34-5	1,1,2,2-Tetrachloroethane	ND	14,000	ND	2,000	
98-82-8	Cumene	ND	14,000	ND	2,700	
80-56-8	alpha-Pinene	ND	14,000	ND	2,400	
103-65-1	n-Propylbenzene	ND	14,000	ND	2,700	
622-96-8	4-Ethyltoluene	ND	14,000	ND	2,700	
108-67-8	1,3,5-Trimethylbenzene	ND	14,000	ND	2,700	
95-63-6	1,2,4-Trimethylbenzene	ND	14,000	ND	2,700	
100-44-7	Benzyl Chloride	ND	14,000	ND	2,600	
541-73-1	1,3-Dichlorobenzene	ND	14,000	ND	2,200	
106-46-7	1,4-Dichlorobenzene	ND	14,000	ND	2,200	
95-50-1	1,2-Dichlorobenzene	ND	14,000	ND	2,200	
5989-27-5	d-Limonene	ND	14,000	ND	2,400	
96-12-8	1,2-Dibromo-3-chloropropane	ND	14,000	ND	1,400	
120-82-1	1,2,4-Trichlorobenzene	ND	14,000	ND	1,800	
91-20-3	Naphthalene	ND	14,000	ND	2,600	
87-68-3	Hexachlorobutadiene	ND	14,000	ND	1,300	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P130816-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1303568

Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P130816-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA

Analyst: Elsa Moctezuma Date Analyzed: 8/16/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303568

Client Sample ID: **Method Blank** ALS Sample ID: P130816-MB

Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA

Analyst: Elsa Moctezuma Date Analyzed: 8/16/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Project ID: P1303568

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 8/13/13
Analyst: Elsa Moctezuma Date(s) Received: 8/14/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 8/16/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130816-MB	**92**	**105**	**106**	70-130	
Lab Control Sample	P130816-LCS	**87**	**103**	**113**	70-130	
2-3620 011 (1200g)	P1303568-001	**90**	**104**	**108**	70-130	
2-3620 012 (1200g)	P1303568-002	**89**	**102**	**113**	70-130	
2-3620 012 (1200g)	P1303568-002DUP	**90**	**103**	**114**	70-130	
2-3620 013 (1200g)	P1303568-003	**91**	**101**	**111**	70-130	
2-3620 014 (1200g)	P1303568-004	**89**	**104**	**114**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P130816-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**178**	**89**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**193**	**95**	63-115	
74-87-3	Chloromethane	198	**150**	**76**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**191**	**94**	65-115	
75-01-4	Vinyl Chloride	200	**166**	**83**	64-122	
106-99-0	1,3-Butadiene	212	**175**	**83**	57-141	
74-83-9	Bromomethane	200	**182**	**91**	68-122	
75-00-3	Chloroethane	202	**175**	**87**	66-120	
64-17-5	Ethanol	1,020	**755**	**74**	58-126	
75-05-8	Acetonitrile	202	**153**	**76**	64-136	
107-02-8	Acrolein	214	**180**	**84**	58-129	
67-64-1	Acetone	1,080	**843**	**78**	60-114	
75-69-4	Trichlorofluoromethane	198	**166**	**84**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**351**	**84**	54-118	
107-13-1	Acrylonitrile	208	**177**	**85**	72-143	
75-35-4	1,1-Dichloroethene	214	**196**	**92**	69-119	
75-09-2	Methylene Chloride	216	**185**	**86**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**186**	**86**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**217**	**101**	69-117	
75-15-0	Carbon Disulfide	196	**182**	**93**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**181**	**85**	70-126	
75-34-3	1,1-Dichloroethane	208	**169**	**81**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**178**	**84**	69-120	
108-05-4	Vinyl Acetate	1,020	**1000**	**98**	58-160	
78-93-3	2-Butanone (MEK)	218	**189**	**87**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P130816-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	214	**180**	**84**	70-119	
141-78-6	Ethyl Acetate	426	**355**	**83**	72-129	
110-54-3	n-Hexane	210	**154**	**73**	63-115	
67-66-3	Chloroform	214	**175**	**82**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**178**	**86**	60-126	
107-06-2	1,2-Dichloroethane	210	**166**	**79**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**189**	**92**	68-120	
71-43-2	Benzene	220	**181**	**82**	69-117	
56-23-5	Carbon Tetrachloride	210	**205**	**98**	65-134	
110-82-7	Cyclohexane	420	**392**	**93**	69-114	
78-87-5	1,2-Dichloropropane	212	**174**	**82**	70-116	
75-27-4	Bromodichloromethane	214	**207**	**97**	71-126	
79-01-6	Trichloroethene	208	**194**	**93**	71-119	
123-91-1	1,4-Dioxane	218	**213**	**98**	72-126	
80-62-6	Methyl Methacrylate	420	**436**	**104**	75-136	
142-82-5	n-Heptane	214	**173**	**81**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**217**	**96**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**204**	**94**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**216**	**100**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**201**	**96**	72-119	
108-88-3	Toluene	210	**196**	**93**	65-116	
591-78-6	2-Hexanone	222	**197**	**89**	62-132	
124-48-1	Dibromochloromethane	220	**245**	**111**	66-140	
106-93-4	1,2-Dibromoethane	216	**226**	**105**	69-130	
123-86-4	n-Butyl Acetate	224	**199**	**89**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P130816-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**187**	**90**	66-118	
127-18-4	Tetrachloroethene	196	**201**	**103**	63-123	
108-90-7	Chlorobenzene	216	**214**	**99**	66-118	
100-41-4	Ethylbenzene	212	**211**	**100**	66-119	
179601-23-1	m,p-Xylenes	420	**423**	**101**	64-118	
75-25-2	Bromoform	216	**284**	**131**	64-140	
100-42-5	Styrene	218	**243**	**111**	68-132	
95-47-6	o-Xylene	206	**208**	**101**	65-120	
111-84-2	n-Nonane	206	**183**	**89**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**210**	**104**	63-128	
98-82-8	Cumene	204	**214**	**105**	65-121	
80-56-8	alpha-Pinene	208	**220**	**106**	66-123	
103-65-1	n-Propylbenzene	202	**207**	**102**	65-121	
622-96-8	4-Ethyltoluene	212	**208**	**98**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**223**	**105**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**224**	**106**	64-131	
100-44-7	Benzyl Chloride	222	**265**	**119**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**232**	**105**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**233**	**109**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**233**	**107**	63-126	
5989-27-5	d-Limonene	210	**229**	**109**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**264**	**125**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**233**	**106**	59-146	
91-20-3	Naphthalene	204	**225**	**110**	56-143	
87-68-3	Hexachlorobutadiene	218	**236**	**108**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **2-3620 012 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-002DUP

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00440

Initial Pressure (psig): -2.04 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.57

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
Propene	ND	ND	ND	ND	-	-	25	
Dichlorodifluoromethane (CFC 12)	ND	ND	ND	ND	-	-	25	
Chloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	ND	ND	ND	-	-	25	
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Butadiene	ND	ND	ND	ND	-	-	25	
Bromomethane	ND	ND	ND	ND	-	-	25	
Chloroethane	ND	ND	ND	ND	-	-	25	
Ethanol	ND	ND	ND	ND	-	-	25	
Acetonitrile	ND	ND	ND	ND	-	-	25	
Acrolein	ND	ND	ND	ND	-	-	25	
Acetone	ND	ND	ND	ND	-	-	25	
Trichlorofluoromethane	ND	ND	ND	ND	-	-	25	
2-Propanol (Isopropyl Alcohol)	ND	ND	ND	ND	-	-	25	
Acrylonitrile	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
3-Chloro-1-propene (Allyl Chloride)	ND	ND	ND	ND	-	-	25	
Trichlorotrifluoroethane	ND	ND	ND	ND	-	-	25	
Carbon Disulfide	ND	ND	ND	ND	-	-	25	
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
Methyl tert-Butyl Ether	ND	ND	ND	ND	-	-	25	
Vinyl Acetate	ND	ND	ND	ND	-	-	25	
2-Butanone (MEK)	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **2-3620 012 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-002DUP

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00440

Initial Pressure (psig): -2.04 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.57

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result **µg/m³**	Duplicate Sample Result **ppbV**	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
cis-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
Ethyl Acetate	ND	ND	ND	ND	-	-	25	
n-Hexane	ND	ND	ND	ND	-	-	25	
Chloroform	ND	ND	ND	ND	-	-	25	
Tetrahydrofuran (THF)	ND	ND	ND	ND	-	-	25	
1,2-Dichloroethane	ND	ND	ND	ND	-	-	25	
1,1,1-Trichloroethane	ND	ND	ND	ND	-	-	25	
Benzene	2,710,000	848,000	2,750,000	860,000	2730000	**1**	25	
Carbon Tetrachloride	ND	ND	ND	ND	-	-	25	
Cyclohexane	ND	ND	ND	ND	-	-	25	
1,2-Dichloropropane	ND	ND	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	ND	ND	-	-	25	
Trichloroethene	ND	ND	ND	ND	-	-	25	
1,4-Dioxane	ND	ND	ND	ND	-	-	25	
Methyl Methacrylate	ND	ND	ND	ND	-	-	25	
n-Heptane	ND	ND	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
4-Methyl-2-pentanone	ND	ND	ND	ND	-	-	25	
trans-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	364,000	96,500	356,000	94,600	360000	**2**	25	
2-Hexanone	ND	ND	ND	ND	-	-	25	
Dibromochloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dibromoethane	ND	ND	ND	ND	-	-	25	
n-Butyl Acetate	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **2-3620 012 (1200g)** ALS Project ID: P1303568
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon 2-3620** ALS Sample ID: P1303568-002DUP

Test Code: EPA TO-15 Date Collected: 8/13/13
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 8/14/13
Analyst: Elsa Moctezuma Date Analyzed: 8/16/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000060 Liter(s)
Test Notes:
Container ID: 1SC00440

Initial Pressure (psig): -2.04 Final Pressure (psig): 5.14

Canister Dilution Factor: 1.57

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
n-Octane	ND	ND	ND	ND	-	-	25	
Tetrachloroethene	ND	ND	ND	ND	-	-	25	
Chlorobenzene	ND	ND	ND	ND	-	-	25	
Ethylbenzene	ND	ND	ND	ND	-	-	25	
m,p-Xylenes	ND	ND	ND	ND	-	-	25	
Bromoform	ND	ND	ND	ND	-	-	25	
Styrene	ND	ND	ND	ND	-	-	25	
o-Xylene	ND	ND	ND	ND	-	-	25	
n-Nonane	ND	ND	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	-	-	25	
Cumene	ND	ND	ND	ND	-	-	25	
alpha-Pinene	ND	ND	ND	ND	-	-	25	
n-Propylbenzene	ND	ND	ND	ND	-	-	25	
4-Ethyltoluene	ND	ND	ND	ND	-	-	25	
1,3,5-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
1,2,4-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
Benzyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,4-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,2-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
d-Limonene	ND	ND	ND	ND	-	-	25	
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	-	-	25	
1,2,4-Trichlorobenzene	ND	ND	ND	ND	-	-	25	
Naphthalene	ND	ND	ND	ND	-	-	25	
Hexachlorobutadiene	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : CH2M Hill
Analyst : MC

Service Request : P1303568
Printed : 41500
Instrument : GC13
Date Acquired : 8/14/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std 2000ppb s27-07011304		std 2000ppb s27-07011304									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						2223.11	11.6%	1568.975	21.2%								
Carbonyl_Sulfide	1.900	5.000	ND	P						2369.96	16.6%	1695.336	16.6%								
Methyl_Mercaptan	2.200	5.000	ND	P						2397.77	18.6%	1702.331	15.8%								
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						7:48 AM		11:18 AM									
Carbon_Disulfide	1.100	2.500	ND	P						08141301.D		08141312.D									
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			8:28 AM																		
DataFile			08141305.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	2403.32	117.5%					2045.54
Carbonyl_Sulfide	2455.25	121.7%					2017.48
Methyl_Mercaptan	2452.66	129.9%					1887.74
Acqisition Time	7:53 AM						
DataFile	08141302.D						

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16070813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Jul 09 15:35:04 2013
Response Via : Initial Calibration

Calibration Files
0.08=07081313.D 0.10=07081314.D 0.20=07081315.D 0.40=07081316.D 1.0 =07081317.D 5.0 =07081318.D
25 =07081319.D 50 =07081320.D 100 =07081321.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------			ISTD	----------						
2)	T	Propene				1.916	1.967	1.727	1.465	1.043	0.806	1.487	32.00
3)	T	Dichlorodifluo...				3.341	3.497	2.952	2.656	2.037	1.628	2.685	27.36
4)	T	Chloromethane	3.905	3.754	3.349	3.099	3.220	2.699	2.736	2.278	1.934	2.997	21.71
5)	T	1,2-Dichloro-1...	2.073	1.939	1.813	1.666	1.713	1.520	1.452	1.323	1.172	1.630	17.90
6)	T	Vinyl Chloride	3.441	3.306	3.123	2.765	2.815	2.498	2.474	2.135	1.842	2.711	19.60
7)	T	1,3-Butadiene	2.446	2.348	2.089	1.819	1.960	1.708	1.730	1.543	1.403	1.894	18.53
8)	T	Bromomethane			2.422	1.935	1.778	1.477	1.472	1.335	1.314	1.676	23.89
9)	T	Chloroethane	1.755	1.633	1.559	1.428	1.423	1.275	1.246	1.165	1.126	1.401	15.48
10)	T	Ethanol	1.788	1.619	1.413	1.407	1.394	1.248	1.233	1.137	1.055	1.366	16.92
11)	T	Acetonitrile	4.689	4.499	3.880	3.602	3.596	3.353	3.287	3.073	2.919	3.655	16.60
12)	T	Acrolein	1.454	1.249	1.121	1.008	0.921	0.882	1.028	0.991	0.914	1.063	17.44
13)	T	Acetone	1.778	1.704	1.488	1.365	1.299	1.188	1.170	1.080	0.957	1.337	20.74
14)	T	Trichlorofluor...	3.445	3.079	2.818	2.569	2.590	2.424	2.149	2.053	2.071	2.578	18.41
15)	T	2-Propanol (Is...	5.097	4.569	4.302	4.013	4.226	3.870	4.162	3.852	3.431	4.169	11.38
16)	T	Acrylonitrile	2.680	2.619	2.337	2.256	2.275	2.168	2.208	2.098	2.002	2.294	9.82
17)	T	1,1-Dichloroet...	1.894	1.631	1.482	1.450	1.412	1.338	1.331	1.279	1.242	1.451	14.03
18)	T	2-Methyl-2-Pro...	4.878	4.463	4.090	3.833	3.907	3.597	3.950	3.676	3.286	3.964	11.96
19)	T	Methylene Chlo...				1.841	1.796	1.564	1.583	1.528	1.449	1.627	9.59
20)	T	3-Chloro-1-pro...	2.557	2.284	2.117	1.987	2.169	2.071	2.118	2.093	1.973	2.152	8.26
21)	T	Trichlorotrifl...	1.530	1.370	1.301	1.205	1.273	1.160	1.169	1.096	1.066	1.241	11.72
22)	T	Carbon Disulfide			7.638	6.775	6.509	6.020	5.824	5.470	5.198	6.205	13.49
23)	T	trans-1,2-Dich...	2.810	2.602	2.274	2.156	2.286	2.146	2.118	2.092	1.975	2.273	11.77
24)	T	1,1-Dichloroet...	3.621	2.996	2.863	2.652	2.765	2.600	2.503	2.443	2.381	2.758	13.78
25)	T	Methyl tert-Bu...	5.663	5.626	4.679	4.423	4.537	4.193	4.216	4.078	3.841	4.584	14.19
26)	T	Vinyl Acetate	0.313	0.285	0.296	0.290	0.307	0.315	0.324	0.325	0.317	0.308	4.76
27)	T	2-Butanone (MEK)	1.053	1.010	0.974	0.970	1.019	0.922	0.926	0.920	0.916	0.968	5.22
28)	T	cis-1,2-Dichlo...	2.634	2.331	2.087	2.006	2.111	2.034	1.967	1.902	1.825	2.100	11.72
29)	T	Diisopropyl Ether	1.410	1.386	1.199	1.116	1.167	1.084	1.063	1.002	0.919	1.150	14.25
30)	T	Ethyl Acetate	0.565	0.555	0.548	0.536	0.576	0.513	0.507	0.484	0.433	0.524	8.59
31)	T	n-Hexane			2.483	2.341	2.347	2.022	1.681	1.689	1.496	2.008	19.54
32)	T	Chloroform	3.251	3.108	2.700	2.548	2.600	2.369	2.332	2.284	2.229	2.602	13.97
33)	S	1,2-Dichloroet...	1.439	1.458	1.451	1.465	1.416	1.422	1.407	1.400	1.399	1.428	1.79
34)	T	Tetrahydrofura...	1.115	1.031	0.970	0.949	0.998	0.930	0.911	0.897	0.880	0.964	7.72
35)	T	Ethyl tert-But...	2.092	1.906	1.728	1.705	1.794	1.652	1.672	1.599	1.530	1.742	9.77
36)	T	1,2-Dichloroet...	2.296	2.144	1.950	1.810	1.859	1.703	1.664	1.605	1.548	1.842	13.63
37)	IR	1,4-Difluorobenzen...	----------			ISTD	----------						
38)	T	1,1,1-Trichlor...	0.548	0.528	0.475	0.446	0.465	0.450	0.441	0.413	0.387	0.461	11.03

Method Path : I:\MS16\METHODS\
Method File : R16070813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.218	0.214	0.198	0.186	0.200	0.188	0.190	0.177	0.162	0.193	8.91
40)	T	1-Butanol	0.342	0.320	0.290	0.286	0.307	0.303	0.359	0.328	0.301	0.315	7.66
41)	T	Benzene	1.573	1.554	1.332	1.254	1.231	1.137	1.071	1.035	0.979	1.241	17.29
42)	T	Carbon Tetrach...	0.445	0.419	0.383	0.355	0.388	0.385	0.392	0.368	0.345	0.387	7.96
43)	T	Cyclohexane	0.634	0.548	0.487	0.454	0.498	0.472	0.459	0.431	0.379	0.485	15.03
44)	T	tert-Amyl Meth...	1.168	1.067	0.976	0.907	0.972	0.888	0.922	0.862	0.792	0.950	11.85
45)	T	1,2-Dichloropr...	0.430	0.402	0.360	0.327	0.342	0.315	0.310	0.294	0.277	0.340	14.75
46)	T	Bromodichlorom...	0.457	0.424	0.387	0.378	0.410	0.389	0.395	0.370	0.347	0.395	8.06
47)	T	Trichloroethene	0.423	0.391	0.352	0.323	0.346	0.314	0.306	0.298	0.291	0.338	13.17
48)	T	1,4-Dioxane	0.294	0.265	0.255	0.238	0.253	0.234	0.246	0.233	0.214	0.248	9.11
49)	T	2,2,4-Trimethy...	1.834	1.734	1.562	1.462	1.510	1.460	1.432	1.297	1.132	1.491	14.11
50)	T	Methyl Methacr...	0.137	0.118	0.118	0.116	0.129	0.124	0.127	0.122	0.115	0.123	5.71
51)	T	n-Heptane	0.364	0.345	0.314	0.300	0.309	0.285	0.265	0.254	0.238	0.297	13.96
52)	T	cis-1,3-Dichlo...	0.555	0.499	0.485	0.448	0.509	0.490	0.495	0.460	0.420	0.485	8.02
53)	T	4-Methyl-2-pen...	0.325	0.308	0.298	0.281	0.301	0.290	0.314	0.290	0.255	0.296	6.84
54)	T	trans-1,3-Dich...	0.475	0.418	0.427	0.410	0.440	0.435	0.461	0.431	0.401	0.433	5.44
55)	T	1,1,2-Trichlor...	0.367	0.322	0.327	0.304	0.319	0.291	0.297	0.279	0.259	0.307	10.20
56)	IR	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.628	2.518	2.455	2.475	2.539	2.528	2.412	2.384	2.462	2.489	2.95
58)	T	Toluene	4.121	3.600	3.183	2.905	3.067	2.805	2.660	2.510	2.375	3.025	18.26
59)	T	2-Hexanone	2.212	1.994	1.723	1.619	1.698	1.576	1.667	1.566	1.452	1.723	13.71
60)	T	Dibromochlorom...	0.883	0.778	0.717	0.679	0.740	0.723	0.754	0.728	0.712	0.746	7.82
61)	T	1,2-Dibromoethane	0.931	0.832	0.774	0.751	0.804	0.755	0.748	0.718	0.705	0.780	8.84
62)	T	n-Butyl Acetate	2.442	2.254	1.856	1.787	1.887	1.778	1.911	1.785	1.639	1.927	13.28
63)	T	n-Octane	0.761	0.745	0.702	0.645	0.677	0.650	0.613	0.576	0.551	0.658	10.88
64)	T	Tetrachloroethene	1.151	1.045	0.896	0.839	0.895	0.830	0.796	0.765	0.768	0.887	14.78
65)	T	Chlorobenzene	2.585	2.367	2.041	1.933	2.035	1.848	1.823	1.721	1.624	1.998	15.41
66)	T	Ethylbenzene	4.024	3.957	3.442	3.195	3.399	3.170	3.206	3.010	2.702	3.345	12.71
67)	T	m- & p-Xylenes	3.044	3.051	2.617	2.536	2.664	2.474	2.538	2.355	2.044	2.591	12.19
68)	T	Bromoform	0.661	0.660	0.580	0.542	0.610	0.639	0.689	0.662	0.662	0.634	7.45
69)	T	Styrene	2.143	2.073	1.839	1.812	1.976	1.932	2.012	1.893	1.788	1.941	6.24
70)	T	o-Xylene	3.316	3.277	2.810	2.671	2.850	2.659	2.697	2.500	2.238	2.780	12.37
71)	T	n-Nonane	2.067	1.987	1.708	1.586	1.724	1.606	1.579	1.430	1.247	1.659	15.32
72)	T	1,1,2,2-Tetrac...	1.655	1.591	1.351	1.295	1.438	1.410	1.391	1.288	1.193	1.401	10.46
73)	S	Bromofluoroben...	0.946	0.983	0.946	0.960	0.960	1.025	0.994	0.987	0.989	0.977	2.64
74)	T	Cumene	4.434	4.038	3.559	3.381	3.610	3.543	3.425	3.112	2.748	3.539	13.78
75)	T	alpha-Pinene	1.885	1.925	1.666	1.585	1.715	1.668	1.716	1.601	1.482	1.694	8.28
76)	T	n-Propylbenzene	5.452	5.018	4.309	4.157	4.511	4.551	4.222	3.863	3.258	4.371	14.48
77)	T	3-Ethyltoluene	4.319	3.946	3.285	3.150	3.492	3.455	3.607	3.164	2.663	3.453	13.91
78)	T	4-Ethyltoluene	4.386	3.892	3.217	3.078	3.397	3.390	3.017	2.836	2.742	3.328	15.77
79)	T	1,3,5-Trimethy...	3.343	3.080	2.683	2.589	2.877	2.807	2.689	2.480	2.157	2.745	12.48
80)	T	alpha-Methylst...	1.520	1.372	1.198	1.194	1.412	1.408	1.504	1.383	1.280	1.363	8.68
81)	T	2-Ethyltoluene	4.244	3.882	3.242	3.110	3.511	3.358	3.272	2.953	2.610	3.354	14.49
82)	T	1,2,4-Trimethy...	3.664	3.278	2.743	2.685	2.974	2.852	2.818	2.423	1.909	2.816	17.57
83)	T	n-Decane	2.277	2.108	1.853	1.784	1.901	1.819	1.745	1.418	1.011	1.768	20.96
84)	T	Benzyl Chloride	2.437	2.338	1.992	1.974	2.121	2.254	2.518	2.353	2.090	2.231	8.78
85)	T	1,3-Dichlorobe...	2.200	2.021	1.719	1.650	1.766	1.652	1.637	1.489	1.390	1.725	14.52
86)	T	1,4-Dichlorobe...	2.190	2.025	1.648	1.562	1.728	1.596	1.646	1.519	1.286	1.689	16.01

Method Path : I:\MS16\METHODS\
Method File : R16070813.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	4.620	4.467	3.712	3.614	3.934	3.718	3.708	3.303	2.662	3.749	15.53
88)	T	4-Isopropyltol...	4.345	4.087	3.567	3.362	3.696	3.509	3.445	3.118	2.588	3.524	14.53
89)	T	1,2,3-Trimethy...	3.569	3.462	2.884	2.799	3.059	2.864	2.842	2.602	2.235	2.924	13.95
90)	T	1,2-Dichlorobe...	2.017	1.939	1.670	1.532	1.673	1.547	1.541	1.419	1.284	1.625	14.39
91)	T	d-Limonene	1.210	1.185	0.983	0.974	1.135	1.141	1.176	1.066	0.925	1.088	9.65
92)	T	1,2-Dibromo-3-...	0.624	0.564	0.492	0.496	0.550	0.555	0.608	0.540	0.498	0.547	8.69
93)	T	n-Undecane	2.134	2.097	1.694	1.686	1.716	1.701	1.778	1.519	1.256	1.731	15.47
94)	T	1,2,4-Trichlor...	1.596	1.458	1.254	1.194	1.247	1.192	1.237	1.122	1.061	1.262	13.15
95)	T	Naphthalene	5.009	4.441	3.751	3.482	3.877	3.743	4.129	3.681	3.220	3.926	13.66
96)	T	n-Dodecane	1.632	1.485	1.285	1.262	1.288	1.284	1.725	1.524	1.307	1.421	12.31
97)	T	Hexachlorobuta...	0.940	0.896	0.790	0.745	0.777	0.729	0.743	0.680	0.651	0.772	12.16
98)	T	Cyclohexanone	1.756	1.581	1.236	1.093	1.068	1.036	1.107	1.040	1.000	1.213	22.28
99)	T	tert-Butylbenzene	3.441	3.308	2.684	2.550	2.832	2.712	2.619	2.239	1.763	2.683	18.88
100)	T	n-Butylbenzene	3.552	3.447	2.934	2.887	3.139	2.901	2.856	2.601	2.151	2.941	14.33

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2013_08\16\08161302.D Vial: 1
Acq On : 16 Aug 2013 9:07 am Operator: EM
Sample : 25ng TO-15 CCV STD (125mL) Inst : GCMS-16
Misc : S25-08081301/S25-07301302 (8/28)

Quant Time: Aug 16 09:35:42 2013
Quant Method : I:\MS16\METHODS\R16070813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 09 15:35:04 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	114	-0.01
2	T	Propene	1.487	1.349	9.3	105	-0.02
3	T	Dichlorodifluoromethane (CF	2.685	2.652	1.2	114	-0.02
4	T	Chloromethane	2.997	2.422	19.2	101	-0.04
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.630	1.598	2.0	126	-0.03
6	T	Vinyl Chloride	2.711	2.349	13.4	109	-0.03
7	T	1,3-Butadiene	1.894	1.644	13.2	109	-0.04
8	T	Bromomethane	1.676	1.524	9.1	118	-0.04
9	T	Chloroethane	1.401	1.212	13.5	111	-0.04
10	T	Ethanol	1.366	1.012	25.9	94	-0.09
11	T	Acetonitrile	3.655	2.734	25.2	95	-0.05
12	T	Acrolein	1.063	0.905	14.9	101	-0.04
13	T	Acetone	1.337	1.049	21.5	103	-0.05
14	T	Trichlorofluoromethane	2.578	2.223	13.8	118	-0.03
15	T	2-Propanol (Isopropanol)	4.169	3.526	15.4	97	-0.06
16	T	Acrylonitrile	2.294	1.950	15.0	101	-0.04
17	T	1,1-Dichloroethene	1.451	1.354	6.7	116	-0.03
18	T	2-Methyl-2-Propanol (tert-B	3.964	3.473	12.4	101	-0.06
19	T	Methylene Chloride	1.627	1.543	5.2	112	-0.02
20	T	3-Chloro-1-propene (Allyl C	2.152	1.866	13.3	101	-0.03
21	T	Trichlorotrifluoroethane	1.241	1.239	0.2	121	-0.02
22	T	Carbon Disulfide	6.205	5.680	8.5	112	-0.02
23	T	trans-1,2-Dichloroethene	2.273	1.993	12.3	108	-0.02
24	T	1,1-Dichloroethane	2.758	2.276	17.5	104	-0.02
25	T	Methyl tert-Butyl Ether	4.584	3.938	14.1	107	-0.01
26	T	Vinyl Acetate	0.308	0.309	-0.3	109	-0.04
27	T	2-Butanone (MEK)	0.968	0.865	10.6	107	-0.03
28	T	cis-1,2-Dichloroethene	2.100	1.787	14.9	104	-0.02
29	T	Diisopropyl Ether	1.150	1.008	12.3	109	-0.02
30	T	Ethyl Acetate	0.524	0.446	14.9	100	-0.02
31	T	n-Hexane	2.008	1.534	23.6	104	-0.01
32	T	Chloroform	2.602	2.209	15.1	108	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.428	1.252	12.3	102	-0.01
34	T	Tetrahydrofuran (THF)	0.964	0.851	11.7	107	-0.01
35	T	Ethyl tert-Butyl Ether	1.742	1.584	9.1	108	-0.01
36	T	1,2-Dichloroethane	1.842	1.498	18.7	103	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	111	0.00
38	T	1,1,1-Trichloroethane	0.461	0.422	8.5	106	-0.01
39	T	Isopropyl Acetate	0.193	0.171	11.4	100	-0.02
40	T	1-Butanol	0.315	0.322	-2.2	100	-0.04
41	T	Benzene	1.241	1.034	16.7	107	-0.01
42	T	Carbon Tetrachloride	0.387	0.382	1.3	108	-0.01
43	T	Cyclohexane	0.485	0.466	3.9	113	-0.01
44	T	tert-Amyl Methyl Ether	0.950	0.886	6.7	107	0.00
45	T	1,2-Dichloropropane	0.340	0.286	15.9	103	-0.01
46	T	Bromodichloromethane	0.395	0.376	4.8	106	0.00
47	T	Trichloroethene	0.338	0.318	5.9	116	-0.01
48	T	1,4-Dioxane	0.248	0.241	2.8	109	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.491	1.333	10.6	104	-0.01
50	T	Methyl Methacrylate	0.123	0.127	-3.3	111	-0.01
51	T	n-Heptane	0.297	0.244	17.8	102	-0.01

EM 8/16/13

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2013_08\16\08161302.D Vial: 1
Acq On : 16 Aug 2013 9:07 am Operator: EM
Sample : 25ng TO-15 CCV STD (125mL) Inst : GCMS-16
Misc : S25-08081301/S25-07301302 (8/28)

Quant Time: Aug 16 09:35:42 2013
Quant Method : I:\MS16\METHODS\R16070813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 09 15:35:04 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	T	cis-1,3-Dichloropropene	0.485	0.465	4.1	104	0.00
53	T	4-Methyl-2-pentanone	0.296	0.279	5.7	99	-0.01
54	T	trans-1,3-Dichloropropene	0.433	0.429	0.9	104	0.00
55	T	1,1,2-Trichloroethane	0.307	0.290	5.5	109	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	102	0.00
57	S	Toluene-d8 (SS2)	2.489	2.552	-2.5	108	0.00
58	T	Toluene	3.025	2.859	5.5	110	0.00
59	T	2-Hexanone	1.723	1.578	8.4	96	-0.01
60	T	Dibromochloromethane	0.746	0.830	-11.3	112	0.00
61	T	1,2-Dibromoethane	0.780	0.817	-4.7	111	0.00
62	T	n-Butyl Acetate	1.927	1.801	6.5	96	0.00
63	T	n-Octane	0.658	0.602	8.5	100	0.00
64	T	Tetrachloroethene	0.887	0.908	-2.4	116	0.00
65	T	Chlorobenzene	1.998	2.017	-1.0	113	0.00
66	T	Ethylbenzene	3.345	3.415	-2.1	109	0.00
67	T	m- & p-Xylenes	2.591	2.708	-4.5	109	0.00
68	T	Bromoform	0.634	0.797	-25.7	118	0.00
69	T	Styrene	1.941	2.227	-14.7	113	0.00
70	T	o-Xylene	2.780	2.903	-4.4	110	0.00
71	T	n-Nonane	1.659	1.519	8.4	98	0.00
72	T	1,1,2,2-Tetrachloroethane	1.401	1.479	-5.6	108	0.00
73	S	Bromofluorobenzene (SS3)	0.977	1.085	-11.1	111	0.00
74	T	Cumene	3.539	3.762	-6.3	112	0.00
75	T	alpha-Pinene	1.694	1.825	-7.7	108	0.00
76	T	n-Propylbenzene	4.371	4.544	-4.0	110	0.00
77	T	3-Ethyltoluene	3.453	3.959	-14.7	112	0.00
78	T	4-Ethyltoluene	3.328	3.330	-0.1	113	0.00
79	T	1,3,5-Trimethylbenzene	2.745	2.944	-7.2	112	0.00
80	T	alpha-Methylstyrene	1.363	1.633	-19.8	111	0.00
81	T	2-Ethyltoluene	3.354	3.583	-6.8	112	0.00
82	T	1,2,4-Trimethylbenzene	2.816	3.082	-9.4	112	0.00
83	T	n-Decane	1.768	1.758	0.6	103	-0.01
84	T	Benzyl Chloride	2.231	2.688	-20.5	109	0.00
85	T	1,3-Dichlorobenzene	1.725	1.863	-8.0	116	-0.01
86	T	1,4-Dichlorobenzene	1.689	1.885	-11.6	117	0.00
87	T	sec-Butylbenzene	3.749	4.092	-9.1	113	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.524	3.943	-11.9	117	0.00
89	T	1,2,3-Trimethylbenzene	2.924	3.181	-8.8	114	0.00
90	T	1,2-Dichlorobenzene	1.625	1.789	-10.1	118	0.00
91	T	d-Limonene	1.088	1.194	-9.7	104	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.547	0.698	-27.6	117	0.00
93	T	n-Undecane	1.731	1.788	-3.3	103	0.00
94	T	1,2,4-Trichlorobenzene	1.262	1.432	-13.5	118	0.00
95	T	Naphthalene	3.926	4.555	-16.0	113	0.00
96	T	n-Dodecane	1.421	1.699	-19.6	100	0.00
97	T	Hexachlorobutadiene	0.772	0.853	-10.5	117	0.00
98	T	Cyclohexanone	1.213	1.099	9.4	101	-0.01
99	T	tert-Butylbenzene	2.683	2.939	-9.5	114	0.00
100	T	n-Butylbenzene	2.941	3.187	-8.4	114	0.00

EM 8/16/13

Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2013_08\16\08161302.D Vial: 1
Acq On : 16 Aug 2013 9:07 am Operator: EM
Sample : 25ng TO-15 CCV STD (125mL) Inst : GCMS-16
Misc : S25-08081301/S25-07301302 (8/28)

Quant Time: Aug 16 09:35:42 2013
Quant Method : I:\MS16\METHODS\R16070813.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 09 15:35:04 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

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LABORATORY REPORT

August 15, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV Bridgewater, NJ / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on August 1, 2013. For your reference, these analyses have been assigned our service request number P1303338.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:26 pm, Aug 15, 2013

For Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV Bridgewater, NJ / Recon #2-3620

Service Request No: P1303338

CASE NARRATIVE

The samples were received intact under chain of custody on August 1, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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Simi Valley, CA 93065
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F: +1 508 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-13-4
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272013-3
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Service Request: P1303338
Project ID: Pfizer Tier IV Bridgewater, NJ / Recon #2-3620

Date Received: 8/1/2013
Time Received: 07:40

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
2-3620-009 (239g)	P1303338-001	Air	7/31/2013	16:00	1SC00955	-0.46	6.00	X	
2-3620-010 (242g)	P1303338-002	Air	7/31/2013	16:00	1SS00004	0.30	5.16	X	
2-3620-009 (239g)	P1303338-003	Air	7/31/2013	15:30					X
2-3620-010 (242g)	P1303338-004	Air	7/31/2013	15:45					X

Columbia Analytical Services

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

CAS Project No. P1303338

CAS Contact:

Company Name & Address (Reporting Information)	Project Name	Analysis Method
CH2M Hill 1717 Arch Street; Suite 4400 Philadelphia PA 19103	Pfizer Tia IV Bridgewater, NJ	
	Project Number Recon # 2-3620	
Project Manager Richard Traver	P.O. # / Billing Information	
Phone 215 640 9105	Fax 2156409305	
Email Address for Result Reporting Richard.Traver@CH2M.com	Sampler (Print & Sign) Glenn R. Knierem	

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Malodorous Compds	Comments e.g. Actual Preservative or specific instructions
2-3620-009 (239$_2$)	① 0555	7-31	1600	ISC00955	OA01170	-28	-2	1l	X	-	24 hr total
2-3620-010 (242$_2$)	② 0025	7-31	1600	ISC00084	OA00418	-30	-3	1l	X	-	24 hr total
—	—	—	—	—	—	—	—	—	-	-	—
2-3620-009 (239$_2$)	③	7-31	1530	—	—	—	—	1l	-	X	Tedlar - 15 min
2-3620-010 (242$_2$)	④	7-31	1545	—	—	—	—	1l	-	X	Tedlar - 15 min
Custody Seal # 955890											
					009=	OA00418					
					010=	OA01170					

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Report Tier Levels - please select
Tier I - Results (Default if not specified) ____
Tier II (Results + QC Summaries) ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Data Validation Package) 10% Surcharge ____
EDD required Yes / No
Type: ____

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Knierem	7-31	1700	FedEx 812636287135	7-31	1700
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Fuller				8/1/13	0740

Cooler / Blank Temperature ____°C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1303338

Project: Pfizer Tier IV Bridgewater, NJ / Recon #2-3620

Sample(s) received on: 8/1/13 Date opened: 8/1/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☐	☒	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☐	☒	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? Top of box, covering opening. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1303338-001.01	1.0 L Source Can					
P1303338-002.01	1.0 L Silonite Can					
P1303338-003.01	1 L Zefon Bag					
P1303338-004.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers):

Canisters were received without ID information, and are assigned by the canister serial numbers listed on COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-009 (239g)**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620**

ALS Project ID: P1303338
ALS Sample ID: P1303338-003

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 7/31/13
Time Collected: 15:30
Date Received: 8/1/13
Date Analyzed: 8/1/13
Time Analyzed: 10:38
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**23**	12	**9.5**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**1,200**	7.8	**390**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**110**	17	**32**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**28**	9.6	**7.4**	2.5	
616-44-4	3-Methylthiophene	**81**	20	**20**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**260**	23	**56**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-010 (242g)**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620**

ALS Project ID: P1303338
ALS Sample ID: P1303338-004

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 7/31/13
Time Collected: 15:45
Date Received: 8/1/13
Date Analyzed: 8/1/13
Time Analyzed: 10:17
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**49**	12	**20**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**1,800**	7.8	**580**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**290**	17	**83**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**46**	9.6	**12**	2.5	
616-44-4	3-Methylthiophene	**140**	20	**36**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**360**	23	**79**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620**

ALS Project ID: P1303338
ALS Sample ID: P130801-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 8/01/13
Time Analyzed: 09:08
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P130801-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 8/01/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**2,090**	**102**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**2,170**	**107**	63-138	
74-93-1	Methyl Mercaptan	1,890	**2,220**	**117**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-009 (239g)** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P1303338-001

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0070 Liter(s)
Test Notes:
Container ID: 1SC00955

Initial Pressure (psig): -0.46 Final Pressure (psig): 6.00

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	100	ND	60	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	100	ND	21	
74-87-3	Chloromethane	ND	100	ND	50	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	100	ND	15	
75-01-4	Vinyl Chloride	ND	100	ND	41	
106-99-0	1,3-Butadiene	ND	100	ND	47	
74-83-9	Bromomethane	ND	100	ND	27	
75-00-3	Chloroethane	ND	100	ND	39	
64-17-5	Ethanol	ND	1,000	ND	550	
75-05-8	Acetonitrile	ND	100	ND	62	
107-02-8	Acrolein	ND	410	ND	180	
67-64-1	Acetone	**2,100**	1,000	**900**	440	
75-69-4	Trichlorofluoromethane	ND	100	ND	18	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1,000	ND	420	
107-13-1	Acrylonitrile	ND	100	ND	48	
75-35-4	1,1-Dichloroethene	ND	100	ND	26	
75-09-2	Methylene Chloride	ND	100	ND	30	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	100	ND	33	
76-13-1	Trichlorotrifluoroethane	ND	100	ND	14	
75-15-0	Carbon Disulfide	ND	1,000	ND	330	
156-60-5	trans-1,2-Dichloroethene	ND	100	ND	26	
75-34-3	1,1-Dichloroethane	ND	100	ND	26	
1634-04-4	Methyl tert-Butyl Ether	ND	100	ND	29	
108-05-4	Vinyl Acetate	ND	1,000	ND	290	
78-93-3	2-Butanone (MEK)	ND	1,000	ND	350	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-009 (239g)** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P1303338-001

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0070 Liter(s)
Test Notes:
Container ID: 1SC00955

Initial Pressure (psig): -0.46 Final Pressure (psig): 6.00

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	100	ND	26	
141-78-6	Ethyl Acetate	ND	210	ND	58	
110-54-3	n-Hexane	ND	100	ND	29	
67-66-3	Chloroform	ND	100	ND	21	
109-99-9	Tetrahydrofuran (THF)	ND	100	ND	35	
107-06-2	1,2-Dichloroethane	ND	100	ND	26	
71-55-6	1,1,1-Trichloroethane	ND	100	ND	19	
71-43-2	Benzene	**10,000**	100	**3,200**	32	
56-23-5	Carbon Tetrachloride	ND	100	ND	16	
110-82-7	Cyclohexane	ND	210	ND	60	
78-87-5	1,2-Dichloropropane	ND	100	ND	22	
75-27-4	Bromodichloromethane	ND	100	ND	15	
79-01-6	Trichloroethene	ND	100	ND	19	
123-91-1	1,4-Dioxane	ND	100	ND	29	
80-62-6	Methyl Methacrylate	ND	210	ND	51	
142-82-5	n-Heptane	ND	100	ND	25	
10061-01-5	cis-1,3-Dichloropropene	ND	100	ND	23	
108-10-1	4-Methyl-2-pentanone	ND	100	ND	25	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ND	23	
79-00-5	1,1,2-Trichloroethane	ND	100	ND	19	
108-88-3	Toluene	**13,000**	100	**3,400**	27	
591-78-6	2-Hexanone	ND	100	ND	25	
124-48-1	Dibromochloromethane	ND	100	ND	12	
106-93-4	1,2-Dibromoethane	ND	100	ND	13	
123-86-4	n-Butyl Acetate	ND	100	ND	22	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303338
Client Sample ID: **2-3620-009 (239g)** ALS Sample ID: P1303338-001
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0070 Liter(s)
Test Notes:
Container ID: 1SC00955

Initial Pressure (psig): -0.46 Final Pressure (psig): 6.00

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	100	ND	22	
127-18-4	Tetrachloroethene	ND	100	ND	15	
108-90-7	Chlorobenzene	ND	100	ND	22	
100-41-4	Ethylbenzene	**680**	100	**160**	24	
179601-23-1	m,p-Xylenes	**6,700**	210	**1,500**	48	
75-25-2	Bromoform	ND	100	ND	10	
100-42-5	Styrene	ND	100	ND	24	
95-47-6	o-Xylene	**1,900**	100	**430**	24	
111-84-2	n-Nonane	ND	100	ND	20	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ND	15	
98-82-8	Cumene	**1,700**	100	**350**	21	
80-56-8	alpha-Pinene	ND	100	ND	19	
103-65-1	n-Propylbenzene	ND	100	ND	21	
622-96-8	4-Ethyltoluene	ND	100	ND	21	
108-67-8	1,3,5-Trimethylbenzene	**880**	100	**180**	21	
95-63-6	1,2,4-Trimethylbenzene	**1,000**	100	**210**	21	
100-44-7	Benzyl Chloride	ND	100	ND	20	
541-73-1	1,3-Dichlorobenzene	ND	100	ND	17	
106-46-7	1,4-Dichlorobenzene	**140**	100	**24**	17	
95-50-1	1,2-Dichlorobenzene	**2,100**	100	**340**	17	
5989-27-5	d-Limonene	ND	100	ND	19	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ND	11	
120-82-1	1,2,4-Trichlorobenzene	ND	100	ND	14	
91-20-3	Naphthalene	**480**	100	**91**	20	
87-68-3	Hexachlorobutadiene	ND	100	ND	9.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-010 (242g)** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P1303338-002

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: Volume(s) Analyzed: 0.025 Liter(s)
Test Notes:
Container ID: 1SS00004

Initial Pressure (psig): 0.30 Final Pressure (psig): 5.16

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	26	ND	15	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	26	ND	5.3	
74-87-3	Chloromethane	ND	26	ND	13	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	26	ND	3.8	
75-01-4	Vinyl Chloride	ND	26	ND	10	
106-99-0	1,3-Butadiene	ND	26	ND	12	
74-83-9	Bromomethane	ND	26	ND	6.8	
75-00-3	Chloroethane	ND	26	ND	10	
64-17-5	Ethanol	ND	260	ND	140	
75-05-8	Acetonitrile	ND	26	ND	16	
107-02-8	Acrolein	ND	110	ND	46	
67-64-1	Acetone	**1,400**	260	**600**	110	
75-69-4	Trichlorofluoromethane	ND	26	ND	4.7	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	260	ND	110	
107-13-1	Acrylonitrile	ND	26	ND	12	
75-35-4	1,1-Dichloroethene	ND	26	ND	6.7	
75-09-2	Methylene Chloride	ND	26	ND	7.6	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	26	ND	8.4	
76-13-1	Trichlorotrifluoroethane	ND	26	ND	3.4	
75-15-0	Carbon Disulfide	ND	260	ND	85	
156-60-5	trans-1,2-Dichloroethene	ND	26	ND	6.7	
75-34-3	1,1-Dichloroethane	ND	26	ND	6.5	
1634-04-4	Methyl tert-Butyl Ether	ND	26	ND	7.3	
108-05-4	Vinyl Acetate	ND	260	ND	75	
78-93-3	2-Butanone (MEK)	**290**	260	**97**	90	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **2-3620-010 (242g)** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P1303338-002

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: Volume(s) Analyzed: 0.025 Liter(s)
Test Notes:
Container ID: 1SS00004

Initial Pressure (psig): 0.30 Final Pressure (psig): 5.16

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	26	ND	6.7	
141-78-6	Ethyl Acetate	ND	53	ND	15	
110-54-3	n-Hexane	ND	26	ND	7.5	
67-66-3	Chloroform	ND	26	ND	5.4	
109-99-9	Tetrahydrofuran (THF)	ND	26	ND	9.0	
107-06-2	1,2-Dichloroethane	ND	26	ND	6.5	
71-55-6	1,1,1-Trichloroethane	ND	26	ND	4.8	
71-43-2	Benzene	**4,400**	26	**1,400**	8.3	
56-23-5	Carbon Tetrachloride	ND	26	ND	4.2	
110-82-7	Cyclohexane	ND	53	ND	15	
78-87-5	1,2-Dichloropropane	ND	26	ND	5.7	
75-27-4	Bromodichloromethane	ND	26	ND	3.9	
79-01-6	Trichloroethene	ND	26	ND	4.9	
123-91-1	1,4-Dioxane	ND	26	ND	7.3	
80-62-6	Methyl Methacrylate	ND	53	ND	13	
142-82-5	n-Heptane	ND	26	ND	6.4	
10061-01-5	cis-1,3-Dichloropropene	ND	26	ND	5.8	
108-10-1	4-Methyl-2-pentanone	ND	26	ND	6.4	
10061-02-6	trans-1,3-Dichloropropene	ND	26	ND	5.8	
79-00-5	1,1,2-Trichloroethane	ND	26	ND	4.8	
108-88-3	Toluene	**5,300**	26	**1,400**	7.0	
591-78-6	2-Hexanone	ND	26	ND	6.4	
124-48-1	Dibromochloromethane	ND	26	ND	3.1	
106-93-4	1,2-Dibromoethane	ND	26	ND	3.4	
123-86-4	n-Butyl Acetate	ND	26	ND	5.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303338
Client Sample ID: **2-3620-010 (242g)** ALS Sample ID: P1303338-002
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: Volume(s) Analyzed: 0.025 Liter(s)
Test Notes:
Container ID: 1SS00004

Initial Pressure (psig): 0.30 Final Pressure (psig): 5.16

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	26	ND	5.7	
127-18-4	Tetrachloroethene	ND	26	ND	3.9	
108-90-7	Chlorobenzene	ND	26	ND	5.7	
100-41-4	Ethylbenzene	**210**	26	**49**	6.1	
179601-23-1	m,p-Xylenes	**1,900**	53	**430**	12	
75-25-2	Bromoform	ND	26	ND	2.6	
100-42-5	Styrene	ND	26	ND	6.2	
95-47-6	o-Xylene	**510**	26	**120**	6.1	
111-84-2	n-Nonane	ND	26	ND	5.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	26	ND	3.8	
98-82-8	Cumene	**460**	26	**94**	5.4	
80-56-8	alpha-Pinene	ND	26	ND	4.7	
103-65-1	n-Propylbenzene	ND	26	ND	5.4	
622-96-8	4-Ethyltoluene	ND	26	ND	5.4	
108-67-8	1,3,5-Trimethylbenzene	**150**	26	**31**	5.4	
95-63-6	1,2,4-Trimethylbenzene	**140**	26	**28**	5.4	
100-44-7	Benzyl Chloride	ND	26	ND	5.1	
541-73-1	1,3-Dichlorobenzene	ND	26	ND	4.4	
106-46-7	1,4-Dichlorobenzene	ND	26	ND	4.4	
95-50-1	1,2-Dichlorobenzene	**240**	26	**40**	4.4	
5989-27-5	d-Limonene	**91**	26	**16**	4.7	
96-12-8	1,2-Dibromo-3-chloropropane	ND	26	ND	2.7	
120-82-1	1,2,4-Trichlorobenzene	ND	26	ND	3.6	
91-20-3	Naphthalene	ND	26	ND	5.0	
87-68-3	Hexachlorobutadiene	ND	26	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P130809-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1303338

Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P130809-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: John Rice Date Analyzed: 8/9/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1303338

Client Sample ID: **Method Blank** ALS Sample ID: P130809-MB

Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: John Rice Date Analyzed: 8/9/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Project ID: P1303338

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 7/31/13
Analyst: John Rice Date(s) Received: 8/1/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 8/9/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130809-MB	**101**	**100**	**95**	70-130	
Lab Control Sample	P130809-LCS	**100**	**99**	**98**	70-130	
2-3620-009 (239g)	P1303338-001	**100**	**98**	**97**	70-130	
2-3620-009 (239g)	P1303338-001DUP	**101**	**98**	**95**	70-130	
2-3620-010 (242g)	P1303338-002	**100**	**99**	**96**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P130809-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**191**	**96**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**203**	**100**	63-115	
74-87-3	Chloromethane	198	**190**	**96**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**185**	**91**	65-115	
75-01-4	Vinyl Chloride	200	**171**	**86**	64-122	
106-99-0	1,3-Butadiene	212	**196**	**92**	57-141	
74-83-9	Bromomethane	200	**196**	**98**	68-122	
75-00-3	Chloroethane	202	**224**	**111**	66-120	
64-17-5	Ethanol	1,020	**1150**	**113**	58-126	
75-05-8	Acetonitrile	202	**212**	**105**	64-136	
107-02-8	Acrolein	214	**232**	**108**	58-129	
67-64-1	Acetone	1,080	**995**	**92**	60-114	
75-69-4	Trichlorofluoromethane	198	**194**	**98**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**491**	**117**	54-118	
107-13-1	Acrylonitrile	208	**238**	**114**	72-143	
75-35-4	1,1-Dichloroethene	214	**228**	**107**	69-119	
75-09-2	Methylene Chloride	216	**199**	**92**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**260**	**120**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**228**	**107**	69-117	
75-15-0	Carbon Disulfide	196	**207**	**106**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**239**	**113**	70-126	
75-34-3	1,1-Dichloroethane	208	**225**	**108**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**244**	**115**	69-120	
108-05-4	Vinyl Acetate	1,020	**1210**	**119**	58-160	
78-93-3	2-Butanone (MEK)	218	**223**	**102**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P130809-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**232**	**108**	70-119	
141-78-6	Ethyl Acetate	426	**473**	**111**	72-129	
110-54-3	n-Hexane	210	**216**	**103**	63-115	
67-66-3	Chloroform	214	**212**	**99**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**214**	**104**	60-126	
107-06-2	1,2-Dichloroethane	210	**213**	**101**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**209**	**101**	68-120	
71-43-2	Benzene	220	**193**	**88**	69-117	
56-23-5	Carbon Tetrachloride	210	**213**	**101**	65-134	
110-82-7	Cyclohexane	420	**441**	**105**	69-114	
78-87-5	1,2-Dichloropropane	212	**225**	**106**	70-116	
75-27-4	Bromodichloromethane	214	**231**	**108**	71-126	
79-01-6	Trichloroethene	208	**205**	**99**	71-119	
123-91-1	1,4-Dioxane	218	**235**	**108**	72-126	
80-62-6	Methyl Methacrylate	420	**487**	**116**	75-136	
142-82-5	n-Heptane	214	**234**	**109**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**254**	**112**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**250**	**115**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**245**	**113**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**217**	**103**	72-119	
108-88-3	Toluene	210	**204**	**97**	65-116	
591-78-6	2-Hexanone	222	**239**	**108**	62-132	
124-48-1	Dibromochloromethane	220	**233**	**106**	66-140	
106-93-4	1,2-Dibromoethane	216	**214**	**99**	69-130	
123-86-4	n-Butyl Acetate	224	**252**	**113**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P130809-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**226**	**109**	66-118	
127-18-4	Tetrachloroethene	196	**191**	**97**	63-123	
108-90-7	Chlorobenzene	216	**208**	**96**	66-118	
100-41-4	Ethylbenzene	212	**214**	**101**	66-119	
179601-23-1	m,p-Xylenes	420	**423**	**101**	64-118	
75-25-2	Bromoform	216	**247**	**114**	64-140	
100-42-5	Styrene	218	**233**	**107**	68-132	
95-47-6	o-Xylene	206	**207**	**100**	65-120	
111-84-2	n-Nonane	206	**215**	**104**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**208**	**103**	63-128	
98-82-8	Cumene	204	**202**	**99**	65-121	
80-56-8	alpha-Pinene	208	**218**	**105**	66-123	
103-65-1	n-Propylbenzene	202	**200**	**99**	65-121	
622-96-8	4-Ethyltoluene	212	**204**	**96**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**215**	**101**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**209**	**99**	64-131	
100-44-7	Benzyl Chloride	222	**276**	**124**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**203**	**91**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**201**	**94**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**207**	**95**	63-126	
5989-27-5	d-Limonene	210	**246**	**117**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**240**	**113**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**216**	**98**	59-146	
91-20-3	Naphthalene	204	**225**	**110**	56-143	
87-68-3	Hexachlorobutadiene	218	**217**	**100**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **2-3620-009 (239g)** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P1303338-001DUP

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0070 Liter(s)
Test Notes:
Container ID: 1SC00955

Initial Pressure (psig): -0.46 Final Pressure (psig): 6.00

Canister Dilution Factor: 1.45

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
Propene	ND	ND	ND	ND	-	-	25	
Dichlorodifluoromethane (CFC 12)	ND	ND	ND	ND	-	-	25	
Chloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	ND	ND	ND	-	-	25	
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Butadiene	ND	ND	ND	ND	-	-	25	
Bromomethane	ND	ND	ND	ND	-	-	25	
Chloroethane	ND	ND	ND	ND	-	-	25	
Ethanol	ND	ND	ND	ND	-	-	25	
Acetonitrile	ND	ND	ND	ND	-	-	25	
Acrolein	ND	ND	ND	ND	-	-	25	
Acetone	2,140	899	2,170	912	2155	**1**	25	
Trichlorofluoromethane	ND	ND	ND	ND	-	-	25	
2-Propanol (Isopropyl Alcohol)	ND	ND	ND	ND	-	-	25	
Acrylonitrile	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
3-Chloro-1-propene (Allyl Chloride)	ND	ND	ND	ND	-	-	25	
Trichlorotrifluoroethane	ND	ND	ND	ND	-	-	25	
Carbon Disulfide	ND	ND	ND	ND	-	-	25	
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
Methyl tert-Butyl Ether	ND	ND	ND	ND	-	-	25	
Vinyl Acetate	ND	ND	ND	ND	-	-	25	
2-Butanone (MEK)	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **2-3620-009 (239g)** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P1303338-001DUP

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0070 Liter(s)
Test Notes:
Container ID: 1SC00955

Initial Pressure (psig): -0.46 Final Pressure (psig): 6.00

Canister Dilution Factor: 1.45

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
cis-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
Ethyl Acetate	ND	ND	ND	ND	-	-	25	
n-Hexane	ND	ND	ND	ND	-	-	25	
Chloroform	ND	ND	ND	ND	-	-	25	
Tetrahydrofuran (THF)	ND	ND	ND	ND	-	-	25	
1,2-Dichloroethane	ND	ND	ND	ND	-	-	25	
1,1,1-Trichloroethane	ND	ND	ND	ND	-	-	25	
Benzene	10,300	3,240	10,500	3,290	10400	**2**	25	
Carbon Tetrachloride	ND	ND	ND	ND	-	-	25	
Cyclohexane	ND	ND	ND	ND	-	-	25	
1,2-Dichloropropane	ND	ND	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	ND	ND	-	-	25	
Trichloroethene	ND	ND	ND	ND	-	-	25	
1,4-Dioxane	ND	ND	ND	ND	-	-	25	
Methyl Methacrylate	ND	ND	ND	ND	-	-	25	
n-Heptane	ND	ND	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
4-Methyl-2-pentanone	ND	ND	ND	ND	-	-	25	
trans-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	12,900	3,410	13,100	3,490	13000	**2**	25	
2-Hexanone	ND	ND	ND	ND	-	-	25	
Dibromochloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dibromoethane	ND	ND	ND	ND	-	-	25	
n-Butyl Acetate	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **2-3620-009 (239g)** ALS Project ID: P1303338
Client Project ID: **Pfizer Tier IV Bridgewater, NJ / Recon #2-3620** ALS Sample ID: P1303338-001DUP

Test Code: EPA TO-15 Date Collected: 7/31/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 8/1/13
Analyst: John Rice Date Analyzed: 8/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0070 Liter(s)
Test Notes:
Container ID: 1SC00955

Initial Pressure (psig): -0.46 Final Pressure (psig): 6.00

Canister Dilution Factor: 1.45

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
n-Octane	ND	ND	ND	ND	-	-	25	
Tetrachloroethene	ND	ND	ND	ND	-	-	25	
Chlorobenzene	ND	ND	ND	ND	-	-	25	
Ethylbenzene	679	156	687	158	683	**1**	25	
m,p-Xylenes	6,700	1,540	6,800	1,570	6750	**1**	25	
Bromoform	ND	ND	ND	ND	-	-	25	
Styrene	ND	ND	ND	ND	-	-	25	
o-Xylene	1,850	426	1,860	429	1855	**0.5**	25	
n-Nonane	ND	ND	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	-	-	25	
Cumene	1,730	352	1,740	354	1735	**0.6**	25	
alpha-Pinene	ND	ND	ND	ND	-	-	25	
n-Propylbenzene	ND	ND	ND	ND	-	-	25	
4-Ethyltoluene	ND	ND	ND	ND	-	-	25	
1,3,5-Trimethylbenzene	884	180	887	181	885.5	**0.3**	25	
1,2,4-Trimethylbenzene	1,010	205	1,010	206	1010	**0**	25	
Benzyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,4-Dichlorobenzene	145	24.1	145	24.2	145	**0**	25	
1,2-Dichlorobenzene	2,050	341	2,070	344	2060	**1**	25	
d-Limonene	ND	ND	ND	ND	-	-	25	
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	-	-	25	
1,2,4-Trichlorobenzene	ND	ND	ND	ND	-	-	25	
Naphthalene	475	90.7	504	96.2	489.5	**6**	25	
Hexachlorobutadiene	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

ALS Environmental

REPORT SUMMARY

Method : 20 Sulfurs
Client : CH2M Hill
Analyst : MC

Service Request : P1303338
Printed : 41488
Instrument : GC13
Date Acquired : 8/1/13

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std 2000ppb s27-07011304		std 2000ppb s27-07011304									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.20		0.20		0.20		0.20		0.20		0.20	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Pi:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PiPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.700	5.000	ND	P						2173.87	9.1%	1676.874	15.8%								
Carbonyl_Sulfide	1.900	5.000	ND	P						2231.39	9.8%	1809.881	10.9%								
Methyl_Mercaptan	2.200	5.000	ND	P						2323.78	14.9%	1880.509	7.0%								
Ethyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Sulfide	2.200	5.000	ND	P						8:16 AM		12:03 PM									
Carbon_Disulfide	1.100	2.500	ND	P						08011304.D		08011318.D									
2-Propyl_Mercaptan	2.200	5.000	ND	P																	
t-Butyl_Mercaptan	2.200	5.000	ND	P																	
Propyl_Mercaptan	2.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	2.200	5.000	ND	P																	
Thiophene	2.200	5.000	ND	P																	
i-Butyl_Mercaptan	2.200	5.000	ND	P																	
Diethyl_Sulfide	2.200	5.000	ND	P																	
n-Butyl_Mercaptan	2.200	5.000	ND	P																	
Dimethyl_Disulfide	1.100	2.500	ND	P																	
2-Methylthiophene	2.200	5.000	ND	P																	
3-Methylthiophene	2.200	5.000	ND	P																	
Tetrahydrothiophene	2.200	5.000	ND	P																	
2,5-Dimethylthiophene	2.200	5.000	ND	P																	
2-Ethylthiophene	2.200	5.000	ND	P																	
Diethyl_Disulfide	1.100	2.500	ND	P																	
Methyltrisulfide	1.100	2.500	ND	P																	
Acqisition Time			9:08 AM																		
DataFile			08011309.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	2090.75	102.2%					2045.54
Carbonyl_Sulfide	2168.84	107.5%					2017.48
Methyl_Mercaptan	2219.36	117.6%					1887.74
Acqisition Time	8:24 AM						
DataFile	08011306.D						

MC 8/3/13

Response Factor Report MS09

Method Path : J:\MS09\Methods\
Method File : R9071513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Jul 16 10:07:14 2013
Response Via : Initial Calibration

Calibration Files
0.08=07151314.D 0.10=07151315.D 0.20=07151316.D 0.40=07151317.D 1.0 =07151318.D 5.0 =07151319.D
25 =07151320.D 50 =07151321.D 100 =07151322.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------			ISTD	----------						
2)	T	Propene	1.536	1.455	1.446	1.378	1.242	1.303	1.273	1.474	1.598	1.412	8.62
3)	T	Dichlorodifluo...	3.204	3.181	2.968	2.912	2.855	2.816	2.821	2.654	2.435	2.872	8.36
4)	T	Chloromethane	2.248	2.228	2.034	1.991	2.058	2.002	2.019	1.962	1.639	2.020	8.69
5)	T	1,2-Dichloro-1...	1.542	1.558	1.536	1.422	1.439	1.400	1.359	1.200	1.122	1.398	10.87
6)	T	Vinyl Chloride	2.247	2.055	2.063	2.051	2.062	2.027	2.002	1.812	1.618	1.993	8.98
7)	T	1,3-Butadiene	1.389	1.301	1.356	1.260	1.345	1.343	1.388	1.200	1.075	1.295	7.93
8)	T	Bromomethane		2.232	1.772	1.483	1.463	1.283	1.367	1.117	0.980	1.462	26.89
9)	T	Chloroethane	1.021	1.142	1.058	1.038	1.002	1.011	1.031	1.008	0.964	1.031	4.79
10)	T	Ethanol	0.922	1.012	0.940	0.900	0.938	0.915	0.939	0.891	0.816	0.919	5.66
11)	T	Acetonitrile	3.199	2.940	2.701	2.508	2.386	2.362	2.322	2.248	2.146	2.535	13.70
12)	T	Acrolein	0.953	0.987	0.873	0.821	0.774	0.777	0.771	0.743	0.712	0.824	11.57
13)	T	Acetone	1.322	1.279	1.186	1.115	0.969	0.956	0.921	0.833	0.714	1.033	19.92
14)	T	Trichlorofluor...	2.819	2.807	2.699	2.627	2.547	2.519	2.500	2.300	2.228	2.561	7.99
15)	T	2-Propanol (Is...	3.404	3.341	3.159	2.952	3.058	3.010	3.265	2.638	2.019	2.983	14.38
16)	T	Acrylonitrile	1.709	1.805	1.679	1.633	1.635	1.667	1.699	1.639	1.574	1.671	3.86
17)	T	1,1-Dichloroet...	1.340	1.320	1.303	1.288	1.300	1.290	1.329	1.251	1.220	1.293	2.93
18)	T	2-Methyl-2-Pro...	3.450	3.412	3.209	2.768	3.181	2.736	3.337	2.649	1.730	2.941	18.58
19)	T	Methylene Chlo...			1.942	1.693	1.502	1.418	1.437	1.387	1.321	1.529	14.20
20)	T	3-Chloro-1-pro...	1.475	1.573	1.579	1.531	1.514	1.590	1.699	1.633	1.599	1.577	4.20
21)	T	Trichlorotrifl...	1.141	1.097	1.194	1.135	1.087	1.073	1.112	0.850	0.970	1.073	9.65
22)	T	Carbon Disulfide	6.354	6.170	5.498	5.291	5.146	5.186	5.180	4.977	4.653	5.384	10.21
23)	T	trans-1,2-Dich...	1.935	1.828	1.892	1.896	1.906	1.896	1.955	1.917	1.856	1.898	2.02
24)	T	1,1-Dichloroet...	2.602	2.610	2.412	2.407	2.381	2.362	2.393	2.334	2.263	2.418	4.77
25)	T	Methyl tert-Bu...	4.094	3.967	3.951	3.803	3.775	3.863	4.026	3.918	2.989	3.821	8.58
26)	T	Vinyl Acetate			0.242	0.267	0.246	0.294	0.317	0.296	0.246	0.273	11.01
27)	T	2-Butanone (MEK)	1.031	0.939	0.905	0.928	0.868	0.888	0.862	0.838	0.799	0.895	7.50
28)	T	cis-1,2-Dichlo...	1.867	1.916	1.830	1.808	1.776	1.766	1.818	1.773	1.700	1.806	3.47
29)	T	Diisopropyl Ether	1.457	1.402	1.368	1.297	1.333	1.082	1.099	1.006	0.794	1.204	18.31
30)	T	Ethyl Acetate	0.434	0.456	0.454	0.474	0.450	0.467	0.493	0.444	0.331	0.445	10.35
31)	T	n-Hexane	2.436	2.367	2.296	2.186	2.050	2.088	2.088	1.877	1.401	2.088	14.86
32)	T	Chloroform	2.726	2.712	2.486	2.423	2.384	2.341	2.349	2.271	2.141	2.426	7.92
33)	S	1,2-Dichloroet...	1.487	1.489	1.494	1.502	1.490	1.493	1.497	1.492	1.490	1.493	0.30
34)	T	Tetrahydrofura...	1.060	1.026	0.960	0.870	0.845	0.828	0.858	0.845	0.816	0.901	10.10
35)	T	Ethyl tert-But...	1.593	1.610	1.535	1.561	1.554	1.569	1.633	1.599	1.504	1.573	2.54
36)	T	1,2-Dichloroet...	1.979	1.959	1.847	1.828	1.763	1.729	1.771	1.715	1.641	1.804	6.20
37)	IR	1,4-Difluorobenzen...	----------			ISTD	----------						
38)	T	1,1,1-Trichlor...	0.444	0.457	0.432	0.405	0.414	0.408	0.419	0.402	0.379	0.418	5.65

Method Path : J:\MS09\Methods\
Method File : R9071513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.154	0.147	0.150	0.149	0.150	0.156	0.163	0.149	0.123	0.149	7.32
40)	T	1-Butanol	0.281	0.279	0.241	0.227	0.233	0.255	0.267	0.245	0.206	0.248	9.99
41)	T	Benzene	1.676	1.635	1.338	1.166	1.075	1.028	1.011	0.957	0.880	1.196	24.35
42)	T	Carbon Tetrach...	0.398	0.367	0.370	0.366	0.359	0.362	0.371	0.358	0.339	0.365	4.29
43)	T	Cyclohexane	0.439	0.436	0.410	0.405	0.404	0.414	0.419	0.393	0.329	0.405	7.92
44)	T	tert-Amyl Meth...	0.784	0.825	0.756	0.731	0.741	0.756	0.785	0.754	0.702	0.759	4.68
45)	T	1,2-Dichloropr...	0.274	0.275	0.267	0.269	0.262	0.256	0.267	0.258	0.247	0.264	3.41
46)	T	Bromodichlorom...	0.341	0.356	0.358	0.347	0.348	0.355	0.372	0.355	0.330	0.351	3.40
47)	T	Trichloroethene	0.374	0.343	0.323	0.315	0.313	0.297	0.303	0.289	0.264	0.313	10.17
48)	T	1,4-Dioxane	0.206	0.226	0.208	0.209	0.213	0.212	0.224	0.215	0.197	0.212	4.15
49)	T	2,2,4-Trimethy...	1.205	1.148	1.104	1.071	1.085	1.112	1.138	1.095	1.007	1.107	4.97
50)	T	Methyl Methacr...	0.092	0.097	0.096	0.099	0.103	0.109	0.115	0.108	0.096	0.102	7.42
51)	T	n-Heptane	0.247	0.268	0.258	0.249	0.253	0.252	0.260	0.248	0.229	0.252	4.30
52)	T	cis-1,3-Dichlo...	0.406	0.425	0.398	0.388	0.398	0.414	0.444	0.428	0.404	0.411	4.29
53)	T	4-Methyl-2-pen...	0.226	0.201	0.203	0.214	0.217	0.231	0.245	0.235	0.220	0.221	6.47
54)	T	trans-1,3-Dich...	0.382	0.374	0.355	0.353	0.348	0.376	0.407	0.395	0.378	0.374	5.27
55)	T	1,1,2-Trichlor...	0.291	0.283	0.282	0.266	0.266	0.262	0.268	0.256	0.240	0.268	5.83
56)	IR	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.680	2.648	2.657	2.674	2.657	2.653	2.616	2.598	2.598	2.642	1.17
58)	T	Toluene	3.510	3.306	3.068	2.952	2.869	2.834	2.776	2.596	2.300	2.912	12.38
59)	T	2-Hexanone	1.286	1.328	1.238	1.220	1.264	1.355	1.356	1.270	1.150	1.274	5.26
60)	T	Dibromochlorom...	0.733	0.743	0.730	0.712	0.735	0.755	0.780	0.742	0.684	0.735	3.66
61)	T	1,2-Dibromoethane	0.832	0.851	0.782	0.789	0.775	0.774	0.780	0.740	0.685	0.779	6.17
62)	T	n-Butyl Acetate	1.377	1.310	1.267	1.306	1.357	1.472	1.521	1.446	1.331	1.376	6.23
63)	T	n-Octane	0.550	0.521	0.554	0.545	0.570	0.563	0.576	0.547	0.490	0.546	4.85
64)	T	Tetrachloroethene	0.943	0.952	0.906	0.883	0.858	0.841	0.830	0.782	0.705	0.856	9.19
65)	T	Chlorobenzene	2.274	2.111	2.032	1.941	1.939	1.899	1.858	1.736	1.546	1.926	10.90
66)	T	Ethylbenzene	3.498	3.419	3.180	3.080	3.146	3.191	3.142	2.907	2.531	3.121	9.03
67)	T	m- & p-Xylenes	2.698	2.644	2.549	2.529	2.577	2.609	2.552	2.322	1.940	2.491	9.29
68)	T	Bromoform	0.566	0.549	0.581	0.588	0.592	0.631	0.661	0.630	0.569	0.596	6.13
69)	T	Styrene	1.892	1.841	1.725	1.761	1.819	1.918	1.934	1.790	1.560	1.805	6.40
70)	T	o-Xylene	2.847	2.760	2.679	2.603	2.673	2.675	2.628	2.448	2.071	2.598	8.69
71)	T	n-Nonane	1.254	1.249	1.241	1.232	1.247	1.285	1.275	1.182	1.003	1.219	7.05
72)	T	1,1,2,2-Tetrac...	1.156	1.214	1.184	1.205	1.215	1.268	1.253	1.162	0.998	1.184	6.69
73)	S	Bromofluoroben...	0.933	0.950	0.940	0.939	0.939	0.935	0.947	0.950	0.927	0.940	0.85
74)	T	Cumene	3.720	3.636	3.410	3.359	3.382	3.403	3.326	3.033	2.554	3.314	10.39
75)	T	alpha-Pinene	1.652	1.622	1.517	1.551	1.550	1.629	1.634	1.503	1.288	1.550	7.26
76)	T	n-Propylbenzene	4.280	4.273	4.028	4.048	4.169	4.182	4.020	3.629	3.043	3.964	10.01
77)	T	3-Ethyltoluene	3.280	3.231	3.131	3.088	3.175	3.237	3.235	2.848	2.444	3.074	8.77
78)	T	4-Ethyltoluene	3.321	3.271	3.133	3.116	3.237	3.224	3.028	2.784	2.270	3.043	10.89
79)	T	1,3,5-Trimethy...	2.706	2.716	2.616	2.613	2.703	2.711	2.651	2.399	2.026	2.571	8.85
80)	T	alpha-Methylst...	1.218	1.196	1.139	1.148	1.224	1.316	1.415	1.281	1.097	1.226	8.05
81)	T	2-Ethyltoluene	3.216	3.282	3.070	3.068	3.190	3.200	3.049	2.739	2.310	3.014	10.20
82)	T	1,2,4-Trimethy...	2.740	2.792	2.628	2.686	2.777	2.804	2.645	2.258	1.729	2.562	13.82
83)	T	n-Decane	1.341	1.358	1.356	1.341	1.415	1.454	1.393	1.219	0.905	1.309	12.60
84)	T	Benzyl Chloride	1.668	1.650	1.641	1.692	1.759	2.119	2.197	1.957	1.521	1.800	13.04
85)	T	1,3-Dichlorobe...	1.853	1.775	1.699	1.652	1.625	1.591	1.509	1.345	1.124	1.575	14.24
86)	T	1,4-Dichlorobe...	1.910	1.823	1.725	1.650	1.673	1.630	1.572	1.424	1.222	1.626	12.66

Method Path : J:\MS09\Methods\
Method File : R9071513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	3.726	3.716	3.476	3.508	3.597	3.603	3.460	3.102	2.541	3.414	11.02
88)	T	4-Isopropyltol...	3.508	3.403	3.345	3.331	3.501	3.499	3.232	2.681	2.018	3.169	15.83
89)	T	1,2,3-Trimethy...	2.824	2.816	2.723	2.708	2.796	2.844	2.682	2.268	1.723	2.598	14.32
90)	T	1,2-Dichlorobe...	1.681	1.716	1.598	1.558	1.569	1.544	1.480	1.316	1.073	1.504	13.20
91)	T	d-Limonene	0.781	0.768	0.758	0.830	0.832	0.913	0.959	0.868	0.677	0.821	10.47
92)	T	1,2-Dibromo-3-...	0.402	0.521	0.471	0.478	0.519	0.568	0.587	0.550	0.489	0.509	11.14
93)	T	n-Undecane	1.359	1.280	1.283	1.349	1.428	1.531	1.513	1.385	1.120	1.361	9.29
94)	T	1,2,4-Trichlor...	1.292	1.267	1.201	1.166	1.186	1.232	1.215	1.101	0.944	1.178	8.85
95)	T	Naphthalene	3.499	3.490	3.353	3.343	3.893	4.145	4.064	3.658	2.997	3.605	10.35
96)	T	n-Dodecane	1.092	1.142	1.085	1.198	1.392	1.526	1.508	1.371	1.085	1.267	14.47
97)	T	Hexachlorobuta...	0.770	0.815	0.716	0.707	0.714	0.721	0.710	0.653	0.567	0.708	9.76
98)	T	Cyclohexanone	0.859	0.853	0.794	0.814	0.820	0.879	0.883	0.852	0.787	0.838	4.22
99)	T	tert-Butylbenzene	2.727	2.613	2.544	2.553	2.655	2.644	2.449	2.069	1.600	2.428	15.03
100)	T	n-Butylbenzene	2.863	2.821	2.726	2.738	2.835	2.869	2.750	2.464	2.028	2.677	10.18

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2013_08\09\08091302.D
Acq On : 9 Aug 2013 8:47 Operator: JR
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-08071302/S25-07301304 (8/28)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 09 09:17:48 2013
Quant Method : J:\MS09\Methods\R9071513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 16 10:07:14 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	90	0.00
2	T	Propene	1.412	1.535	-8.7	109	0.01
3	T	Dichlorodifluoromethane (CF	2.872	2.967	-3.3	95	0.01
4	T	Chloromethane	2.020	2.084	-3.2	93	0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.398	1.308	6.4	87	0.00
6	T	Vinyl Chloride	1.993	1.790	10.2	81	0.01
7	T	1,3-Butadiene	1.295	1.268	2.1	83	0.01
8	T	Bromomethane	1.462	1.509	-3.2	100	0.00
9	T	Chloroethane	1.031	1.186	-15.0	104	0.00
10	T	Ethanol	0.919	1.057	-15.0	102	0.01
11	T	Acetonitrile	2.535	2.688	-6.0	105	0.01
12	T	Acrolein	0.824	0.860	-4.4	101	0.01
13	T	Acetone	1.033	0.984	4.7	97	0.01
14	T	Trichlorofluoromethane	2.561	2.626	-2.5	95	0.00
15	T	2-Propanol (Isopropanol)	2.983	3.481	-16.7	96	0.01
16	T	Acrylonitrile	1.671	1.947	-16.5	104	0.01
17	T	1,1-Dichloroethene	1.293	1.445	-11.8	98	0.00
18	T	2-Methyl-2-Propanol (tert-B	2.941	3.675	-25.0	100	0.00
19	T	Methylene Chloride	1.529	1.568	-2.6	99	0.00
20	T	3-Chloro-1-propene (Allyl C	1.577	1.934	-22.6	103	0.00
21	T	Trichlorotrifluoroethane	1.073	1.191	-11.0	97	0.00
22	T	Carbon Disulfide	5.384	5.742	-6.6	100	0.00
23	T	trans-1,2-Dichloroethene	1.898	2.212	-16.5	102	0.00
24	T	1,1-Dichloroethane	2.418	2.701	-11.7	102	0.00
25	T	Methyl tert-Butyl Ether	3.821	4.457	-16.6	100	0.00
26	T	Vinyl Acetate	0.273	0.316	-15.8	90	0.00
27	T	2-Butanone (MEK)	0.895	0.954	-6.6	100	0.00
28	T	cis-1,2-Dichloroethene	1.806	2.023	-12.0	101	0.00
29	T	Diisopropyl Ether	1.204	1.153	4.2	95	0.00
30	T	Ethyl Acetate	0.445	0.517	-16.2	95	0.00
31	T	n-Hexane	2.088	2.247	-7.6	97	0.00
32	T	Chloroform	2.426	2.517	-3.8	97	0.00
33	S	1,2-Dichloroethane-d4(SS1)	1.493	1.506	-0.9	91	0.00
34	T	Tetrahydrofuran (THF)	0.901	0.968	-7.4	102	0.00
35	T	Ethyl tert-Butyl Ether	1.573	1.812	-15.2	100	0.00
36	T	1,2-Dichloroethane	1.804	1.892	-4.9	97	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	94	0.00
38	T	1,1,1-Trichloroethane	0.418	0.432	-3.3	97	0.00
39	T	Isopropyl Acetate	0.149	0.167	-12.1	96	0.00
40	T	1-Butanol	0.248	0.266	-7.3	94	0.00
41	T	Benzene	1.196	1.079	9.8	100	0.00
42	T	Carbon Tetrachloride	0.365	0.379	-3.8	96	0.00
43	T	Cyclohexane	0.405	0.436	-7.7	98	0.00
44	T	tert-Amyl Methyl Ether	0.759	0.849	-11.9	102	0.00
45	T	1,2-Dichloropropane	0.264	0.291	-10.2	102	0.00
46	T	Bromodichloromethane	0.351	0.379	-8.0	96	0.00
47	T	Trichloroethene	0.313	0.312	0.3	97	0.00
48	T	1,4-Dioxane	0.212	0.233	-9.9	98	0.00
49	T	2,2,4-Trimethylpentane (Iso	1.107	1.246	-12.6	103	0.00
50	T	Methyl Methacrylate	0.102	0.121	-18.6	99	0.00

Evaluate Continuing Calibration Report

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Acq On : 9 Aug 2013 8:47 Operator: JR
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Misc : S25-08071302/S25-07301304 (8/28)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 09 09:17:48 2013
Quant Method : J:\MS09\Methods\R9071513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 16 10:07:14 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	n-Heptane	0.252	0.281	-11.5	102	0.00
52	T	cis-1,3-Dichloropropene	0.411	0.475	-15.6	100	0.00
53	T	4-Methyl-2-pentanone	0.221	0.262	-18.6	101	0.00
54	T	trans-1,3-Dichloropropene	0.374	0.434	-16.0	100	0.00
55	T	1,1,2-Trichloroethane	0.268	0.280	-4.5	98	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	94	0.00
57	S	Toluene-d8 (SS2)	2.642	2.655	-0.5	95	0.00
58	T	Toluene	2.912	2.940	-1.0	99	0.00
59	T	2-Hexanone	1.274	1.425	-11.9	99	0.00
60	T	Dibromochloromethane	0.735	0.794	-8.0	95	0.00
61	T	1,2-Dibromoethane	0.779	0.801	-2.8	96	0.00
62	T	n-Butyl Acetate	1.376	1.613	-17.2	99	0.00
63	T	n-Octane	0.546	0.622	-13.9	101	0.00
64	T	Tetrachloroethene	0.856	0.854	0.2	97	0.00
65	T	Chlorobenzene	1.926	1.923	0.2	97	0.00
66	T	Ethylbenzene	3.121	3.271	-4.8	98	0.00
67	T	m- & p-Xylenes	2.491	2.615	-5.0	96	0.00
68	T	Bromoform	0.596	0.663	-11.2	94	0.00
69	T	Styrene	1.805	2.003	-11.0	97	0.00
70	T	o-Xylene	2.598	2.707	-4.2	97	0.00
71	T	n-Nonane	1.219	1.338	-9.8	98	0.00
72	T	1,1,2,2-Tetrachloroethane	1.184	1.266	-6.9	95	0.00
73	S	Bromofluorobenzene (SS3)	0.940	0.897	4.6	89	0.00
74	T	Cumene	3.314	3.417	-3.1	96	0.00
75	T	alpha-Pinene	1.550	1.723	-11.2	99	0.00
76	T	n-Propylbenzene	3.964	4.075	-2.8	95	0.00
77	T	3-Ethyltoluene	3.074	3.328	-8.3	96	0.00
78	T	4-Ethyltoluene	3.043	3.010	1.1	93	0.00
79	T	1,3,5-Trimethylbenzene	2.571	2.699	-5.0	96	0.00
80	T	alpha-Methylstyrene	1.226	1.469	-19.8	97	0.00
81	T	2-Ethyltoluene	3.014	3.059	-1.5	94	0.00
82	T	1,2,4-Trimethylbenzene	2.562	2.638	-3.0	94	0.00
83	T	n-Decane	1.309	1.402	-7.1	94	0.00
84	T	Benzyl Chloride	1.800	2.256	-25.3	96	0.00
85	T	1,3-Dichlorobenzene	1.575	1.503	4.6	93	0.00
86	T	1,4-Dichlorobenzene	1.626	1.578	3.0	94	0.00
87	T	sec-Butylbenzene	3.414	3.479	-1.9	94	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.169	3.219	-1.6	93	0.00
89	T	1,2,3-Trimethylbenzene	2.598	2.665	-2.6	93	0.00
90	T	1,2-Dichlorobenzene	1.504	1.479	1.7	94	0.00
91	T	d-Limonene	0.821	1.013	-23.4	99	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.509	0.583	-14.5	93	0.00
93	T	n-Undecane	1.361	1.570	-15.4	97	0.00
94	T	1,2,4-Trichlorobenzene	1.178	1.203	-2.1	93	0.00
95	T	Naphthalene	3.605	4.071	-12.9	94	0.00
96	T	n-Dodecane	1.267	1.540	-21.5	96	0.00
97	T	Hexachlorobutadiene	0.708	0.711	-0.4	94	0.00
98	T	Cyclohexanone	0.838	0.917	-9.4	97	0.00
99	T	tert-Butylbenzene	2.428	2.441	-0.5	94	0.00
100	T	n-Butylbenzene	2.677	2.760	-3.1	94	0.00

JR 8-9-13

Evaluate Continuing Calibration Report

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Misc : S25-08071302/S25-07301304 (8/28)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 09 09:17:48 2013
Quant Method : J:\MS09\Methods\R9071513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jul 16 10:07:14 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

JR 8-9-13

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LABORATORY REPORT

July 26, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / 2-3620 Recon #

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on July 12, 2013. For your reference, these analyses have been assigned our service request number P1303007.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 4:10 pm, Jul 26, 2013

For Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / 2-3620 Recon #

Service Request No: P1303007

CASE NARRATIVE

The samples were received intact under chain of custody on July 12, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-12-3
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA015272012-2
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / 2-3620 Recon #

Service Request: P1303007

Date Received: 7/12/2013
Time Received: 07:20

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	ASTM D5504-08 - Sulfur Bag
009 2-3620	P1303007-001	Air	7/11/2013	15:45	X
010 2-3620	P1303007-002	Air	7/11/2013	16:00	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. PB03007

ALS Contact:

Company Name & Address (Reporting Information): CH2M Hill, 1717 Arch Street; Suite 4400, Philadelphia PA 19103

Project Name: Pfizer Tier IV

Project Number: 2-3620 RELON #

Project Manager: Richard Traver

P.O. # / Billing Information:

Phone: 2156409105

Fax: 2156409305

Email Address for Result Reporting: Richard.Traver@CH2M.com

Sampler (Print & Sign): Glenn R. Knieriem

Analysis Method: Malodorus Cmpds

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Malodorus Cmpds		Comments e.g. Actual Preservative or specific instructions
009 2-3620	1	7-11	1545	—	—	—	—	1l	x	—	1545→1600
010 2-3620	2	7-11	1600	—	—	—	—	1l	x	—	1600→1615
NOTE: Day 9 of curing											15 min
											Tedlar

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	7-11	1630	FedEx 802636287205	7-11	1630
Relinquished by: (Signature) Fuller	Date:	Time:	Received by: (Signature) [signature]	Date: 7/11/10	Time: 0720

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1303007

Project: Pfizer Tier IV / 2-3620 Recon #

Sample(s) received on: 7/12/13 Date opened: 7/12/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1303007-001.01	1 L Zefon Bag					
P1303007-002.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **009 2-3620**
Client Project ID: **Pfizer Tier IV / 2-3620 Recon #**

ALS Project ID: P1303007
ALS Sample ID: P1303007-001

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 7/11/13
Time Collected: 15:45
Date Received: 7/12/13
Date Analyzed: 7/12/13
Time Analyzed: 08:33
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**33**	12	**14**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**20**	13	**7.7**	5.0	
75-15-0	Carbon Disulfide	**2,700**	7.8	**880**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**490**	17	**140**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**79**	9.6	**20**	2.5	
616-44-4	3-Methylthiophene	**240**	20	**61**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**800**	23	**170**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **010 2-3620**
Client Project ID: **Pfizer Tier IV / 2-3620 Recon #**

ALS Project ID: P1303007
ALS Sample ID: P1303007-002

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 7/11/13
Time Collected: 16:00
Date Received: 7/12/13
Date Analyzed: 7/12/13
Time Analyzed: 08:34
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**77**	12	**31**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**28**	13	**11**	5.0	
75-15-0	Carbon Disulfide	**3,200**	7.8	**1,000**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**820**	17	**240**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**130**	9.6	**34**	2.5	
616-44-4	3-Methylthiophene	**330**	20	**82**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**980**	23	**210**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / 2-3620 Recon #**

ALS Project ID: P1303007
ALS Sample ID: P130712-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/12/13
Time Analyzed: 08:15
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1303007
Client Project ID: **Pfizer Tier IV / 2-3620 Recon #** ALS Sample ID: P130712-MB

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Time Collected: NA
Analyst: Mike Conejo Date Received: NA
Sample Type: 1 L Zefon Bag Date Analyzed: 7/12/13
Test Notes: Time Analyzed: 08:12
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303007
Client Project ID: **Pfizer Tier IV / 2-3620 Recon #** ALS Sample ID: P130712-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 7/12/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**1,780**	**87**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**1,780**	**88**	63-138	
74-93-1	Methyl Mercaptan	1,890	**1,860**	**98**	63-144	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1303007
Client Project ID: **Pfizer Tier IV / 2-3620 Recon #** ALS Sample ID: P130712-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 7/12/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**1,920**	**94**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**1,790**	**89**	63-138	
74-93-1	Methyl Mercaptan	1,890	**1,750**	**93**	63-144	

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

Method Path : J:\GC22\METHODS\
Method File : GC22091212.M
Title : 20 Sulfurs Initial Calibration
Last Update : Thu Sep 13 08:52:45 2012
Response Via : Initial Calibration

Calibration Files
1 =09121233.D 2 =09121234.D 3 =09121235.D
4 =09121236.D 5 =09121237.D 6 =09121239.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	5.474	3.770	4.587	4.608	3.915	5.261	4.603	E4	14.92
2)	W	Carbonyl_Sulfide	5.824	5.250	5.780	5.288	4.624	6.132	5.483	E4	9.85
3)	T	Methyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
4)	T	Ethyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
5)	T	Dimethyl_Sulfide	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
6)	T	Carbon_Disulfide	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
7)	T	2-Propyl_Merc...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
8)	T	t-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
9)	T	Propyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
10)	T	Ethyl_Methyl_...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
11)	T	Thiophene	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
12)	T	i-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
13)	T	Diethyl_Sulfide	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
14)	T	n-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
15)	T	Dimethyl_Disu...	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
16)	T	2-Methylthiop...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
17)	T	3-Methylthiop...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
18)	T	Tetrahydrothi...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
19)	T	2,5-Dimethylt...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
20)	T	2-Ethylthiophene	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
21)	T	Diethyl_Disul...	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
22)	T	Methyltrisulfide	1.391	1.364	1.561	1.492	1.288	1.844	1.490	E5	13.32

(#) = Out of Range

GC22091212.M Thu Sep 13 08:52:59 2012

VV 9/13/12

COLUMBIA ANALYTICAL INC.

REPORT SUMMARY

Method : 20 Sulfurs
Client & Job# : CH2M Hill / P1303007
Analyst : MC

Printed : 07/12/13
Instrument : GC#13, SCD#13
Date Acquired : 07/12/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-07011304		lcs 2000ppb s27-05241304	% R	mb 1ml	3007-002 1ml							std 2000ppb s27-07011304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0							0.200	
Dilution:			1				1	1.0							1	
Pi:			1.0				1.00	1.00							1.00	
Pf:			1.0				1.00	1.00							1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00							1.00	
Hydrogen_Sulfide	1.7	5.0	9825.30	1.4%	1777.0	86.9%	ND	ND							10822.15	8.7%
Carbonyl_Sulfide	5.0	5.0	10109.45	0.5%	1778.1	88.1%	ND	31.37							11248.45	10.7%
Methyl_Mercaptan	2.2	5.0	10302.20	1.9%	1859.9	98.5%	ND	ND							11318.80	12.0%
Ethyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Sulfide	2.2	5.0				Spike	ND	10.89							ND	
Carbon_Disulfide	2.5	2.5				Amount	ND	1037.68							ND	
2-Propyl_Mercaptan	2.2	5.0			Hydrogen_Sulfide	2045.5	ND	ND							ND	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			Carbonyl Sulfide	2017.5	ND	ND							ND	
Propyl_Mercaptan	2.2	5.0			Methyl Mercaptan	1887.7	ND	ND							ND	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	ND							ND	
Thiophene	2.2	5.0					ND	237.90							ND	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	ND							ND	
Diethyl_Sulfide	2.2	5.0					ND	ND							ND	
n-Butyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Disulfide	1.10	2.5					ND	33.76							ND	
2-Methyl_Thiophene	2.2	5.0					ND	~~239.52~~							ND	
3-Methyl_Thiophene	2.2	5.0					ND	81.52							ND	
Tetrahydrothiophene	2.2	5.0					ND	ND							ND	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	ND							ND	
2-Ethyl_Thiophene	2.2	5.0					ND	212.91							ND	
Diethyl_Disulfide	1.10	2.5					ND	ND							ND	
Methyltrisulfide	1.10	2.5					ND	ND							ND	

j = estimated concentration. Concentration greater than MDL but below RL.

MC 7/12/13

ALS ENVIRONMETAL INC.

REPORT SUMMARY

Method : 20 Sulfurs Initial Calibration
Client & Job# : CH2M Hill / P1303007
Analyst : mc

Printed : 07/12/13
Instrument : GC#22, SCD#22
Date Acquired : 07/12/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-07011304		lcs 2000ppb s27-05241304	% R	mb 1ml	3007-001 1ml							std 2000ppb s27-07011304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0							0.200	
Dilution:			1				1	1.0							1	
Pi:			1.0				1.00	1.00							1.00	
Pf:			1.0				1.00	1.00							1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00							1.00	
Hydrogen_Sulfide	1.7	5.0	9090.65	8.7%	1920.4	93.9%	ND	ND							8948.20	10.2%
Carbonyl_Sulfide	5.0	5.0	8548.60	15.9%	1788.7	88.7%	ND	13.54							8616.80	15.2%
Methyl_Mercaptan	2.2	5.0	8071.70	20.2%	1747.9	92.6%	ND	ND							7901.80	21.8%
Ethyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Sulfide	2.2	5.0				Spike	ND	7.72							ND	
Carbon_Disulfide	2.5	2.5				Amount	ND	876.07							37.30	
2-Propyl_Mercaptan	2.2	5.0			Hydrogen_Sulfide	2045.5	ND	ND							ND	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			Carbonyl Sulfide	2017.5	ND	ND							ND	
Propyl_Mercaptan	2.2	5.0			Methyl Mercaptan	1887.7	ND	ND							ND	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	ND							ND	
Thiophene	2.2	5.0					ND	143.24							ND	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	ND							ND	
Diethyl_Sulfide	2.2	5.0					ND	ND							ND	
n-Butyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Disulfide	1.10	2.5					ND	20.43							ND	
2-Methyl_Thiophene	2.2	5.0					ND	~~173.05~~							ND	
3-Methyl_Thiophene	2.2	5.0					ND	60.96							ND	
Tetrahydrothiophene	2.2	5.0					ND	ND							ND	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	ND							ND	
2-Ethyl_Thiophene	2.2	5.0					ND	174.32							ND	
Diethyl_Disulfide	1.10	2.5					ND	ND							ND	
Methyltrisulfide	1.10	2.5					ND	~~39.84~~							ND	

j = estimated concentration. Concentration greater than MDL but below RL.

ML 7/12/13

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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LABORATORY REPORT

July 25, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon 2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on July 11, 2013. For your reference, these analyses have been assigned our service request number P1302986.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 2:57 pm, Jul 25, 2013

Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon 2-3620

Service Request No: P1302986

CASE NARRATIVE

The samples were received intact under chain of custody on July 11, 2013 and were stored in accordance with the analytical method requirements. The samples were received past the recommended holding time for the sulfur analysis. The analysis was performed as soon as possible after receipt by the laboratory. The data is flagged to indicate the holding time exceedance. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation. The samples were analyzed outside of holding time.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-12-3
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA015272012-2
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon 2-3620
Service Request: P1302986

Date Received: 7/11/2013
Time Received: 07:40

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
009 2-3620 (236g)	P1302986-001	Air	7/9/2013	09:00	1SC00465	0.04	5.30	X	
010 2-3620 (238g)	P1302986-002	Air	7/9/2013	09:00	1SS00009	-0.05	5.88	X	
009 2-3620 (236g)	P1302986-003	Air	7/10/2013	08:30					X
010 2-3620 (238g)	P1302986-004	Air	7/10/2013	08:45					X

Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. R1302986

Company Name & Address (Reporting Information)
CH2M Hill
1717 Arch St; Suite 4400
Philadelphia, PA 19103

Project Name: Phase Tier IV

Project Number: RELOW 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information

Phone: 215 640 9105

Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2M.com

Sampler (Print & Sign): Glenn K. Knierim

ALS Contact:

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Analyze for Compounds	Comments e.g. Actual Preservative or specific instructions
009 2-3620 (236 g)	1 to M	7-9	0901→0900	ISC00465	OA00594	-29	-2	1l	✓		24 hour
010 2-3620 (238 g)	2 0.00	7-9	0901→0900	ISC00009	OA01529	-28	-2	1l	✓		24 hour
—	—	—	—	—	—	—	—	—	—	—	—
009 2-3620 (236 g)	3	7-10	0830	—	—	—	—	1l		✓	0830→0845
010 2-3620 (238 g)	4 -453	7-10	0845	—	—	—	—	1l		✓	0845-0900

5 of 35

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____ Tier III (Results + QC & Calibration Summaries) _____

Tier II (Results + QC Summaries _____ Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No

Type: _____ Units: _____

Chain of Custody Seal. (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Glenn K. Knierim	7-10	1100	FedEx 8026 3628 7216	7/10	1100
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Feller			Colleen	7/11/13	0745

Cooler / Blank Temperature _____ °C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1302986

Project: Pfizer Tier IV / Recon 2-3620

Sample(s) received on: 7/11/13 Date opened: 7/11/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☐	☒	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1302986-001.01	1.0 L Source Can					
P1302986-002.01	1.0 L Silonite Can					
P1302986-003.01	1 L Zefon Bag					
P1302986-004.01	1 L Zefon Bag					
P1302986-005.01	1.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers):

Sulfur bag samples expired in SMO before login completion.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **009 2-3620 (236g)**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1302986
ALS Sample ID: P1302986-003

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes: **H1**

Date Collected: 7/10/13
Time Collected: 08:30
Date Received: 7/11/13
Date Analyzed: 7/11/13
Time Analyzed: 11:09
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**36**	12	**15**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**16**	13	**6.5**	5.0	
75-15-0	Carbon Disulfide	**2,700**	7.8	**850**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**450**	17	**130**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**56**	9.6	**15**	2.5	
616-44-4	3-Methylthiophene	**180**	20	**44**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**480**	23	**110**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
H1 = Sample analysis performed past holding time. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **010 2-3620 (238g)**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1302986
ALS Sample ID: P1302986-004

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes: **H1**

Date Collected: 7/10/13
Time Collected: 08:45
Date Received: 7/11/13
Date Analyzed: 7/11/13
Time Analyzed: 11:10
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**64**	12	**26**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**28**	13	**11**	5.0	
75-15-0	Carbon Disulfide	**2,800**	7.8	**900**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**730**	17	**210**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**100**	9.6	**27**	2.5	
616-44-4	3-Methylthiophene	**240**	20	**60**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**620**	23	**130**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
H1 = Sample analysis performed past holding time. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1302986
ALS Sample ID: P130711-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/11/13
Time Analyzed: 08:38
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

ALS Project ID: P1302986
ALS Sample ID: P130711-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/11/13
Time Analyzed: 08:22
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130711-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 7/11/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**2,130**	**104**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**2,170**	**107**	63-138	
74-93-1	Methyl Mercaptan	1,890	**2,280**	**121**	63-144	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130711-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 7/11/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**1,930**	**94**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**1,790**	**89**	63-138	
74-93-1	Methyl Mercaptan	1,890	**1,710**	**90**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **009 2-3620 (236g)** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1302986-001

Test Code: EPA TO-15 Date Collected: 7/9/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 7/11/13
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0010 Liter(s)
Test Notes:
Container ID: 1SC00465

Initial Pressure (psig): 0.04 Final Pressure (psig): 5.30

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	680	ND	400	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	680	ND	140	
74-87-3	Chloromethane	ND	680	ND	330	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	680	ND	97	
75-01-4	Vinyl Chloride	ND	680	ND	270	
106-99-0	1,3-Butadiene	ND	680	ND	310	
74-83-9	Bromomethane	ND	680	ND	180	
75-00-3	Chloroethane	ND	680	ND	260	
64-17-5	Ethanol	ND	6,800	ND	3,600	
75-05-8	Acetonitrile	ND	680	ND	410	
107-02-8	Acrolein	ND	2,700	ND	1,200	
67-64-1	Acetone	**10,000**	6,800	**4,400**	2,900	
75-69-4	Trichlorofluoromethane	ND	680	ND	120	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6,800	ND	2,800	
107-13-1	Acrylonitrile	ND	680	ND	310	
75-35-4	1,1-Dichloroethene	ND	680	ND	170	
75-09-2	Methylene Chloride	ND	680	ND	200	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	680	ND	220	
76-13-1	Trichlorotrifluoroethane	ND	680	ND	89	
75-15-0	Carbon Disulfide	ND	6,800	ND	2,200	
156-60-5	trans-1,2-Dichloroethene	ND	680	ND	170	
75-34-3	1,1-Dichloroethane	ND	680	ND	170	
1634-04-4	Methyl tert-Butyl Ether	ND	680	ND	190	
108-05-4	Vinyl Acetate	ND	6,800	ND	1,900	
78-93-3	2-Butanone (MEK)	ND	6,800	ND	2,300	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **009 2-3620 (236g)** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1302986-001

Test Code: EPA TO-15 Date Collected: 7/9/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 7/11/13
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0010 Liter(s)
Test Notes:
Container ID: 1SC00465

Initial Pressure (psig): 0.04 Final Pressure (psig): 5.30

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	680	ND	170	
141-78-6	Ethyl Acetate	ND	1,400	ND	380	
110-54-3	n-Hexane	ND	680	ND	190	
67-66-3	Chloroform	ND	680	ND	140	
109-99-9	Tetrahydrofuran (THF)	ND	680	ND	230	
107-06-2	1,2-Dichloroethane	ND	680	ND	170	
71-55-6	1,1,1-Trichloroethane	ND	680	ND	120	
71-43-2	Benzene	**49,000**	680	**15,000**	210	
56-23-5	Carbon Tetrachloride	ND	680	ND	110	
110-82-7	Cyclohexane	ND	1,400	ND	400	
78-87-5	1,2-Dichloropropane	ND	680	ND	150	
75-27-4	Bromodichloromethane	ND	680	ND	100	
79-01-6	Trichloroethene	ND	680	ND	130	
123-91-1	1,4-Dioxane	ND	680	ND	190	
80-62-6	Methyl Methacrylate	ND	1,400	ND	330	
142-82-5	n-Heptane	ND	680	ND	170	
10061-01-5	cis-1,3-Dichloropropene	ND	680	ND	150	
108-10-1	4-Methyl-2-pentanone	ND	680	ND	170	
10061-02-6	trans-1,3-Dichloropropene	ND	680	ND	150	
79-00-5	1,1,2-Trichloroethane	ND	680	ND	120	
108-88-3	Toluene	**100,000**	680	**26,000**	180	
591-78-6	2-Hexanone	ND	680	ND	170	
124-48-1	Dibromochloromethane	ND	680	ND	80	
106-93-4	1,2-Dibromoethane	ND	680	ND	89	
123-86-4	n-Butyl Acetate	ND	680	ND	140	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302986
Client Sample ID: **009 2-3620 (236g)** ALS Sample ID: P1302986-001
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 7/9/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 7/11/13
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0010 Liter(s)
Test Notes:
Container ID: 1SC00465

Initial Pressure (psig): 0.04 Final Pressure (psig): 5.30

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	680	ND	150	
127-18-4	Tetrachloroethene	ND	680	ND	100	
108-90-7	Chlorobenzene	ND	680	ND	150	
100-41-4	Ethylbenzene	**4,000**	680	**930**	160	
179601-23-1	m,p-Xylenes	**42,000**	1,400	**9,700**	310	
75-25-2	Bromoform	ND	680	ND	66	
100-42-5	Styrene	ND	680	ND	160	
95-47-6	o-Xylene	**10,000**	680	**2,400**	160	
111-84-2	n-Nonane	ND	680	ND	130	
79-34-5	1,1,2,2-Tetrachloroethane	ND	680	ND	99	
98-82-8	Cumene	**8,800**	680	**1,800**	140	
80-56-8	alpha-Pinene	ND	680	ND	120	
103-65-1	n-Propylbenzene	ND	680	ND	140	
622-96-8	4-Ethyltoluene	ND	680	ND	140	
108-67-8	1,3,5-Trimethylbenzene	**3,900**	680	**790**	140	
95-63-6	1,2,4-Trimethylbenzene	**4,200**	680	**850**	140	
100-44-7	Benzyl Chloride	ND	680	ND	130	
541-73-1	1,3-Dichlorobenzene	ND	680	ND	110	
106-46-7	1,4-Dichlorobenzene	**700**	680	**120**	110	
95-50-1	1,2-Dichlorobenzene	**7,900**	680	**1,300**	110	
5989-27-5	d-Limonene	ND	680	ND	120	
96-12-8	1,2-Dibromo-3-chloropropane	ND	680	ND	70	
120-82-1	1,2,4-Trichlorobenzene	ND	680	ND	92	
91-20-3	Naphthalene	**720**	680	**140**	130	
87-68-3	Hexachlorobutadiene	ND	680	ND	64	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **010 2-3620 (238g)** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1302986-002

Test Code: EPA TO-15 Date Collected: 7/9/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 7/11/13
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00125 Liter(s)
Test Notes:
Container ID: 1SS00009

Initial Pressure (psig): -0.05 Final Pressure (psig): 5.88

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	560	ND	330	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	560	ND	110	
74-87-3	Chloromethane	ND	560	ND	270	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	560	ND	80	
75-01-4	Vinyl Chloride	ND	560	ND	220	
106-99-0	1,3-Butadiene	ND	560	ND	250	
74-83-9	Bromomethane	ND	560	ND	140	
75-00-3	Chloroethane	ND	560	ND	210	
64-17-5	Ethanol	ND	5,600	ND	3,000	
75-05-8	Acetonitrile	ND	560	ND	330	
107-02-8	Acrolein	ND	2,200	ND	980	
67-64-1	Acetone	**8,100**	5,600	**3,400**	2,400	
75-69-4	Trichlorofluoromethane	ND	560	ND	100	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5,600	ND	2,300	
107-13-1	Acrylonitrile	ND	560	ND	260	
75-35-4	1,1-Dichloroethene	ND	560	ND	140	
75-09-2	Methylene Chloride	ND	560	ND	160	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	560	ND	180	
76-13-1	Trichlorotrifluoroethane	ND	560	ND	73	
75-15-0	Carbon Disulfide	ND	5,600	ND	1,800	
156-60-5	trans-1,2-Dichloroethene	ND	560	ND	140	
75-34-3	1,1-Dichloroethane	ND	560	ND	140	
1634-04-4	Methyl tert-Butyl Ether	ND	560	ND	160	
108-05-4	Vinyl Acetate	ND	5,600	ND	1,600	
78-93-3	2-Butanone (MEK)	ND	5,600	ND	1,900	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **010 2-3620 (238g)** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P1302986-002

Test Code: EPA TO-15 Date Collected: 7/9/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 7/11/13
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00125 Liter(s)
Test Notes:
Container ID: 1SS00009

Initial Pressure (psig): -0.05 Final Pressure (psig): 5.88

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	560	ND	140	
141-78-6	Ethyl Acetate	ND	1,100	ND	310	
110-54-3	n-Hexane	ND	560	ND	160	
67-66-3	Chloroform	ND	560	ND	110	
109-99-9	Tetrahydrofuran (THF)	ND	560	ND	190	
107-06-2	1,2-Dichloroethane	ND	560	ND	140	
71-55-6	1,1,1-Trichloroethane	ND	560	ND	100	
71-43-2	Benzene	**41,000**	560	**13,000**	180	
56-23-5	Carbon Tetrachloride	ND	560	ND	89	
110-82-7	Cyclohexane	ND	1,100	ND	330	
78-87-5	1,2-Dichloropropane	ND	560	ND	120	
75-27-4	Bromodichloromethane	ND	560	ND	84	
79-01-6	Trichloroethene	ND	560	ND	100	
123-91-1	1,4-Dioxane	ND	560	ND	160	
80-62-6	Methyl Methacrylate	ND	1,100	ND	270	
142-82-5	n-Heptane	ND	560	ND	140	
10061-01-5	cis-1,3-Dichloropropene	ND	560	ND	120	
108-10-1	4-Methyl-2-pentanone	ND	560	ND	140	
10061-02-6	trans-1,3-Dichloropropene	ND	560	ND	120	
79-00-5	1,1,2-Trichloroethane	ND	560	ND	100	
108-88-3	Toluene	**96,000**	560	**25,000**	150	
591-78-6	2-Hexanone	ND	560	ND	140	
124-48-1	Dibromochloromethane	ND	560	ND	66	
106-93-4	1,2-Dibromoethane	ND	560	ND	73	
123-86-4	n-Butyl Acetate	ND	560	ND	120	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302986
Client Sample ID: **010 2-3620 (238g)** ALS Sample ID: P1302986-002
Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: 7/9/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 7/11/13
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00125 Liter(s)
Test Notes:
Container ID: 1SS00009

Initial Pressure (psig): -0.05 Final Pressure (psig): 5.88

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	560	ND	120	
127-18-4	Tetrachloroethene	ND	560	ND	83	
108-90-7	Chlorobenzene	ND	560	ND	120	
100-41-4	Ethylbenzene	**4,400**	560	**1,000**	130	
179601-23-1	m,p-Xylenes	**45,000**	1,100	**10,000**	260	
75-25-2	Bromoform	ND	560	ND	54	
100-42-5	Styrene	ND	560	ND	130	
95-47-6	o-Xylene	**11,000**	560	**2,600**	130	
111-84-2	n-Nonane	ND	560	ND	110	
79-34-5	1,1,2,2-Tetrachloroethane	ND	560	ND	82	
98-82-8	Cumene	**10,000**	560	**2,100**	110	
80-56-8	alpha-Pinene	ND	560	ND	100	
103-65-1	n-Propylbenzene	ND	560	ND	110	
622-96-8	4-Ethyltoluene	**590**	560	**120**	110	
108-67-8	1,3,5-Trimethylbenzene	**4,900**	560	**1,000**	110	
95-63-6	1,2,4-Trimethylbenzene	**5,600**	560	**1,100**	110	
100-44-7	Benzyl Chloride	ND	560	ND	110	
541-73-1	1,3-Dichlorobenzene	ND	560	ND	93	
106-46-7	1,4-Dichlorobenzene	**960**	560	**160**	93	
95-50-1	1,2-Dichlorobenzene	**11,000**	560	**1,900**	93	
5989-27-5	d-Limonene	ND	560	ND	100	
96-12-8	1,2-Dibromo-3-chloropropane	ND	560	ND	58	
120-82-1	1,2,4-Trichlorobenzene	ND	560	ND	75	
91-20-3	Naphthalene	**1,300**	560	**250**	110	
87-68-3	Hexachlorobutadiene	ND	560	ND	53	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130712-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1302986

Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130712-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: John Rice Date Analyzed: 7/12/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302986

Client Sample ID: **Method Blank** ALS Sample ID: P130712-MB

Client Project ID: **Pfizer Tier IV / Recon 2-3620**

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA

Analyst: John Rice Date Analyzed: 7/12/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Project ID: P1302986

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 7/9/13
Analyst: John Rice Date(s) Received: 7/11/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 7/12/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130712-MB	**103**	**102**	**97**	70-130	
Lab Control Sample	P130712-LCS	**101**	**102**	**98**	70-130	
009 2-3620 (236g)	P1302986-001	**102**	**101**	**97**	70-130	
010 2-3620 (238g)	P1302986-002	**102**	**100**	**97**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130712-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**171**	**86**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**200**	**98**	63-115	
74-87-3	Chloromethane	198	**193**	**97**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**193**	**95**	65-115	
75-01-4	Vinyl Chloride	200	**199**	**100**	64-122	
106-99-0	1,3-Butadiene	212	**226**	**107**	57-141	
74-83-9	Bromomethane	200	**196**	**98**	68-122	
75-00-3	Chloroethane	202	**202**	**100**	66-120	
64-17-5	Ethanol	1,020	**968**	**95**	58-126	
75-05-8	Acetonitrile	202	**189**	**94**	64-136	
107-02-8	Acrolein	214	**206**	**96**	58-129	
67-64-1	Acetone	1,080	**1060**	**98**	60-114	
75-69-4	Trichlorofluoromethane	198	**188**	**95**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**447**	**106**	54-118	
107-13-1	Acrylonitrile	208	**209**	**100**	72-143	
75-35-4	1,1-Dichloroethene	214	**209**	**98**	69-119	
75-09-2	Methylene Chloride	216	**191**	**88**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**230**	**106**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**224**	**105**	69-117	
75-15-0	Carbon Disulfide	196	**187**	**95**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**213**	**100**	70-126	
75-34-3	1,1-Dichloroethane	208	**207**	**100**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**217**	**102**	69-120	
108-05-4	Vinyl Acetate	1,020	**1510**	**148**	58-160	
78-93-3	2-Butanone (MEK)	218	**209**	**96**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130712-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**214**	**100**	70-119	
141-78-6	Ethyl Acetate	426	**450**	**106**	72-129	
110-54-3	n-Hexane	210	**218**	**104**	63-115	
67-66-3	Chloroform	214	**203**	**95**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**189**	**92**	60-126	
107-06-2	1,2-Dichloroethane	210	**205**	**98**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**201**	**98**	68-120	
71-43-2	Benzene	220	**177**	**80**	69-117	
56-23-5	Carbon Tetrachloride	210	**212**	**101**	65-134	
110-82-7	Cyclohexane	420	**422**	**100**	69-114	
78-87-5	1,2-Dichloropropane	212	**211**	**100**	70-116	
75-27-4	Bromodichloromethane	214	**226**	**106**	71-126	
79-01-6	Trichloroethene	208	**186**	**89**	71-119	
123-91-1	1,4-Dioxane	218	**221**	**101**	72-126	
80-62-6	Methyl Methacrylate	420	**457**	**109**	75-136	
142-82-5	n-Heptane	214	**220**	**103**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**239**	**106**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**233**	**107**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**236**	**109**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**212**	**101**	72-119	
108-88-3	Toluene	210	**202**	**96**	65-116	
591-78-6	2-Hexanone	222	**234**	**105**	62-132	
124-48-1	Dibromochloromethane	220	**240**	**109**	66-140	
106-93-4	1,2-Dibromoethane	216	**222**	**103**	69-130	
123-86-4	n-Butyl Acetate	224	**251**	**112**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302986
Client Project ID: **Pfizer Tier IV / Recon 2-3620** ALS Sample ID: P130712-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: John Rice Date Analyzed: 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**217**	**104**	66-118	
127-18-4	Tetrachloroethene	196	**192**	**98**	63-123	
108-90-7	Chlorobenzene	216	**211**	**98**	66-118	
100-41-4	Ethylbenzene	212	**212**	**100**	66-119	
179601-23-1	m,p-Xylenes	420	**426**	**101**	64-118	
75-25-2	Bromoform	216	**258**	**119**	64-140	
100-42-5	Styrene	218	**231**	**106**	68-132	
95-47-6	o-Xylene	206	**207**	**100**	65-120	
111-84-2	n-Nonane	206	**216**	**105**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**235**	**116**	63-128	
98-82-8	Cumene	204	**203**	**100**	65-121	
80-56-8	alpha-Pinene	208	**223**	**107**	66-123	
103-65-1	n-Propylbenzene	202	**201**	**100**	65-121	
622-96-8	4-Ethyltoluene	212	**208**	**98**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**216**	**102**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**209**	**99**	64-131	
100-44-7	Benzyl Chloride	222	**288**	**130**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**208**	**94**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**207**	**97**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**211**	**97**	63-126	
5989-27-5	d-Limonene	210	**251**	**120**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**270**	**127**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**211**	**96**	59-146	
91-20-3	Naphthalene	204	**207**	**101**	56-143	
87-68-3	Hexachlorobutadiene	218	**215**	**99**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

Method Path : J:\GC22\METHODS\
Method File : GC22091212.M
Title : 20 Sulfurs Initial Calibration
Last Update : Thu Sep 13 08:52:45 2012
Response Via : Initial Calibration

Calibration Files
1 =09121233.D 2 =09121234.D 3 =09121235.D
4 =09121236.D 5 =09121237.D 6 =09121239.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	5.474	3.770	4.587	4.608	3.915	5.261	4.603	E4	14.92
2)	W	Carbonyl_Sulfide	5.824	5.250	5.780	5.288	4.624	6.132	5.483	E4	9.85
3)	T	Methyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
4)	T	Ethyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
5)	T	Dimethyl_Sulfide	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
6)	T	Carbon_Disulfide	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
7)	T	2-Propyl_Merc...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
8)	T	t-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
9)	T	Propyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
10)	T	Ethyl_Methyl_...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
11)	T	Thiophene	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
12)	T	i-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
13)	T	Diethyl_Sulfide	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
14)	T	n-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
15)	T	Dimethyl_Disu...	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
16)	T	2-Methylthiop...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
17)	T	3-Methylthiop...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
18)	T	Tetrahydrothi...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
19)	T	2,5-Dimethylt...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
20)	T	2-Ethylthiophene	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
21)	T	Diethyl_Disul...	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
22)	T	Methyltrisulfide	1.391	1.364	1.561	1.492	1.288	1.844	1.490	E5	13.32

(#) = Out of Range

GC22091212.M Thu Sep 13 08:52:59 2012

COLUMBIA ANALYTICAL INC.

REPORT SUMMARY

Method : 20 Sulfurs
Client & Job# : CH2M Hill / P1302986
Analyst : mc

Printed : 07/11/13
Instrument : GC#13, SCD#13
Date Acquired : 07/11/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-07011304		lcs 2000ppb s27-05241304	% R	mb 1ml	2986-004 1ml							std 2000ppb s27-07011304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0							0.200	
Dilution:			1				1	1.0							1	
Pi:			1.0				1.00	1.00							1.00	
Pf:			1.0				1.00	1.00							1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00							1.00	
Hydrogen_Sulfide	1.7	5.0	10163.85	2.0%	2131.3	104.2%	ND	ND							12382.25	24.3%
Carbonyl_Sulfide	5.0	5.0	10538.40	3.7%	2165.9	107.4%	ND	25.87							12697.50	25.0%
Methyl_Mercaptan	2.2	5.0	10745.50	6.3%	2283.0	120.9%	ND	ND							13096.85	29.5%
Ethyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Sulfide	2.2	5.0				Spike	ND	11.00							ND	
Carbon_Disulfide	2.5	2.5				Amount	ND	895.56							ND	
2-Propyl_Mercaptan	2.2	5.0			Hydrogen_Sulfide	2045.5	ND	ND							ND	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			Carbonyl Sulfide	2017.5	ND	ND							ND	
Propyl_Mercaptan	2.2	5.0			Methyl Mercaptan	1887.7	ND	ND							ND	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	ND							ND	
Thiophene	2.2	5.0					ND	212.46							ND	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	ND							ND	
Diethyl_Sulfide	2.2	5.0					ND	ND							ND	
n-Butyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Disulfide	1.10	2.5					ND	27.09							ND	
2-Methyl_Thiophene	2.2	5.0					ND	~~176.94~~							ND	
3-Methyl_Thiophene	2.2	5.0					ND	60.31							ND	
Tetrahydrothiophene	2.2	5.0					ND	ND							ND	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	ND							ND	
2-Ethyl_Thiophene	2.2	5.0					ND	134.79							ND	
Diethyl_Disulfide	1.10	2.5					ND	ND							ND	
Methyltrisulfide	1.10	2.5					ND	~~16.89~~							ND	

j = estimated concentration. Concentration greater than MDL but below RL.

MC 7/11/13

ALS ENVIRONMETAL INC.

REPORT SUMMARY

Method : 20 Sulfurs Initial Calibration
Client & Job# : CH2M Hill / P1302986
Analyst : mc

Printed : 07/11/13
Instrument : GC#22, SCD#22
Date Acquired : 07/11/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-07011304		lcs 2000ppb s27-05241304	% R	mb 1ml	2986-003 1ml							std 2000ppb s27-07011304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0							0.200	
Dilution:			1				1	1.0							1	
Pi:			1.0				1.00	1.00							1.00	
Pf:			1.0				1.00	1.00							1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00							1.00	
Hydrogen_Sulfide	1.7	5.0	9337.00	6.3%	1927.2	94.2%	ND	ND							10264.85	3.1%
Carbonyl_Sulfide	5.0	5.0	8819.60	13.2%	1793.8	88.9%	ND	14.64							9847.85	3.1%
Methyl_Mercaptan	2.2	5.0	8197.70	18.9%	1707.6	90.5%	ND	ND							9175.90	9.2%
Ethyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Sulfide	2.2	5.0				Spike	ND	6.45							ND	
Carbon_Disulfide	2.5	2.5				Amount	ND	854.56							ND	
2-Propyl_Mercaptan	2.2	5.0			Hydrogen_Sulfide	2045.5	ND	ND							ND	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			Carbonyl Sulfide	2017.5	ND	ND							ND	
Propyl_Mercaptan	2.2	5.0			Methyl Mercaptan	1887.7	ND	ND							ND	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	ND							ND	
Thiophene	2.2	5.0					ND	129.71							ND	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	ND							ND	
Diethyl_Sulfide	2.2	5.0					ND	ND							ND	
n-Butyl_Mercaptan	2.2	5.0					ND	ND							ND	
Dimethyl_Disulfide	1.10	2.5					ND	14.65							ND	
2-Methyl_Thiophene	2.2	5.0					ND	~~129.82~~							ND	
3-Methyl_Thiophene	2.2	5.0					ND	43.94							ND	
Tetrahydrothiophene	2.2	5.0					ND	ND							ND	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	ND							ND	
2-Ethyl_Thiophene	2.2	5.0					ND	105.49							ND	
Diethyl_Disulfide	1.10	2.5					ND	ND							ND	
Methyltrisulfide	1.10	2.5					ND	~~20.58~~							ND	

j = estimated concentration. Concentration greater than MDL but below RL.

ML 7/11/13

Response Factor Report MS09

Method Path : J:\MS09\Methods\
Method File : R9070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jul 08 09:31:15 2013
Response Via : Initial Calibration

Calibration Files
0.08=07051303.D 0.10=07051315.D 0.20=07051305.D 0.40=07051306.D 1.0 =07051307.D 5.0 =07051308.D
25 =07051309.D 50 =07051310.D 100 =07051311.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------										
2)	T	Propene	1.849	1.949	1.689	1.355	1.371	1.214	1.316	1.449	1.642	1.537	16.64
3)	T	Dichlorodifluo...	3.616	3.466	3.098	2.942	3.215	2.884	2.846	2.754	2.551	3.041	11.27
4)	T	Chloromethane	2.476	2.528	2.240	2.107	2.251	2.061	2.019	1.994	1.790	2.163	10.93
5)	T	1,2-Dichloro-1...	1.720	1.576	1.632	1.534	1.594	1.439	1.369	1.248	1.161	1.475	12.58
6)	T	Vinyl Chloride	2.427	2.276	2.166	2.088	2.273	2.069	1.961	1.814	1.681	2.084	11.35
7)	T	1,3-Butadiene	1.467	1.724	1.520	1.349	1.400	1.320	1.324	1.215	1.072	1.377	13.49
8)	T	Bromomethane			1.975	1.623	1.628	1.319	1.390	1.132	1.000	1.438	23.06
9)	T	Chloroethane	1.243	1.292	1.088	1.090	1.108	0.985	1.029	1.041	0.878	1.084	11.59
10)	T	Ethanol	1.160	1.604	1.116	1.028	1.023	0.933	0.926	0.907	0.833	1.059	21.64
11)	T	Acetonitrile	3.139	4.065	2.649	2.501	2.548	2.384	2.294	2.275	2.195	2.672	22.20
12)	T	Acrolein	1.077	1.208	0.897	0.854	0.859	0.779	0.785	0.774	0.732	0.885	17.87
13)	T	Acetone			1.272	1.169	1.044	0.977	0.907	0.834	0.721	0.989	19.28
14)	T	Trichlorofluor...	3.169	3.121	2.843	2.663	2.810	2.546	2.505	2.447	2.295	2.711	11.06
15)	T	2-Propanol (Is...	3.837	4.097	3.446	3.180	3.353	3.200	3.235	2.765	2.072	3.243	18.05
16)	T	Acrylonitrile	1.947	2.385	1.762	1.691	1.790	1.690	1.691	1.662	1.596	1.802	13.34
17)	T	1,1-Dichloroet...	1.632	1.513	1.394	1.358	1.445	1.306	1.344	1.317	1.255	1.396	8.42
18)	T	2-Methyl-2-Pro...	3.874	4.000	3.415	3.244	3.505	3.325	3.275	2.934	2.062	3.293	17.13
19)	T	Methylene Chlo...			1.990	1.716	1.657	1.446	1.439	1.419	1.354	1.575	14.38
20)	T	3-Chloro-1-pro...	2.018	1.815	1.662	1.558	1.630	1.630	1.694	1.673	1.624	1.701	8.11
21)	T	Trichlorotrifl...	1.134	1.331	1.238	1.160	1.244	1.150	1.114	1.010	0.943	1.147	10.37
22)	T	Carbon Disulfide	7.792	6.947	6.028	5.437	5.676	5.168	5.204	5.079	4.816	5.794	16.96
23)	T	trans-1,2-Dich...	2.333	2.392	1.991	1.994	2.106	1.927	1.958	1.966	1.920	2.065	8.60
24)	T	1,1-Dichloroet...	2.910	2.931	2.502	2.461	2.556	2.385	2.374	2.401	2.332	2.539	8.94
25)	T	Methyl tert-Bu...	4.656	4.690	4.154	3.947	4.206	3.938	4.005	4.052	3.752	4.156	7.73
26)	T	Vinyl Acetate				0.158	0.156	0.231	0.290	0.285	0.245	0.228	26.06
27)	T	2-Butanone (MEK)	1.147	1.083	0.985	0.947	0.945	0.887	0.850	0.845	0.815	0.945	11.89
28)	T	cis-1,2-Dichlo...	2.141	2.208	1.900	1.838	1.966	1.803	1.811	1.807	1.750	1.914	8.42
29)	T	Diisopropyl Ether	1.501	1.577	1.416	1.386	1.435	1.081	1.081	1.012	0.810	1.255	21.01
30)	T	Ethyl Acetate	0.592	0.585	0.497	0.481	0.505	0.481	0.480	0.442	0.334	0.489	15.61
31)	T	n-Hexane	2.525	2.622	2.260	2.185	2.220	2.022	1.966	1.873	1.395	2.119	17.26
32)	T	Chloroform	2.913	3.017	2.598	2.456	2.603	2.372	2.347	2.331	2.226	2.540	10.69
33)	S	1,2-Dichloroet...	1.467	1.469	1.464	1.469	1.471	1.461	1.465	1.469	1.469	1.467	0.22
34)	T	Tetrahydrofura...	1.245	1.393	0.983	0.908	0.930	0.844	0.853	0.864	0.845	0.985	20.14
35)	T	Ethyl tert-But...	1.835	1.818	1.598	1.574	1.710	1.599	1.631	1.634	1.554	1.661	6.22
36)	T	1,2-Dichloroet...	2.187	2.184	1.904	1.847	1.952	1.776	1.771	1.769	1.714	1.901	9.34
37)	IR	1,4-Difluorobenzen...	----------ISTD----------										
38)	T	1,1,1-Trichlor...	0.536	0.510	0.456	0.435	0.457	0.422	0.428	0.421	0.405	0.452	9.70

Method Path : J:\MS09\Methods\
Method File : R9070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.175	0.178	0.156	0.152	0.167	0.159	0.160	0.150	0.127	0.158	9.63
40)	T	1-Butanol	0.379	0.375	0.283	0.263	0.263	0.266	0.266	0.247	0.213	0.284	19.73
41)	T	Benzene	1.784	1.851	1.679	1.290	1.213	1.066	1.015	0.976	0.912	1.310	28.05
42)	T	Carbon Tetrach...	0.427	0.424	0.382	0.374	0.388	0.372	0.382	0.376	0.361	0.387	5.92
43)	T	Cyclohexane	0.521	0.511	0.445	0.425	0.453	0.419	0.422	0.402	0.343	0.438	12.39
44)	T	tert-Amyl Meth...	0.919	0.900	0.805	0.759	0.826	0.777	0.793	0.774	0.731	0.809	7.78
45)	T	1,2-Dichloropr...	0.313	0.321	0.276	0.263	0.288	0.262	0.266	0.265	0.256	0.279	8.45
46)	T	Bromodichlorom...	0.409	0.398	0.376	0.359	0.384	0.368	0.375	0.368	0.346	0.376	5.11
47)	T	Trichloroethene	0.458	0.436	0.379	0.369	0.374	0.324	0.314	0.304	0.280	0.360	16.69
48)	T	1,4-Dioxane	0.262	0.265	0.229	0.227	0.234	0.223	0.225	0.221	0.206	0.233	8.23
49)	T	2,2,4-Trimethy...	1.379	1.355	1.197	1.127	1.217	1.131	1.149	1.119	1.046	1.191	9.30
50)	T	Methyl Methacr...	0.116	0.120	0.102	0.104	0.118	0.113	0.115	0.111	0.099	0.111	6.74
51)	T	n-Heptane	0.281	0.304	0.270	0.263	0.283	0.253	0.253	0.252	0.235	0.266	7.82
52)	T	cis-1,3-Dichlo...	0.484	0.478	0.422	0.411	0.438	0.434	0.445	0.441	0.421	0.442	5.62
53)	T	4-Methyl-2-pen...	0.262	0.258	0.237	0.227	0.245	0.236	0.242	0.239	0.226	0.241	5.15
54)	T	trans-1,3-Dich...	0.387	0.433	0.359	0.360	0.390	0.393	0.411	0.410	0.397	0.393	5.97
55)	T	1,1,2-Trichlor...	0.306	0.310	0.288	0.271	0.292	0.269	0.270	0.265	0.251	0.280	7.06
56)	IR	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.615	2.582	2.610	2.601	2.603	2.612	2.576	2.593	2.598	2.599	0.51
58)	T	Toluene	3.793	3.735	3.252	3.068	3.207	2.909	2.814	2.706	2.444	3.103	14.51
59)	T	2-Hexanone	1.598	1.666	1.401	1.367	1.403	1.376	1.350	1.297	1.203	1.407	10.14
60)	T	Dibromochlorom...	0.812	0.798	0.752	0.731	0.798	0.784	0.802	0.784	0.734	0.777	3.91
61)	T	1,2-Dibromoethane	0.907	0.879	0.806	0.786	0.835	0.804	0.794	0.780	0.733	0.814	6.49
62)	T	n-Butyl Acetate	1.572	1.591	1.365	1.352	1.469	1.512	1.543	1.499	1.408	1.479	5.90
63)	T	n-Octane	0.676	0.662	0.603	0.563	0.623	0.570	0.572	0.563	0.513	0.594	8.79
64)	T	Tetrachloroethene	1.111	1.013	0.917	0.908	0.964	0.874	0.862	0.836	0.760	0.916	11.28
65)	T	Chlorobenzene	2.500	2.352	2.124	2.033	2.112	1.960	1.902	1.824	1.646	2.050	12.76
66)	T	Ethylbenzene	4.106	4.005	3.389	3.230	3.488	3.275	3.192	3.021	2.675	3.376	13.35
67)	T	m- & p-Xylenes	3.136	3.180	2.757	2.638	2.843	2.680	2.570	2.401	2.039	2.694	13.07
68)	T	Bromoform	0.606	0.617	0.610	0.595	0.652	0.650	0.684	0.662	0.612	0.632	4.84
69)	T	Styrene	2.108	2.290	1.942	1.870	2.066	2.019	1.982	1.876	1.667	1.980	8.81
70)	T	o-Xylene	3.296	3.270	2.879	2.749	2.943	2.763	2.675	2.533	2.189	2.811	12.30
71)	T	n-Nonane	1.464	1.498	1.306	1.265	1.385	1.304	1.251	1.198	1.041	1.301	10.68
72)	T	1,1,2,2-Tetrac...	1.136	1.159	1.103	1.102	1.183	1.225	1.240	1.177	1.042	1.152	5.47
73)	S	Bromofluoroben...	0.971	0.951	0.973	0.969	0.973	0.970	0.972	0.952	0.936	0.963	1.37
74)	T	Cumene	4.172	4.130	3.673	3.493	3.784	3.543	3.397	3.145	2.711	3.561	12.89
75)	T	alpha-Pinene	1.785	1.784	1.651	1.603	1.756	1.724	1.692	1.588	1.384	1.663	7.65
76)	T	n-Propylbenzene	5.037	5.002	4.455	4.294	4.634	4.317	4.052	3.734	3.204	4.303	13.64
77)	T	3-Ethyltoluene	4.030	3.903	3.416	3.241	3.580	3.331	3.191	2.939	2.584	3.357	13.40
78)	T	4-Ethyltoluene	3.661	3.846	3.474	3.310	3.607	3.375	3.135	2.879	2.393	3.298	13.50
79)	T	1,3,5-Trimethy...	3.224	3.132	2.859	2.781	3.010	2.832	2.684	2.481	2.138	2.794	11.96
80)	T	alpha-Methylst...	1.359	1.418	1.300	1.251	1.489	1.481	1.485	1.375	1.191	1.372	7.88
81)	T	2-Ethyltoluene	3.858	3.855	3.440	3.254	3.581	3.302	3.069	2.827	2.431	3.291	14.22
82)	T	1,2,4-Trimethy...	3.289	3.411	2.920	2.844	3.113	2.908	2.675	2.309	1.803	2.808	17.75
83)	T	n-Decane	1.589	1.670	1.491	1.415	1.572	1.467	1.354	1.226	0.918	1.411	16.13
84)	T	Benzyl Chloride	1.628	1.980	1.691	1.666	1.911	2.165	2.238	2.056	1.594	1.881	13.00
85)	T	1,3-Dichlorobe...	1.977	2.143	1.819	1.714	1.807	1.657	1.540	1.403	1.184	1.694	17.22
86)	T	1,4-Dichlorobe...	2.012	2.178	1.820	1.721	1.852	1.702	1.610	1.487	1.304	1.743	15.15

Method Path : J:\MS09\Methods\
Method File : R9070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	4.276	4.348	3.823	3.675	4.025	3.716	3.487	3.192	2.673	3.690	14.31
88)	T	4-Isopropyltol...	4.095	4.190	3.658	3.589	3.984	3.643	3.242	2.756	2.106	3.474	19.51
89)	T	1,2,3-Trimethy...	3.300	3.341	2.970	2.885	3.144	2.930	2.695	2.318	1.801	2.820	17.51
90)	T	1,2-Dichlorobe...	1.902	1.946	1.730	1.634	1.753	1.610	1.514	1.368	1.130	1.621	15.88
91)	T	d-Limonene	0.859	0.910	0.826	0.828	1.010	1.000	0.984	0.914	0.713	0.894	10.91
92)	T	1,2-Dibromo-3-...	0.384	0.450	0.443	0.452	0.491	0.556	0.593	0.571	0.519	0.495	13.98
93)	T	n-Undecane	1.585	1.606	1.493	1.446	1.597	1.568	1.488	1.409	1.168	1.484	9.29
94)	T	1,2,4-Trichlor...	1.409	1.721	1.353	1.295	1.373	1.311	1.270	1.170	1.017	1.324	14.39
95)	T	Naphthalene	4.277	6.287	4.193	4.099	4.478	4.422	4.222	3.852	3.221	4.339	18.94
96)	T	n-Dodecane	1.292	1.499	1.380	1.394	1.558	1.567	1.477	1.387	1.113	1.407	10.13
97)	T	Hexachlorobuta...	0.808	0.975	0.775	0.759	0.818	0.756	0.741	0.691	0.608	0.770	12.96
98)	T	Cyclohexanone	1.082	1.119	0.915	0.876	0.910	0.902	0.905	0.879	0.834	0.936	10.35
99)	T	tert-Butylbenzene	3.208	3.272	2.874	2.741	2.991	2.774	2.469	2.120	1.673	2.680	19.33
100)	T	n-Butylbenzene	3.317	3.462	3.005	2.940	3.161	2.957	2.752	2.540	2.125	2.918	13.94

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2013_07\12\07121302.D
Acq On : 12 Jul 2013 10:24 Operator: JR
Sample : 5.0ng TO-15 CCV STD (250mL)
Misc : S25-07021301/S25-07031310 (8/1)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 12 13:25:00 2013
Quant Method : J:\MS09\Methods\R9070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 09:31:15 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	99	0.01
2	T	Propene	1.537	1.296	15.7	106	-0.04
3	T	Dichlorodifluoromethane (CF	3.041	2.847	6.4	98	-0.03
4	T	Chloromethane	2.163	2.006	7.3	97	-0.04
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.475	1.379	6.5	95	-0.03
6	T	Vinyl Chloride	2.084	2.007	3.7	96	-0.03
7	T	1,3-Butadiene	1.377	1.390	-0.9	105	-0.02
8	T	Bromomethane	1.438	1.258	12.5	95	-0.02
9	T	Chloroethane	1.084	1.018	6.1	103	-0.03
10	T	Ethanol	1.059	0.942	11.0	100	0.01
11	T	Acetonitrile	2.672	2.410	9.8	100	0.00
12	T	Acrolein	0.885	0.792	10.5	101	-0.01
13	T	Acetone	0.989	0.982	0.7	100	-0.03
14	T	Trichlorofluoromethane	2.711	2.547	6.0	99	-0.02
15	T	2-Propanol (Isopropanol)	3.243	3.125	3.6	97	-0.02
16	T	Acrylonitrile	1.802	1.706	5.3	100	0.00
17	T	1,1-Dichloroethene	1.396	1.314	5.9	100	-0.01
18	T	2-Methyl-2-Propanol (tert-B	3.293	2.945	10.6	88	-0.05
19	T	Methylene Chloride	1.575	1.446	8.2	99	0.00
20	T	3-Chloro-1-propene (Allyl C	1.701	1.619	4.8	99	0.00
21	T	Trichlorotrifluoroethane	1.147	1.109	3.3	96	-0.01
22	T	Carbon Disulfide	5.794	5.233	9.7	101	-0.01
23	T	trans-1,2-Dichloroethene	2.065	1.954	5.4	101	0.00
24	T	1,1-Dichloroethane	2.539	2.407	5.2	100	0.01
25	T	Methyl tert-Butyl Ether	4.156	4.011	3.5	101	-0.04
26	T	Vinyl Acetate	0.228	0.301	<-32.0#>	129	0.00
27	T	2-Butanone (MEK)	0.945	0.890	5.8	100	-0.02
28	T	cis-1,2-Dichloroethene	1.914	1.803	5.8	99	0.00
29	T	Diisopropyl Ether	1.255	1.111	11.5	102	0.08
30	T	Ethyl Acetate	0.489	0.482	1.4	100	-0.01
31	T	n-Hexane	2.119	2.168	-2.3	107	0.00
32	T	Chloroform	2.540	2.349	7.5	98	0.01
33	S	1,2-Dichloroethane-d4(SS1)	1.467	1.492	-1.7	101	0.00
34	T	Tetrahydrofuran (THF)	0.985	0.852	13.5	100	-0.03
35	T	Ethyl tert-Butyl Ether	1.661	1.596	3.9	99	-0.02
36	T	1,2-Dichloroethane	1.901	1.758	7.5	98	0.00
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	102	0.00
38	T	1,1,1-Trichloroethane	0.452	0.414	8.4	100	0.00
39	T	Isopropyl Acetate	0.158	0.159	-0.6	102	0.00
40	T	1-Butanol	0.284	0.259	8.8	99	-0.02
41	T	Benzene	1.310	1.038	20.8	99	0.00
42	T	Carbon Tetrachloride	0.387	0.363	6.2	99	0.00
43	T	Cyclohexane	0.438	0.419	4.3	102	0.00
44	T	tert-Amyl Methyl Ether	0.809	0.767	5.2	100	-0.02
45	T	1,2-Dichloropropane	0.279	0.259	7.2	101	0.00
46	T	Bromodichloromethane	0.376	0.354	5.9	98	0.00
47	T	Trichloroethene	0.360	0.303	15.8	95	0.00
48	T	1,4-Dioxane	0.233	0.215	7.7	98	-0.03
49	T	2,2,4-Trimethylpentane (Iso	1.191	1.128	5.3	101	0.00
50	T	Methyl Methacrylate	0.111	0.112	-0.9	101	0.00

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2013_07\12\07121302.D
Acq On : 12 Jul 2013 10:24 Operator: JR
Sample : 5.0ng TO-15 CCV STD (250mL)
Misc : S25-07021301/S25-07031310 (8/1)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 12 13:25:00 2013
Quant Method : J:\MS09\Methods\R9070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 09:31:15 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	n-Heptane	0.266	0.259	2.6	104	0.00
52	T	cis-1,3-Dichloropropene	0.442	0.424	4.1	99	0.00
53	T	4-Methyl-2-pentanone	0.241	0.233	3.3	101	-0.02
54	T	trans-1,3-Dichloropropene	0.393	0.385	2.0	100	0.00
55	T	1,1,2-Trichloroethane	0.280	0.264	5.7	100	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	102	0.00
57	S	Toluene-d8 (SS2)	2.599	2.641	-1.6	103	0.00
58	T	Toluene	3.103	2.868	7.6	100	0.00
59	T	2-Hexanone	1.407	1.371	2.6	101	-0.01
60	T	Dibromochloromethane	0.777	0.761	2.1	99	0.00
61	T	1,2-Dibromoethane	0.814	0.778	4.4	99	0.00
62	T	n-Butyl Acetate	1.479	1.508	-2.0	101	0.00
63	T	n-Octane	0.594	0.575	3.2	103	0.00
64	T	Tetrachloroethene	0.916	0.850	7.2	99	0.00
65	T	Chlorobenzene	2.050	1.901	7.3	99	0.00
66	T	Ethylbenzene	3.376	3.224	4.5	100	0.00
67	T	m- & p-Xylenes	2.694	2.622	2.7	100	0.00
68	T	Bromoform	0.632	0.628	0.6	98	0.00
69	T	Styrene	1.980	1.941	2.0	98	0.00
70	T	o-Xylene	2.811	2.678	4.7	99	0.00
71	T	n-Nonane	1.301	1.304	-0.2	102	0.00
72	T	1,1,2,2-Tetrachloroethane	1.152	1.256	-9.0	104	0.00
73	S	Bromofluorobenzene (SS3)	0.963	0.939	2.5	99	0.00
74	T	Cumene	3.561	3.428	3.7	99	0.00
75	T	alpha-Pinene	1.663	1.651	0.7	97	0.00
76	T	n-Propylbenzene	4.303	4.208	2.2	99	0.00
77	T	3-Ethyltoluene	3.357	3.246	3.3	99	0.00
78	T	4-Ethyltoluene	3.298	3.263	1.1	98	0.00
79	T	1,3,5-Trimethylbenzene	2.794	2.743	1.8	99	0.00
80	T	alpha-Methylstyrene	1.372	1.363	0.7	94	0.00
81	T	2-Ethyltoluene	3.291	3.197	2.9	99	0.00
82	T	1,2,4-Trimethylbenzene	2.808	2.826	-0.6	99	0.00
83	T	n-Decane	1.411	1.455	-3.1	101	0.00
84	T	Benzyl Chloride	1.881	2.166	-15.2	102	0.00
85	T	1,3-Dichlorobenzene	1.694	1.586	6.4	97	0.00
86	T	1,4-Dichlorobenzene	1.743	1.634	6.3	98	0.00
87	T	sec-Butylbenzene	3.690	3.610	2.2	99	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.474	3.508	-1.0	98	0.00
89	T	1,2,3-Trimethylbenzene	2.820	2.839	-0.7	99	0.00
90	T	1,2-Dichlorobenzene	1.621	1.542	4.9	97	0.00
91	T	d-Limonene	0.894	0.943	-5.5	96	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.495	0.567	-14.5	104	0.00
93	T	n-Undecane	1.484	1.546	-4.2	100	0.00
94	T	1,2,4-Trichlorobenzene	1.324	1.244	6.0	97	0.00
95	T	Naphthalene	4.339	4.166	4.0	96	0.00
96	T	n-Dodecane	1.407	1.535	-9.1	100	0.00
97	T	Hexachlorobutadiene	0.770	0.720	6.5	97	0.00
98	T	Cyclohexanone	0.936	0.887	5.2	100	0.00
99	T	tert-Butylbenzene	2.680	2.658	0.8	98	0.00
100	T	n-Butylbenzene	2.918	2.867	1.7	99	0.00

JH 7-15-13

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2013_07\12\07121302.D
Acq On : 12 Jul 2013 10:24 Operator: JR
Sample : 5.0ng TO-15 CCV STD (250mL)
Misc : S25-07021301/S25-07031310 (8/1)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 12 13:25:00 2013
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Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 09:31:15 2013
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Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

JA 7-15-17

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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www.alsglobal.com

LABORATORY REPORT

July 18, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on July 3, 2013. For your reference, these analyses have been assigned our service request number P1302888.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Kate Aguilera at 2:55 pm, Jul 18, 2013

Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon #2-3620

Service Request No: P1302888

CASE NARRATIVE

The samples were received intact under chain of custody on July 3, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-12-3
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA015272012-2
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon #2-3620
Service Request: P1302888

Date Received: 7/3/2013
Time Received: 07:40

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
009 2-3620 (1800g)	P1302888-001	Air	7/2/2013	12:00	1SS00016	-2.73	5.00	X	
009 2-3620 (1800g)	P1302888-002	Air	7/2/2013	12:00					X
010 2-3620 (1800g)	P1302888-003	Air	7/2/2013	14:00	1SC00397	-2.54	5.19	X	
010 2-3620 (1800g)	P1302888-004	Air	7/2/2013	14:00					X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. P1302888

Company Name & Address (Reporting Information): CH2M HILL, 1717 ARCH STREET; SUITE 4400, PHILADELPHIA, PA 19103

Project Name: PFIZER TIER IV

Project Number: RECON # 2-3620

Project Manager: RICHARD TRAVER

P.O. # / Billing Information:

Phone: 215-640-9105

Fax: 215-640-9305

Email Address for Result Reporting: RICHARD.TRAVER@CH2M.COM

Sampler (Print & Sign): Glenn R. Knieriem

ALS Contact:

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Maladorous Cmpds	Comments e.g. Actual Preservative or specific instructions
009 2-3620 (1800g)	1-2.69	7/2	12:00	1SS00016	0A00123	-29	-6	1 l ~~15 min~~	X	—	1145→1200
009 2-3620 (1800g)	2	7/2	12:00	—	—	—	—	1 l ~~15 min~~	—	X	1145-1200
—	—	—	—	—	—	—	—		—	—	
010 2-3620 (1800g)	3-2.59	7/2	1400	1SC00387	0A01327	-28	-6	1 l ~~15 min~~	X	—	1400→1415
010 2-3620 (1800g)	4	7/2	1400	—	—	—	—	1 l 15 min	—	X	1400→1415

Report Tier Levels - please select

Tier I - Results (Default in not specified) ____
Tier II (Results + QC Summaries ____
Tier III (Results + QC & Calibration Summaries) ____
Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	7/2/13	@1530	FEDEX 8022 2388 ~~1691~~ 1680	7/2/13	1530
Relinquished by: (Signature) Fedex	Date:	Time:	Received by: (Signature) [signature]	7/3/13	0740

Cooler / Blank Temperature ____°C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1302888

Project: Pfizer Tier IV / Recon #2-3620

Sample(s) received on: 7/3/13 Date opened: 7/3/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1302888-001.01	1.0 L Silonite Can					
P1302888-002.01	1 L Zefon Bag					
P1302888-003.01	1.0 L Source Can					
P1302888-004.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers):

Cainsters were assigned by the canister serial numbers listed on COC.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **009 2-3620 (1800g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302888
ALS Sample ID: P1302888-002

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 7/2/13
Time Collected: 12:00
Date Received: 7/3/13
Date Analyzed: 7/3/13
Time Analyzed: 09:21
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**100**	7.8	**33**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**59**	17	**17**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**39**	23	**8.5**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **010 2-3620 (1800g)**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302888
ALS Sample ID: P1302888-004

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 7/2/13
Time Collected: 14:00
Date Received: 7/3/13
Date Analyzed: 7/3/13
Time Analyzed: 09:41
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**24**	12	**9.9**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	**190**	7.8	**60**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	**80**	17	**23**	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	**29**	20	**7.3**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**53**	23	**12**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302888
ALS Sample ID: P130703-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 7890A/GC22/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 7/03/13
Time Analyzed: 08:22
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130703-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 7890A/GC22/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 7/03/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**1,960**	**96**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**1,810**	**90**	63-138	
74-93-1	Methyl Mercaptan	1,890	**1,750**	**93**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **009 2-3620 (1800g)** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302888-001

Test Code: EPA TO-15 Date Collected: 7/2/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 7/3/13
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: 1SS00016

Initial Pressure (psig): -2.73 Final Pressure (psig): 5.00

Canister Dilution Factor: 1.65

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	83	ND	48	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	83	ND	17	
74-87-3	Chloromethane	ND	83	ND	40	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	83	ND	12	
75-01-4	Vinyl Chloride	ND	83	ND	32	
106-99-0	1,3-Butadiene	ND	83	ND	37	
74-83-9	Bromomethane	ND	83	ND	21	
75-00-3	Chloroethane	ND	83	ND	31	
64-17-5	Ethanol	ND	830	ND	440	
75-05-8	Acetonitrile	ND	83	ND	49	
107-02-8	Acrolein	ND	330	ND	140	
67-64-1	Acetone	**10,000**	830	**4,300**	350	
75-69-4	Trichlorofluoromethane	ND	83	ND	15	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	830	ND	340	
107-13-1	Acrylonitrile	ND	83	ND	38	
75-35-4	1,1-Dichloroethene	ND	83	ND	21	
75-09-2	Methylene Chloride	ND	83	ND	24	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	83	ND	26	
76-13-1	Trichlorotrifluoroethane	ND	83	ND	11	
75-15-0	Carbon Disulfide	ND	830	ND	270	
156-60-5	trans-1,2-Dichloroethene	ND	83	ND	21	
75-34-3	1,1-Dichloroethane	ND	83	ND	20	
1634-04-4	Methyl tert-Butyl Ether	ND	83	ND	23	
108-05-4	Vinyl Acetate	ND	830	ND	230	
78-93-3	2-Butanone (MEK)	ND	830	ND	280	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **009 2-3620 (1800g)** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302888-001

Test Code: EPA TO-15 Date Collected: 7/2/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 7/3/13
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: 1SS00016

Initial Pressure (psig): -2.73 Final Pressure (psig): 5.00

Canister Dilution Factor: 1.65

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	83	ND	21	
141-78-6	Ethyl Acetate	ND	170	ND	46	
110-54-3	n-Hexane	ND	83	ND	23	
67-66-3	Chloroform	ND	83	ND	17	
109-99-9	Tetrahydrofuran (THF)	ND	83	ND	28	
107-06-2	1,2-Dichloroethane	ND	83	ND	20	
71-55-6	1,1,1-Trichloroethane	ND	83	ND	15	
71-43-2	Benzene	**4,200**	83	**1,300**	26	
56-23-5	Carbon Tetrachloride	ND	83	ND	13	
110-82-7	Cyclohexane	ND	170	ND	48	
78-87-5	1,2-Dichloropropane	ND	83	ND	18	
75-27-4	Bromodichloromethane	ND	83	ND	12	
79-01-6	Trichloroethene	ND	83	ND	15	
123-91-1	1,4-Dioxane	ND	83	ND	23	
80-62-6	Methyl Methacrylate	ND	170	ND	40	
142-82-5	n-Heptane	**3,800**	83	**930**	20	
10061-01-5	cis-1,3-Dichloropropene	ND	83	ND	18	
108-10-1	4-Methyl-2-pentanone	ND	83	ND	20	
10061-02-6	trans-1,3-Dichloropropene	ND	83	ND	18	
79-00-5	1,1,2-Trichloroethane	ND	83	ND	15	
108-88-3	Toluene	**11,000**	83	**2,800**	22	
591-78-6	2-Hexanone	ND	83	ND	20	
124-48-1	Dibromochloromethane	ND	83	ND	9.7	
106-93-4	1,2-Dibromoethane	ND	83	ND	11	
123-86-4	n-Butyl Acetate	ND	83	ND	17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302888
Client Sample ID: **009 2-3620 (1800g)** ALS Sample ID: P1302888-001
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 7/2/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 7/3/13
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: 1SS00016

Initial Pressure (psig): -2.73 Final Pressure (psig): 5.00

Canister Dilution Factor: 1.65

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	83	ND	18	
127-18-4	Tetrachloroethene	ND	83	ND	12	
108-90-7	Chlorobenzene	ND	83	ND	18	
100-41-4	Ethylbenzene	**560**	83	**130**	19	
179601-23-1	m,p-Xylenes	**6,400**	170	**1,500**	38	
75-25-2	Bromoform	ND	83	ND	8.0	
100-42-5	Styrene	ND	83	ND	19	
95-47-6	o-Xylene	**1,700**	83	**390**	19	
111-84-2	n-Nonane	ND	83	ND	16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	83	ND	12	
98-82-8	Cumene	**1,400**	83	**280**	17	
80-56-8	alpha-Pinene	ND	83	ND	15	
103-65-1	n-Propylbenzene	ND	83	ND	17	
622-96-8	4-Ethyltoluene	**120**	83	**25**	17	
108-67-8	1,3,5-Trimethylbenzene	**970**	83	**200**	17	
95-63-6	1,2,4-Trimethylbenzene	**1,400**	83	**280**	17	
100-44-7	Benzyl Chloride	ND	83	ND	16	
541-73-1	1,3-Dichlorobenzene	ND	83	ND	14	
106-46-7	1,4-Dichlorobenzene	**420**	83	**70**	14	
95-50-1	1,2-Dichlorobenzene	**4,800**	83	**800**	14	
5989-27-5	d-Limonene	ND	83	ND	15	
96-12-8	1,2-Dibromo-3-chloropropane	ND	83	ND	8.5	
120-82-1	1,2,4-Trichlorobenzene	ND	83	ND	11	
91-20-3	Naphthalene	**2,100**	83	**400**	16	
87-68-3	Hexachlorobutadiene	ND	83	ND	7.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **010 2-3620 (1800g)** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302888-003

Test Code: EPA TO-15 Date Collected: 7/2/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 7/3/13
Analyst: Simon Cao Date Analyzed: 7/11 - 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes: 0.0050 Liter(s)
Container ID: 1SC00397

Initial Pressure (psig): -2.54 Final Pressure (psig): 5.19

Canister Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	82	ND	48	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	82	ND	17	
74-87-3	Chloromethane	ND	82	ND	40	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	82	ND	12	
75-01-4	Vinyl Chloride	ND	82	ND	32	
106-99-0	1,3-Butadiene	ND	82	ND	37	
74-83-9	Bromomethane	ND	82	ND	21	
75-00-3	Chloroethane	ND	82	ND	31	
64-17-5	Ethanol	ND	820	ND	440	
75-05-8	Acetonitrile	ND	82	ND	49	
107-02-8	Acrolein	ND	330	ND	140	
67-64-1	Acetone	**6,900**	820	**2,900**	350	
75-69-4	Trichlorofluoromethane	ND	82	ND	15	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	820	ND	330	
107-13-1	Acrylonitrile	ND	82	ND	38	
75-35-4	1,1-Dichloroethene	ND	82	ND	21	
75-09-2	Methylene Chloride	ND	82	ND	24	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	82	ND	26	
76-13-1	Trichlorotrifluoroethane	ND	82	ND	11	
75-15-0	Carbon Disulfide	ND	820	ND	260	
156-60-5	trans-1,2-Dichloroethene	ND	82	ND	21	
75-34-3	1,1-Dichloroethane	ND	82	ND	20	
1634-04-4	Methyl tert-Butyl Ether	ND	82	ND	23	
108-05-4	Vinyl Acetate	ND	820	ND	230	
78-93-3	2-Butanone (MEK)	ND	820	ND	280	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **010 2-3620 (1800g)** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302888-003

Test Code: EPA TO-15 Date Collected: 7/2/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 7/3/13
Analyst: Simon Cao Date Analyzed: 7/11 - 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes: 0.0050 Liter(s)
Container ID: 1SC00397

Initial Pressure (psig): -2.54 Final Pressure (psig): 5.19

Canister Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	82	ND	21	
141-78-6	Ethyl Acetate	ND	160	ND	46	
110-54-3	n-Hexane	ND	82	ND	23	
67-66-3	Chloroform	ND	82	ND	17	
109-99-9	Tetrahydrofuran (THF)	ND	82	ND	28	
107-06-2	1,2-Dichloroethane	ND	82	ND	20	
71-55-6	1,1,1-Trichloroethane	ND	82	ND	15	
71-43-2	Benzene	**10,000**	82	**3,100**	26	
56-23-5	Carbon Tetrachloride	ND	82	ND	13	
110-82-7	Cyclohexane	ND	160	ND	48	
78-87-5	1,2-Dichloropropane	ND	82	ND	18	
75-27-4	Bromodichloromethane	ND	82	ND	12	
79-01-6	Trichloroethene	ND	82	ND	15	
123-91-1	1,4-Dioxane	ND	82	ND	23	
80-62-6	Methyl Methacrylate	ND	160	ND	40	
142-82-5	n-Heptane	**4,500**	82	**1,100**	20	
10061-01-5	cis-1,3-Dichloropropene	ND	82	ND	18	
108-10-1	4-Methyl-2-pentanone	ND	82	ND	20	
10061-02-6	trans-1,3-Dichloropropene	ND	82	ND	18	
79-00-5	1,1,2-Trichloroethane	ND	82	ND	15	
108-88-3	Toluene	**24,000**	160	**6,400**	44	**D**
591-78-6	2-Hexanone	ND	82	ND	20	
124-48-1	Dibromochloromethane	ND	82	ND	9.6	
106-93-4	1,2-Dibromoethane	ND	82	ND	11	
123-86-4	n-Butyl Acetate	ND	82	ND	17	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Client: **CH2M Hill** ALS Project ID: P1302888
Client Sample ID: **010 2-3620 (1800g)** ALS Sample ID: P1302888-003
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 7/2/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 7/3/13
Analyst: Simon Cao Date Analyzed: 7/11 - 7/12/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.010 Liter(s)
Test Notes: 0.0050 Liter(s)
Container ID: 1SC00397

Initial Pressure (psig): -2.54 Final Pressure (psig): 5.19

Canister Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	82	ND	18	
127-18-4	Tetrachloroethene	ND	82	ND	12	
108-90-7	Chlorobenzene	**85**	82	**18**	18	
100-41-4	Ethylbenzene	**1,300**	82	**290**	19	
179601-23-1	m,p-Xylenes	**14,000**	160	**3,300**	38	
75-25-2	Bromoform	ND	82	ND	7.9	
100-42-5	Styrene	ND	82	ND	19	
95-47-6	o-Xylene	**3,800**	82	**870**	19	
111-84-2	n-Nonane	ND	82	ND	16	
79-34-5	1,1,2,2-Tetrachloroethane	ND	82	ND	12	
98-82-8	Cumene	**3,000**	82	**620**	17	
80-56-8	alpha-Pinene	ND	82	ND	15	
103-65-1	n-Propylbenzene	ND	82	ND	17	
622-96-8	4-Ethyltoluene	**280**	82	**57**	17	
108-67-8	1,3,5-Trimethylbenzene	**2,100**	82	**430**	17	
95-63-6	1,2,4-Trimethylbenzene	**3,000**	82	**620**	17	
100-44-7	Benzyl Chloride	ND	82	ND	16	
541-73-1	1,3-Dichlorobenzene	**190**	82	**31**	14	
106-46-7	1,4-Dichlorobenzene	**950**	82	**160**	14	
95-50-1	1,2-Dichlorobenzene	**11,000**	82	**1,800**	14	
5989-27-5	d-Limonene	ND	82	ND	15	
96-12-8	1,2-Dibromo-3-chloropropane	ND	82	ND	8.5	
120-82-1	1,2,4-Trichlorobenzene	ND	82	ND	11	
91-20-3	Naphthalene	**4,700**	82	**890**	16	
87-68-3	Hexachlorobutadiene	ND	82	ND	7.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130711-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1302888

Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130711-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA

Analyst: Simon Cao Date Analyzed: 7/11/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302888
Client Sample ID: **Method Blank** ALS Sample ID: P130711-MB
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Project ID: P1302888

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date(s) Collected: 7/2/13
Analyst: Simon Cao Date(s) Received: 7/3/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 7/11/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130711-MB	**96**	**105**	**102**	70-130	
Lab Control Sample	P130711-LCS	**92**	**102**	**105**	70-130	
009 2-3620 (1800g)	P1302888-001	**101**	**101**	**100**	70-130	
010 2-3620 (1800g)	P1302888-003	**94**	**102**	**102**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130711-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**147**	**74**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**156**	**76**	63-115	
74-87-3	Chloromethane	198	**152**	**77**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**168**	**82**	65-115	
75-01-4	Vinyl Chloride	200	**169**	**85**	64-122	
106-99-0	1,3-Butadiene	212	**193**	**91**	57-141	
74-83-9	Bromomethane	200	**147**	**74**	68-122	
75-00-3	Chloroethane	202	**177**	**88**	66-120	
64-17-5	Ethanol	1,020	**841**	**82**	58-126	
75-05-8	Acetonitrile	202	**171**	**85**	64-136	
107-02-8	Acrolein	214	**207**	**97**	58-129	
67-64-1	Acetone	1,080	**883**	**82**	60-114	
75-69-4	Trichlorofluoromethane	198	**148**	**75**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**380**	**90**	54-118	
107-13-1	Acrylonitrile	208	**214**	**103**	72-143	
75-35-4	1,1-Dichloroethene	214	**186**	**87**	69-119	
75-09-2	Methylene Chloride	216	**163**	**75**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**217**	**100**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**175**	**82**	69-117	
75-15-0	Carbon Disulfide	196	**180**	**92**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**183**	**86**	70-126	
75-34-3	1,1-Dichloroethane	208	**170**	**82**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**184**	**87**	69-120	
108-05-4	Vinyl Acetate	1,020	**1070**	**105**	58-160	
78-93-3	2-Butanone (MEK)	218	**211**	**97**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130711-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**184**	**86**	70-119	
141-78-6	Ethyl Acetate	426	**386**	**91**	72-129	
110-54-3	n-Hexane	210	**169**	**80**	63-115	
67-66-3	Chloroform	214	**175**	**82**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**192**	**93**	60-126	
107-06-2	1,2-Dichloroethane	210	**171**	**81**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**180**	**87**	68-120	
71-43-2	Benzene	220	**178**	**81**	69-117	
56-23-5	Carbon Tetrachloride	210	**191**	**91**	65-134	
110-82-7	Cyclohexane	420	**362**	**86**	69-114	
78-87-5	1,2-Dichloropropane	212	**179**	**84**	70-116	
75-27-4	Bromodichloromethane	214	**206**	**96**	71-126	
79-01-6	Trichloroethene	208	**183**	**88**	71-119	
123-91-1	1,4-Dioxane	218	**210**	**96**	72-126	
80-62-6	Methyl Methacrylate	420	**446**	**106**	75-136	
142-82-5	n-Heptane	214	**186**	**87**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**226**	**100**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**210**	**96**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**227**	**105**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**192**	**91**	72-119	
108-88-3	Toluene	210	**185**	**88**	65-116	
591-78-6	2-Hexanone	222	**230**	**104**	62-132	
124-48-1	Dibromochloromethane	220	**239**	**109**	66-140	
106-93-4	1,2-Dibromoethane	216	**211**	**98**	69-130	
123-86-4	n-Butyl Acetate	224	**241**	**108**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302888
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130711-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/11/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	208	**189**	**91**	66-118	
127-18-4	Tetrachloroethene	196	**177**	**90**	63-123	
108-90-7	Chlorobenzene	216	**188**	**87**	66-118	
100-41-4	Ethylbenzene	212	**196**	**92**	66-119	
179601-23-1	m,p-Xylenes	420	**384**	**91**	64-118	
75-25-2	Bromoform	216	**240**	**111**	64-140	
100-42-5	Styrene	218	**228**	**105**	68-132	
95-47-6	o-Xylene	206	**187**	**91**	65-120	
111-84-2	n-Nonane	206	**181**	**88**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**190**	**94**	63-128	
98-82-8	Cumene	204	**184**	**90**	65-121	
80-56-8	alpha-Pinene	208	**196**	**94**	66-123	
103-65-1	n-Propylbenzene	202	**187**	**93**	65-121	
622-96-8	4-Ethyltoluene	212	**193**	**91**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**196**	**92**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**199**	**94**	64-131	
100-44-7	Benzyl Chloride	222	**235**	**106**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**201**	**91**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**195**	**91**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**201**	**92**	63-126	
5989-27-5	d-Limonene	210	**216**	**103**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**232**	**109**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**229**	**104**	59-146	
91-20-3	Naphthalene	204	**209**	**102**	56-143	
87-68-3	Hexachlorobutadiene	218	**206**	**94**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Method Path : J:\GC22\METHODS\
Method File : GC22091212.M
Title : 20 Sulfurs Initial Calibration
Last Update : Thu Sep 13 08:52:45 2012
Response Via : Initial Calibration

Calibration Files
1 =09121233.D 2 =09121234.D 3 =09121235.D
4 =09121236.D 5 =09121237.D 6 =09121239.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	5.474	3.770	4.587	4.608	3.915	5.261	4.603	E4	14.92
2)	W	Carbonyl_Sulfide	5.824	5.250	5.780	5.288	4.624	6.132	5.483	E4	9.85
3)	T	Methyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
4)	T	Ethyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
5)	T	Dimethyl_Sulfide	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
6)	T	Carbon_Disulfide	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
7)	T	2-Propyl_Merc...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
8)	T	t-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
9)	T	Propyl_Mercaptan	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
10)	T	Ethyl_Methyl_...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
11)	T	Thiophene	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
12)	T	i-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
13)	T	Diethyl_Sulfide	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
14)	T	n-Butyl_Merca...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
15)	T	Dimethyl_Disu...	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
16)	T	2-Methylthiop...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
17)	T	3-Methylthiop...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
18)	T	Tetrahydrothi...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
19)	T	2,5-Dimethylt...	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
20)	T	2-Ethylthiophene	4.637	4.547	5.203	4.973	4.292	6.146	4.966	E4	13.32
21)	T	Diethyl_Disul...	0.927	0.909	1.041	0.995	0.858	1.229	0.993	E5	13.32
22)	T	Methyltrisulfide	1.391	1.364	1.561	1.492	1.288	1.844	1.490	E5	13.32

(#) = Out of Range

GC22091212.M Thu Sep 13 08:52:59 2012

ALS ENVIRONMETAL INC.

REPORT SUMMARY

Method : 20 Sulfurs Initial Calibration
Client & Job# : CH2M Hill / P1302888
Analyst : MC

Printed : 07/03/13
Instrument : GC#22, SCD#22
Date Acquired : 3 Jul 2013 12:11

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-07011304		lcs 2000ppb s27-05241304	% R	mb 1ml	2888-002 1ml	2888-004 1ml						std 2000ppbs27-07011304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0	1.0						0.200	
Dilution:			1				1	1.0	1.0						1	
Pi:			1.0				1.00	1.00	1.00						1.00	
Pf:			1.0				1.00	1.00	1.00						1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00	1.00						1.00	
Hydrogen_Sulfide	1.7	5.0	10187.60	2.3%	1956.4	95.6%	ND	ND	ND						11334.65	13.8%
Carbonyl_Sulfide	5.0	5.0	9498.25	6.5%	1806.2	89.5%	ND	ND	9.91						10841.50	6.7%
Methyl_Mercaptan	2.2	5.0	9009.25	10.9%	1746.8	92.5%	ND	ND	ND						10018.75	0.9%
Ethyl_Mercaptan	2.2	5.0					ND	ND	ND						ND	
Dimethyl_Sulfide	2.2	5.0				Spike	ND	ND	ND						ND	
Carbon_Disulfide	2.5	2.5				Amount	ND	33.11	59.57						42.60	
2-Propyl_Mercaptan	2.2	5.0			Hydrogen_Sulfide	2045.5	ND	ND	ND						ND	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			Carbonyl Sulfide	2017.5	ND	ND	ND						ND	
Propyl_Mercaptan	2.2	5.0			Methyl Mercaptan	1887.7	ND	ND	ND						ND	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	ND	ND						ND	
Thiophene	2.2	5.0					ND	17.27	23.38						ND	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	ND	ND						ND	
Diethyl_Sulfide	2.2	5.0					ND	ND	ND						ND	
n-Butyl_Mercaptan	2.2	5.0					ND	ND	ND						ND	
Dimethyl_Disulfide	1.10	2.5					ND	ND	ND						112.00	
2-Methyl_Thiophene	2.2	5.0					ND	13.20	~~19.22~~						ND	
3-Methyl_Thiophene	2.2	5.0					ND	~~4.62~~ j	7.26						ND	
Tetrahydrothiophene	2.2	5.0					ND	ND	ND						ND	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	ND	ND						ND	
2-Ethyl_Thiophene	2.2	5.0					ND	8.48	11.50						ND	
Diethyl_Disulfide	1.10	2.5					ND	ND	ND						ND	
Methyltrisulfide	1.10	2.5					ND	ND	ND						ND	

j = estimated concentration. Concentration greater than MDL but below RL.

Response Factor Report MSD3

Method Path : J:\MS03\METHODS\
Method File : R3070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jul 08 10:36:52 2013
Response Via : Initial Calibration

Calibration Files
0.08=07051332.D 0.10=07051333.D 0.20=07051334.D 0.40=07051335.D 1.0 =07051336.D 5.0 =07051337.D
25 =07051338.D 50 =07051339.D 100 =07051340.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------										
2)	T	Propene	1.801	1.609	1.569	1.502	1.628	1.485	1.471	1.274	1.497	1.537	9.29
3)	T	Dichlorodifluo...	3.953	3.858	3.802	3.582	4.050	3.650	3.442	2.930	2.713	3.553	12.89
4)	T	Chloromethane	2.487	2.422	2.416	2.238	2.444	2.215	2.266	1.900	1.750	2.238	11.43
5)	T	1,2-Dichloro-1...	1.940	1.971	1.932	1.742	1.867	1.695	1.720	1.500	1.448	1.757	10.82
6)	T	Vinyl Chloride	2.069	2.121	2.033	2.054	2.243	2.046	2.172	1.880	1.767	2.043	7.06
7)	T	1,3-Butadiene	1.477	1.193	1.445	1.231	1.512	1.439	1.589	1.375	1.299	1.396	9.48
8)	T	Bromomethane	2.267	2.053	1.618	1.464	1.427	1.243	1.313	1.185	1.127	1.522	25.98
9)	T	Chloroethane	1.035	1.101	0.908	1.130	1.196	1.092	1.137	1.032	0.970	1.067	8.39
10)	T	Ethanol	1.102	1.142	1.099	1.059	1.119	1.002	0.985	0.878	0.828	1.024	10.78
11)	T	Acetonitrile	2.978	2.706	2.739	2.676	2.871	2.545	2.635	2.420	2.252	2.647	8.35
12)	T	Acrolein			0.622	0.713	0.812	0.781	0.863	0.793	0.756	0.763	10.15
13)	T	Acetone	1.097	1.108	1.059	1.010	1.082	0.982	0.982	0.873	0.817	1.001	10.07
14)	T	Trichlorofluor...	3.435	3.410	3.265	3.122	3.263	2.927	2.732	2.549	2.504	3.023	11.88
15)	T	2-Propanol (Is...	3.591	3.674	3.540	3.536	3.979	3.738	3.911	3.464	2.593	3.558	11.28
16)	T	Acrylonitrile	1.130	0.963	1.342	1.444	1.758	1.668	1.792	1.669	1.604	1.486	19.50
17)	T	1,1-Dichloroet...	1.428	1.332	1.200	1.310	1.373	1.255	1.321	1.238	1.218	1.297	5.83
18)	T	2-Methyl-2-Pro...	3.793	3.652	3.760	3.684	4.282	3.893	4.118	3.454	2.541	3.686	13.45
19)	T	Methylene Chlo...			2.002	1.611	1.687	1.429	1.471	1.362	1.330	1.556	15.09
20)	T	3-Chloro-1-pro...	1.339	1.423	1.375	1.407	1.599	1.707	1.863	1.859	1.809	1.598	13.61
21)	T	Trichlorotrifl...	1.708	1.475	1.393	1.255	1.425	1.204	1.231	1.136	1.112	1.327	14.43
22)	T	Carbon Disulfide	4.911	4.668	4.408	4.548	5.193	4.826	5.033	4.641	4.491	4.747	5.53
23)	T	trans-1,2-Dich...	1.930	1.920	1.968	1.909	2.162	2.025	2.030	1.958	1.875	1.975	4.40
24)	T	1,1-Dichloroet...	2.643	2.908	2.648	2.632	2.788	2.491	2.424	2.363	2.274	2.575	7.94
25)	T	Methyl tert-Bu...	4.926	4.707	4.514	4.431	4.904	4.446	4.534	4.232	3.968	4.518	6.76
26)	T	Vinyl Acetate	0.217	0.210	0.267	0.326	0.362	0.356	0.359	0.360	0.359	0.313	20.46
27)	T	2-Butanone (MEK)			0.592	0.661	0.904	0.887	0.900	0.865	0.851	0.808	15.72
28)	T	cis-1,2-Dichlo...	2.059	1.943	1.998	1.939	2.073	1.941	2.009	1.873	1.792	1.959	4.54
29)	T	Diisopropyl Ether	1.270	1.171	1.118	1.221	1.264	1.111	1.131	1.105	1.102	1.166	5.90
30)	T	Ethyl Acetate			0.429	0.418	0.537	0.464	0.479	0.456	0.434	0.460	8.72
31)	T	n-Hexane				2.410	2.331	1.872	1.662	1.731	1.699	1.951	17.12

Method Path : J:\MS03\METHODS\
Method File : R3070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

32)	T	Chloroform	3.013	2.716	2.749	2.627	2.856	2.573	2.598	2.423	2.356	2.657	7.70
33)	S	1,2-Dichloroet...	1.566	1.620	1.679	1.753	1.774	1.805	1.730	1.634	1.591	1.684	5.09
34)	T	Tetrahydrofura...	0.795	0.953	0.825	0.750	1.002	0.912	0.919	0.893	0.878	0.881	8.97
35)	T	Ethyl tert-But...	1.935	1.834	1.752	1.856	1.904	1.793	1.875	1.787	1.750	1.832	3.60
36)	T	1,2-Dichloroet...	2.159	2.207	2.155	2.111	2.373	2.188	2.150	1.944	1.849	2.126	7.13
37)	IR	1,4-Difluorobenzen...	----------ISTD----------										
38)	T	1,1,1-Trichlor...	0.516	0.523	0.476	0.439	0.503	0.485	0.507	0.465	0.449	0.485	6.11
39)	T	Isopropyl Acetate	0.147	0.140	0.141	0.144	0.163	0.153	0.166	0.154	0.146	0.151	6.07
40)	T	1-Butanol				0.196	0.282	0.297	0.308	0.284	0.270	0.273	14.57
41)	T	Benzene	1.339	1.204	1.121	1.075	1.102	0.988	1.019	0.947	0.912	1.079	12.38
42)	T	Carbon Tetrach...	0.402	0.394	0.395	0.370	0.420	0.413	0.451	0.415	0.405	0.407	5.42
43)	T	Cyclohexane	0.522	0.477	0.446	0.441	0.464	0.430	0.451	0.420	0.403	0.450	7.73
44)	T	tert-Amyl Meth...	0.910	0.802	0.755	0.761	0.845	0.843	0.908	0.841	0.797	0.829	6.78
45)	T	1,2-Dichloropr...	0.309	0.306	0.273	0.262	0.280	0.266	0.283	0.260	0.250	0.276	7.34
46)	T	Bromodichlorom...	0.301	0.372	0.309	0.310	0.387	0.386	0.418	0.383	0.371	0.360	11.67
47)	T	Trichloroethene	0.361	0.362	0.325	0.323	0.334	0.311	0.328	0.314	0.315	0.330	5.74
48)	T	1,4-Dioxane	0.194	0.170	0.196	0.181	0.238	0.226	0.235	0.218	0.213	0.208	11.47
49)	T	2,2,4-Trimethy...	1.365	1.351	1.289	1.217	1.385	1.284	1.320	1.185	1.091	1.276	7.53
50)	T	Methyl Methacr...		0.073	0.085	0.087	0.115	0.115	0.129	0.122	0.122	0.106	19.77
51)	T	n-Heptane	0.322	0.301	0.276	0.276	0.300	0.273	0.279	0.264	0.258	0.283	7.20
52)	T	cis-1,3-Dichlo...	0.340	0.340	0.345	0.345	0.429	0.441	0.490	0.447	0.428	0.400	14.51
53)	T	4-Methyl-2-pen...			0.182	0.195	0.253	0.266	0.284	0.254	0.241	0.239	15.55
54)	T	trans-1,3-Dich...		0.250	0.268	0.281	0.397	0.427	0.475	0.431	0.413	0.368	23.70
55)	T	1,1,2-Trichlor...	0.267	0.282	0.249	0.261	0.291	0.274	0.294	0.269	0.262	0.272	5.42
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------										
57)	S	Toluene-d8 (SS2)	2.506	2.493	2.458	2.427	2.434	2.410	2.432	2.492	2.540	2.466	1.77
58)	T	Toluene	3.363	3.311	2.948	2.706	2.986	2.735	2.869	2.767	2.670	2.928	8.72
59)	T	2-Hexanone		0.824	0.943	1.038	1.492	1.492	1.532	1.445	1.361	1.266	22.46
60)	T	Dibromochlorom...	0.575	0.591	0.530	0.522	0.626	0.680	0.778	0.767	0.778	0.650	16.11
61)	T	1,2-Dibromoethane	0.645	0.627	0.596	0.571	0.688	0.674	0.730	0.703	0.703	0.660	8.12
62)	T	n-Butyl Acetate	0.919	1.065	1.066	1.158	1.524	1.585	1.709	1.603	1.499	1.348	21.71
63)	T	n-Octane	0.616	0.550	0.590	0.560	0.621	0.572	0.612	0.580	0.556	0.584	4.65
64)	T	Tetrachloroethene	1.076	1.003	0.964	0.859	0.924	0.845	0.907	0.895	0.931	0.934	7.75
65)	T	Chlorobenzene	2.396	2.100	1.883	1.809	1.986	1.807	1.886	1.821	1.794	1.942	10.17
66)	T	Ethylbenzene	3.447	3.372	3.121	2.936	3.533	3.319	3.485	3.276	3.092	3.287	6.11
67)	T	m- & p-Xylenes	2.683	2.666	2.506	2.415	2.863	2.664	2.799	2.630	2.469	2.633	5.62
68)	T	Bromoform				0.388	0.509	0.559	0.684	0.688	0.711	0.590	21.60
69)	T	Styrene	1.456	1.402	1.370	1.414	1.835	1.901	2.018	1.933	1.905	1.693	16.09
70)	T	o-Xylene	2.848	2.776	2.728	2.624	3.102	2.911	3.023	2.807	2.701	2.836	5.45

Method Path : J:\MS03\METHODS\
Method File : R3070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

71)	T	n-Nonane	1.477	1.310	1.310	1.349	1.626	1.500	1.540	1.382	1.268	1.418	8.66
72)	T	1,1,2,2-Tetrac...	1.187	1.063	1.072	1.097	1.295	1.263	1.317	1.232	1.197	1.191	8.02
73)	S	Bromofluoroben...	0.838	0.823	0.815	0.796	0.776	0.774	0.761	0.756	0.768	0.790	3.75
74)	T	Cumene	3.940	3.753	3.611	3.344	3.945	3.780	3.944	3.650	3.412	3.709	6.07
75)	T	alpha-Pinene	1.696	1.604	1.599	1.491	1.801	1.799	1.896	1.803	1.763	1.717	7.51
76)	T	n-Propylbenzene	4.188	3.920	3.991	3.857	4.668	4.505	4.611	4.183	3.812	4.193	7.87
77)	T	3-Ethyltoluene	3.247	3.393	2.980	2.986	3.695	3.708	3.765	3.475	3.295	3.394	8.74
78)	T	4-Ethyltoluene	3.635	3.159	3.183	3.163	3.828	3.557	3.716	3.447	3.224	3.435	7.61
79)	T	1,3,5-Trimethy...	3.023	2.837	2.726	2.688	3.266	3.096	3.159	2.950	2.811	2.951	6.79
80)	T	alpha-Methylst...	0.983	0.948	0.979	1.043	1.406	1.492	1.594	1.510	1.505	1.273	21.65
81)	T	2-Ethyltoluene	3.523	3.489	3.309	3.171	3.831	3.705	3.714	3.428	3.244	3.491	6.51
82)	T	1,2,4-Trimethy...	2.812	2.751	2.619	2.616	3.392	3.294	3.395	3.176	3.034	3.010	10.62
83)	T	n-Decane	1.617	1.439	1.490	1.466	1.826	1.766	1.701	1.547	1.420	1.586	9.42
84)	T	Benzyl Chloride				1.225	1.915	2.411	2.802	2.636	2.542	2.255	26.06
85)	T	1,3-Dichlorobe...	1.845	1.651	1.617	1.459	1.770	1.727	1.791	1.691	1.708	1.695	6.67
86)	T	1,4-Dichlorobe...	1.927	1.736	1.639	1.544	1.842	1.784	1.867	1.790	1.825	1.773	6.68
87)	T	sec-Butylbenzene	3.894	3.688	3.556	3.475	4.309	4.176	4.221	3.869	3.586	3.864	8.07
88)	T	4-Isopropyltol...	3.624	3.361	3.401	3.291	4.183	4.153	4.243	3.894	3.647	3.755	9.98
89)	T	1,2,3-Trimethy...	2.984	2.823	2.768	2.796	3.489	3.370	3.424	3.155	3.028	3.093	9.07
90)	T	1,2-Dichlorobe...	1.661	1.666	1.509	1.446	1.759	1.703	1.753	1.652	1.658	1.645	6.33
91)	T	d-Limonene	0.780	0.752	0.797	0.845	1.092	1.217	1.269	1.158	1.098	1.001	20.52
92)	T	1,2-Dibromo-3-...			0.363	0.375	0.514	0.594	0.663	0.637	0.650	0.542	23.65
93)	T	n-Undecane	1.112	1.056	1.128	1.239	1.791	1.823	1.822	1.621	1.489	1.453	22.32
94)	T	1,2,4-Trichlor...		0.829	0.922	0.964	1.345	1.445	1.514	1.477	1.534	1.254	23.65
95)	T	Naphthalene				2.193	4.119	4.847	4.619	4.317	3.934	4.005	23.65
96)	T	n-Dodecane				0.719	1.583	1.802	1.705	1.515	1.352	1.446	26.86
97)	T	Hexachlorobuta...	0.972	0.755	0.812	0.762	0.911	0.908	0.926	0.893	0.932	0.875	8.94
98)	T	Cyclohexanone	0.844	0.801	0.771	0.718	0.942	0.960	1.027	0.967	0.927	0.884	11.80
99)	T	tert-Butylbenzene	3.083	2.954	2.779	2.655	3.226	3.127	3.257	3.059	2.958	3.011	6.57
100)	T	n-Butylbenzene	2.295	2.191	2.366	2.418	3.247	3.244	3.225	2.917	2.699	2.734	15.96

(#) = Out of Range

Evaluate Continuing Calibration Report

Data Path : I:\MS03\DATA\2013_07\11\
Data File : 07111302.D
Acq On : 11 Jul 2013 10:18
Operator : SC
Sample : 25ng TO-15 CCV STD
Misc : S25-0619302/S25-07021304 (7/31)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 11 10:54:12 2013
Quant Method : J:\MS03\METHODS\R3070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 10:36:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	146	-0.01
2	T	Propene	1.537	1.116	27.4	111	0.00
3	T	Dichlorodifluoromethane (CF	3.553	2.667	24.9	113	0.00
4	T	Chloromethane	2.238	1.723	23.0	111	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.757	1.429	18.7	121	-0.01
6	T	Vinyl Chloride	2.043	1.710	16.3	115	0.00
7	T	1,3-Butadiene	1.396	1.250	10.5	115	-0.01
8	T	Bromomethane	1.522	1.093	28.2	121	-0.01
9	T	Chloroethane	1.067	0.929	12.9	119	-0.01
10	T	Ethanol	1.024	0.790	22.9	117	-0.08
11	T	Acetonitrile	2.647	2.159	18.4	119	-0.05
12	T	Acrolein	0.763	0.713	6.6	121	-0.02
13	T	Acetone	1.001	0.814	18.7	121	-0.04
14	T	Trichlorofluoromethane	3.023	2.328	23.0	124	-0.01
15	T	2-Propanol (Isopropanol)	3.558	3.186	10.5	119	-0.06
16	T	Acrylonitrile	1.486	1.501	-1.0	122	-0.03
17	T	1,1-Dichloroethene	1.297	1.150	11.3	127	-0.01
18	T	2-Methyl-2-Propanol (tert-B	3.686	3.327	9.7	118	-0.05
19	T	Methylene Chloride	1.556	1.260	19.0	125	-0.02
20	T	3-Chloro-1-propene (Allyl C	1.598	1.594	0.3	125	-0.01
21	T	Trichlorotrifluoroethane	1.327	1.086	18.2	129	0.00
22	T	Carbon Disulfide	4.747	4.242	10.6	123	0.00
23	T	trans-1,2-Dichloroethene	1.975	1.722	12.8	124	0.00
24	T	1,1-Dichloroethane	2.575	2.083	19.1	125	-0.01
25	T	Methyl tert-Butyl Ether	4.518	3.911	13.4	126	-0.01
26	T	Vinyl Acetate	0.313	0.316	-1.0	128	-0.03
27	T	2-Butanone (MEK)	0.808	0.766	5.2	124	-0.02
28	T	cis-1,2-Dichloroethene	1.959	1.657	15.4	120	-0.01
29	T	Diisopropyl Ether	1.166	1.009	13.5	130	-0.01
30	T	Ethyl Acetate	0.460	0.404	12.2	123	-0.02
31	T	n-Hexane	1.951	1.486	23.8	130	0.00
32	T	Chloroform	2.657	2.181	17.9	122	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.684	1.526	9.4	129	-0.01
34	T	Tetrahydrofuran (THF)	0.881	0.807	8.4	128	-0.01
35	T	Ethyl tert-Butyl Ether	1.832	1.629	11.1	127	-0.01
36	T	1,2-Dichloroethane	2.126	1.694	20.3	115	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	145	0.00
38	T	1,1,1-Trichloroethane	0.485	0.429	11.5	123	-0.01

Evaluate Continuing Calibration Report

Data Path : I:\MS03\DATA\2013_07\11\
Data File : 07111302.D
Acq On : 11 Jul 2013 10:18
Operator : SC
Sample : 25ng TO-15 CCV STD
Misc : S25-0619302/S25-07021304 (7/31)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 11 10:54:12 2013
Quant Method : J:\MS03\METHODS\R3070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 10:36:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
39	T	Isopropyl Acetate	0.151	0.140	7.3	123	-0.02
40	T	1-Butanol	0.273	0.255	6.6	120	-0.04
41	T	Benzene	1.079	0.874	19.0	125	-0.01
42	T	Carbon Tetrachloride	0.407	0.378	7.1	122	0.00
43	T	Cyclohexane	0.450	0.393	12.7	127	-0.01
44	T	tert-Amyl Methyl Ether	0.829	0.767	7.5	123	-0.01
45	T	1,2-Dichloropropane	0.276	0.234	15.2	120	-0.01
46	T	Bromodichloromethane	0.360	0.344	4.4	119	0.00
47	T	Trichloroethene	0.330	0.291	11.8	129	-0.01
48	T	1,4-Dioxane	0.208	0.201	3.4	125	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.276	1.099	13.9	121	0.00
50	T	Methyl Methacrylate	0.106	0.113	-6.6	128	-0.02
51	T	n-Heptane	0.283	0.237	16.3	124	-0.01
52	T	cis-1,3-Dichloropropene	0.400	0.404	-1.0	120	0.00
53	T	4-Methyl-2-pentanone	0.239	0.230	3.8	118	-0.02
54	T	trans-1,3-Dichloropropene	0.368	0.388	-5.4	119	0.00
55	T	1,1,2-Trichloroethane	0.272	0.250	8.1	124	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	137	0.00
57	S	Toluene-d8 (SS2)	2.466	2.524	-2.4	142	-0.01
58	T	Toluene	2.928	2.574	12.1	123	0.00
59	T	2-Hexanone	1.266	1.282	-1.3	114	-0.01
60	T	Dibromochloromethane	0.650	0.700	-7.7	123	0.00
61	T	1,2-Dibromoethane	0.660	0.651	1.4	122	0.00
62	T	n-Butyl Acetate	1.348	1.432	-6.2	115	-0.01
63	T	n-Octane	0.584	0.526	9.9	117	-0.01
64	T	Tetrachloroethene	0.934	0.846	9.4	127	0.00
65	T	Chlorobenzene	1.942	1.717	11.6	124	0.00
66	T	Ethylbenzene	3.287	3.063	6.8	120	-0.01
67	T	m- & p-Xylenes	2.633	2.435	7.5	119	-0.01
68	T	Bromoform	0.590	0.626	-6.1	125	0.00
69	T	Styrene	1.693	1.787	-5.6	121	0.00
70	T	o-Xylene	2.836	2.604	8.2	118	0.00
71	T	n-Nonane	1.418	1.257	11.4	112	0.00
72	T	1,1,2,2-Tetrachloroethane	1.191	1.132	5.0	117	0.00
73	S	Bromofluorobenzene (SS3)	0.790	0.811	-2.7	146	0.00
74	T	Cumene	3.709	3.425	7.7	119	0.00
75	T	alpha-Pinene	1.717	1.645	4.2	119	0.00
76	T	n-Propylbenzene	4.193	3.937	6.1	117	0.00

Evaluate Continuing Calibration Report

Data Path : I:\MS03\DATA\2013_07\11\
Data File : 07111302.D
Acq On : 11 Jul 2013 10:18
Operator : SC
Sample : 25ng TO-15 CCV STD
Misc : S25-0619302/S25-07021304 (7/31)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 11 10:54:12 2013
Quant Method : J:\MS03\METHODS\R3070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 10:36:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
77	T	3-Ethyltoluene	3.394	3.361	1.0	122	0.00
78	T	4-Ethyltoluene	3.435	3.118	9.2	115	0.00
79	T	1,3,5-Trimethylbenzene	2.951	2.757	6.6	119	0.00
80	T	alpha-Methylstyrene	1.273	1.377	-8.2	118	-0.01
81	T	2-Ethyltoluene	3.491	3.218	7.8	118	0.00
82	T	1,2,4-Trimethylbenzene	3.010	2.891	4.0	116	-0.01
83	T	n-Decane	1.586	1.414	10.8	114	-0.01
84	T	Benzyl Chloride	2.255	2.359	-4.6	115	-0.01
85	T	1,3-Dichlorobenzene	1.695	1.572	7.3	120	-0.01
86	T	1,4-Dichlorobenzene	1.773	1.633	7.9	120	-0.01
87	T	sec-Butylbenzene	3.864	3.619	6.3	117	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.755	3.643	3.0	117	-0.01
89	T	1,2,3-Trimethylbenzene	3.093	2.906	6.0	116	-0.01
90	T	1,2-Dichlorobenzene	1.645	1.538	6.5	120	-0.01
91	T	d-Limonene	1.001	1.042	-4.1	112	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.542	0.582	-7.4	120	0.00
93	T	n-Undecane	1.453	1.475	-1.5	111	0.00
94	T	1,2,4-Trichlorobenzene	1.254	1.319	-5.2	119	0.00
95	T	Naphthalene	4.005	3.967	0.9	117	0.00
96	T	n-Dodecane	1.446	1.386	4.1	111	0.00
97	T	Hexachlorobutadiene	0.875	0.816	6.7	120	0.00
98	T	Cyclohexanone	0.884	0.862	2.5	115	-0.01
99	T	tert-Butylbenzene	3.011	2.792	7.3	117	-0.01
100	T	n-Butylbenzene	2.734	2.698	1.3	114	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

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LABORATORY REPORT

July 16, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on June 29, 2013. For your reference, these analyses have been assigned our service request number P1302819.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 12:27 pm, Jul 16, 2013

Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon #2-3620

Service Request No: P1302819

CASE NARRATIVE

The samples were received intact under chain of custody on June 29, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-12-3
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA015272012-2
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon #2-3620
Service Request: P1302819

Date Received: 6/29/2013
Time Received: 08:45

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
6-27 BLK	P1302819-001	Air	6/27/2013	13:30	1SC00582	-0.83	5.24	X	
2-3620-004 (250g)	P1302819-002	Air	6/27/2013	13:30	1SS00026	0.28	5.40	X	
6-28 BLK	P1302819-003	Air	6/28/2013	13:30					X
2-3620-004	P1302819-004	Air	6/28/2013	13:15					X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No: P1302519

Company Name & Address (Reporting Information): CH2m Hill, 1717 Arch Street; Suite 4400, Philadelphia, PA 19103

Project Name: Pfizer Tier IV

Project Number: Recon # 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information

Phone: 215 640 9105 Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2m.com

Sampler (Print & Sign): Glenn R. Knierien

ALS Contact:

Analysis Method: TO-15 | Analyze Surrogates Compds

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Analyze Surrogates Compds	Comments e.g. Actual Preservative or specific instructions
6-27 BLK	1-0468	6-27	13:30	ISC00582	OA00587	-27	-0	1l	b	-	24-hr Started 6-27-13
2-3620-004/250	2-0466	6-27	13:30	ISS00026	OA01172	-29	-0	1l	b	-	24-hr
-	-	-	-	-	-	-	-	-	-	-	-
6-28 BLK	3	6-28	1315-30	-	-	-	-	1l	-	b	15 min Tedlar
2-3620-004	4	6-28	1300-15	-	-	-	-	1l	-	b	15 min Tedlar

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____ Tier III (Results + QC & Calibration Summaries) _____

Tier II (Results + QC Summaries _____ Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No

Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Glenn R. Knierien	6-28	1600	FedEx 8022 2388 1691	6-28	1600
Fuller				6/28/13	0845

Cooler / Blank Temperature _____ °C

5 of 34

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1302819

Project: Pfizer Tier IV / Recon #2-3620

Sample(s) received on: 6/29/13 Date opened: 6/29/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1302819-001.01	1.0 L Source Can					
P1302819-002.01	1.0 L Silonite Can					
P1302819-003.01	1 L Zefon Bag					
P1302819-004.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **6-28 BLK**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302819
ALS Sample ID: P1302819-003

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 6/28/13
Time Collected: 13:30
Date Received: 6/29/13
Date Analyzed: 6/29/13
Time Analyzed: 09:55
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**64**	12	**26**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**200**	13	**79**	5.0	
75-15-0	Carbon Disulfide	**3,900**	7.8	**1,300**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**65**	16	**21**	5.0	
110-02-1	Thiophene	**510**	17	**150**	5.0	
513-44-0	Isobutyl Mercaptan	**91**	18	**25**	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**15**	9.6	**3.8**	2.5	
616-44-4	3-Methylthiophene	**93**	20	**23**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**31**	23	**6.7**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-004**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302819
ALS Sample ID: P1302819-004

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 6/28/13
Time Collected: 13:15
Date Received: 6/29/13
Date Analyzed: 6/29/13
Time Analyzed: 09:34
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**190**	12	**75**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**580**	13	**230**	5.0	
75-15-0	Carbon Disulfide	**11,000**	7.8	**3,700**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**160**	16	**52**	5.0	
110-02-1	Thiophene	**1,500**	17	**440**	5.0	
513-44-0	Isobutyl Mercaptan	**260**	18	**69**	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**50**	9.6	**13**	2.5	
616-44-4	3-Methylthiophene	**320**	20	**79**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	**180**	23	**38**	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302819
ALS Sample ID: P130629-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 6/29/13
Time Analyzed: 07:23
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130629-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 6/29/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**2,040**	**100**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**2,040**	**101**	63-138	
74-93-1	Methyl Mercaptan	1,890	**2,120**	**112**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **6-27 BLK** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302819-001

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00090 Liter(s)
Test Notes:
Container ID: 1SC00582

Initial Pressure (psig): -0.83 Final Pressure (psig): 5.24

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	800	ND	470	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	800	ND	160	
74-87-3	Chloromethane	ND	800	ND	390	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	800	ND	110	
75-01-4	Vinyl Chloride	ND	800	ND	310	
106-99-0	1,3-Butadiene	ND	800	ND	360	
74-83-9	Bromomethane	ND	800	ND	210	
75-00-3	Chloroethane	ND	800	ND	300	
64-17-5	Ethanol	ND	8,000	ND	4,200	
75-05-8	Acetonitrile	ND	800	ND	480	
107-02-8	Acrolein	ND	3,200	ND	1,400	
67-64-1	Acetone	ND	8,000	ND	3,400	
75-69-4	Trichlorofluoromethane	ND	800	ND	140	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	8,000	ND	3,300	
107-13-1	Acrylonitrile	ND	800	ND	370	
75-35-4	1,1-Dichloroethene	ND	800	ND	200	
75-09-2	Methylene Chloride	ND	800	ND	230	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	800	ND	260	
76-13-1	Trichlorotrifluoroethane	ND	800	ND	100	
75-15-0	Carbon Disulfide	ND	8,000	ND	2,600	
156-60-5	trans-1,2-Dichloroethene	ND	800	ND	200	
75-34-3	1,1-Dichloroethane	ND	800	ND	200	
1634-04-4	Methyl tert-Butyl Ether	ND	800	ND	220	
108-05-4	Vinyl Acetate	ND	8,000	ND	2,300	
78-93-3	2-Butanone (MEK)	ND	8,000	ND	2,700	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **6-27 BLK** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302819-001

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00090 Liter(s)
Test Notes:
Container ID: 1SC00582

Initial Pressure (psig): -0.83 Final Pressure (psig): 5.24

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	800	ND	200	
141-78-6	Ethyl Acetate	ND	1,600	ND	440	
110-54-3	n-Hexane	ND	800	ND	230	
67-66-3	Chloroform	ND	800	ND	160	
109-99-9	Tetrahydrofuran (THF)	ND	800	ND	270	
107-06-2	1,2-Dichloroethane	ND	800	ND	200	
71-55-6	1,1,1-Trichloroethane	ND	800	ND	150	
71-43-2	Benzene	**130,000**	800	**41,000**	250	
56-23-5	Carbon Tetrachloride	ND	800	ND	130	
110-82-7	Cyclohexane	ND	1,600	ND	470	
78-87-5	1,2-Dichloropropane	ND	800	ND	170	
75-27-4	Bromodichloromethane	ND	800	ND	120	
79-01-6	Trichloroethene	ND	800	ND	150	
123-91-1	1,4-Dioxane	ND	800	ND	220	
80-62-6	Methyl Methacrylate	ND	1,600	ND	390	
142-82-5	n-Heptane	ND	800	ND	200	
10061-01-5	cis-1,3-Dichloropropene	ND	800	ND	180	
108-10-1	4-Methyl-2-pentanone	ND	800	ND	200	
10061-02-6	trans-1,3-Dichloropropene	ND	800	ND	180	
79-00-5	1,1,2-Trichloroethane	ND	800	ND	150	
108-88-3	Toluene	**24,000**	800	**6,400**	210	
591-78-6	2-Hexanone	ND	800	ND	200	
124-48-1	Dibromochloromethane	ND	800	ND	94	
106-93-4	1,2-Dibromoethane	ND	800	ND	100	
123-86-4	n-Butyl Acetate	ND	800	ND	170	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill** ALS Project ID: P1302819
Client Sample ID: **6-27 BLK** ALS Sample ID: P1302819-001
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00090 Liter(s)
Test Notes:
Container ID: 1SC00582

Initial Pressure (psig): -0.83 Final Pressure (psig): 5.24

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	800	ND	170	
127-18-4	Tetrachloroethene	ND	800	ND	120	
108-90-7	Chlorobenzene	ND	800	ND	170	
100-41-4	Ethylbenzene	ND	800	ND	180	
179601-23-1	m,p-Xylenes	ND	1,600	ND	370	
75-25-2	Bromoform	ND	800	ND	77	
100-42-5	Styrene	ND	800	ND	190	
95-47-6	o-Xylene	ND	800	ND	180	
111-84-2	n-Nonane	ND	800	ND	150	
79-34-5	1,1,2,2-Tetrachloroethane	ND	800	ND	120	
98-82-8	Cumene	ND	800	ND	160	
80-56-8	alpha-Pinene	ND	800	ND	140	
103-65-1	n-Propylbenzene	ND	800	ND	160	
622-96-8	4-Ethyltoluene	ND	800	ND	160	
108-67-8	1,3,5-Trimethylbenzene	ND	800	ND	160	
95-63-6	1,2,4-Trimethylbenzene	ND	800	ND	160	
100-44-7	Benzyl Chloride	ND	800	ND	150	
541-73-1	1,3-Dichlorobenzene	ND	800	ND	130	
106-46-7	1,4-Dichlorobenzene	ND	800	ND	130	
95-50-1	1,2-Dichlorobenzene	ND	800	ND	130	
5989-27-5	d-Limonene	ND	800	ND	140	
96-12-8	1,2-Dibromo-3-chloropropane	ND	800	ND	83	
120-82-1	1,2,4-Trichlorobenzene	ND	800	ND	110	
91-20-3	Naphthalene	ND	800	ND	150	
87-68-3	Hexachlorobutadiene	ND	800	ND	75	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-004 (250g)** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302819-002

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000025 Liter(s)
Test Notes:
Container ID: 1SS00026

Initial Pressure (psig): 0.28 Final Pressure (psig): 5.40

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	27,000	ND	16,000	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	27,000	ND	5,400	
74-87-3	Chloromethane	ND	27,000	ND	13,000	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	27,000	ND	3,800	
75-01-4	Vinyl Chloride	ND	27,000	ND	10,000	
106-99-0	1,3-Butadiene	ND	27,000	ND	12,000	
74-83-9	Bromomethane	ND	27,000	ND	6,900	
75-00-3	Chloroethane	ND	27,000	ND	10,000	
64-17-5	Ethanol	ND	270,000	ND	140,000	
75-05-8	Acetonitrile	ND	27,000	ND	16,000	
107-02-8	Acrolein	ND	110,000	ND	47,000	
67-64-1	Acetone	ND	270,000	ND	110,000	
75-69-4	Trichlorofluoromethane	ND	27,000	ND	4,800	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	270,000	ND	110,000	
107-13-1	Acrylonitrile	ND	27,000	ND	12,000	
75-35-4	1,1-Dichloroethene	ND	27,000	ND	6,800	
75-09-2	Methylene Chloride	ND	27,000	ND	7,700	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	27,000	ND	8,600	
76-13-1	Trichlorotrifluoroethane	ND	27,000	ND	3,500	
75-15-0	Carbon Disulfide	ND	270,000	ND	86,000	
156-60-5	trans-1,2-Dichloroethene	ND	27,000	ND	6,800	
75-34-3	1,1-Dichloroethane	ND	27,000	ND	6,600	
1634-04-4	Methyl tert-Butyl Ether	ND	27,000	ND	7,400	
108-05-4	Vinyl Acetate	ND	270,000	ND	76,000	
78-93-3	2-Butanone (MEK)	ND	270,000	ND	91,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-004 (250g)** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302819-002

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000025 Liter(s)
Test Notes:
Container ID: 1SS00026

Initial Pressure (psig): 0.28 Final Pressure (psig): 5.40

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	27,000	ND	6,800	
141-78-6	Ethyl Acetate	ND	54,000	ND	15,000	
110-54-3	n-Hexane	ND	27,000	ND	7,600	
67-66-3	Chloroform	ND	27,000	ND	5,500	
109-99-9	Tetrahydrofuran (THF)	ND	27,000	ND	9,100	
107-06-2	1,2-Dichloroethane	ND	27,000	ND	6,600	
71-55-6	1,1,1-Trichloroethane	ND	27,000	ND	4,900	
71-43-2	Benzene	**4,900,000**	27,000	**1,500,000**	8,400	
56-23-5	Carbon Tetrachloride	ND	27,000	ND	4,300	
110-82-7	Cyclohexane	ND	54,000	ND	16,000	
78-87-5	1,2-Dichloropropane	ND	27,000	ND	5,800	
75-27-4	Bromodichloromethane	ND	27,000	ND	4,000	
79-01-6	Trichloroethene	ND	27,000	ND	5,000	
123-91-1	1,4-Dioxane	ND	27,000	ND	7,400	
80-62-6	Methyl Methacrylate	ND	54,000	ND	13,000	
142-82-5	n-Heptane	ND	27,000	ND	6,500	
10061-01-5	cis-1,3-Dichloropropene	ND	27,000	ND	5,900	
108-10-1	4-Methyl-2-pentanone	ND	27,000	ND	6,500	
10061-02-6	trans-1,3-Dichloropropene	ND	27,000	ND	5,900	
79-00-5	1,1,2-Trichloroethane	ND	27,000	ND	4,900	
108-88-3	Toluene	**710,000**	27,000	**190,000**	7,100	
591-78-6	2-Hexanone	ND	27,000	ND	6,500	
124-48-1	Dibromochloromethane	ND	27,000	ND	3,100	
106-93-4	1,2-Dibromoethane	ND	27,000	ND	3,500	
123-86-4	n-Butyl Acetate	ND	27,000	ND	5,600	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302819
Client Sample ID: **2-3620-004 (250g)** ALS Sample ID: P1302819-002
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.000025 Liter(s)
Test Notes:
Container ID: 1SS00026

Initial Pressure (psig): 0.28 Final Pressure (psig): 5.40

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	27,000	ND	5,700	
127-18-4	Tetrachloroethene	ND	27,000	ND	4,000	
108-90-7	Chlorobenzene	ND	27,000	ND	5,800	
100-41-4	Ethylbenzene	ND	27,000	ND	6,200	
179601-23-1	m,p-Xylenes	ND	54,000	ND	12,000	
75-25-2	Bromoform	ND	27,000	ND	2,600	
100-42-5	Styrene	ND	27,000	ND	6,300	
95-47-6	o-Xylene	ND	27,000	ND	6,200	
111-84-2	n-Nonane	ND	27,000	ND	5,100	
79-34-5	1,1,2,2-Tetrachloroethane	ND	27,000	ND	3,900	
98-82-8	Cumene	ND	27,000	ND	5,500	
80-56-8	alpha-Pinene	ND	27,000	ND	4,800	
103-65-1	n-Propylbenzene	ND	27,000	ND	5,500	
622-96-8	4-Ethyltoluene	ND	27,000	ND	5,500	
108-67-8	1,3,5-Trimethylbenzene	ND	27,000	ND	5,500	
95-63-6	1,2,4-Trimethylbenzene	ND	27,000	ND	5,500	
100-44-7	Benzyl Chloride	ND	27,000	ND	5,200	
541-73-1	1,3-Dichlorobenzene	ND	27,000	ND	4,500	
106-46-7	1,4-Dichlorobenzene	ND	27,000	ND	4,500	
95-50-1	1,2-Dichlorobenzene	ND	27,000	ND	4,500	
5989-27-5	d-Limonene	ND	27,000	ND	4,800	
96-12-8	1,2-Dibromo-3-chloropropane	ND	27,000	ND	2,800	
120-82-1	1,2,4-Trichlorobenzene	ND	27,000	ND	3,600	
91-20-3	Naphthalene	ND	27,000	ND	5,100	
87-68-3	Hexachlorobutadiene	ND	27,000	ND	2,500	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130703-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1302819

Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130703-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA

Analyst: John Rice Date Analyzed: 7/3/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302819
Client Sample ID: **Method Blank** ALS Sample ID: P130703-MB
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Project ID: P1302819

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date(s) Collected: 6/27/13
Analyst: John Rice Date(s) Received: 6/29/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 7/3/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130703-MB	**96**	**101**	**95**	70-130	
Lab Control Sample	P130703-LCS	**95**	**100**	**95**	70-130	
6-27 BLK	P1302819-001	**93**	**101**	**92**	70-130	
2-3620-004 (250g)	P1302819-002	**95**	**102**	**93**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130703-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	204	**173**	**85**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	202	**162**	**80**	63-115	
74-87-3	Chloromethane	196	**152**	**78**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	206	**186**	**90**	65-115	
75-01-4	Vinyl Chloride	200	**179**	**90**	64-122	
106-99-0	1,3-Butadiene	210	**204**	**97**	57-141	
74-83-9	Bromomethane	200	**154**	**77**	68-122	
75-00-3	Chloroethane	202	**190**	**94**	66-120	
64-17-5	Ethanol	958	**820**	**86**	58-126	
75-05-8	Acetonitrile	202	**200**	**99**	64-136	
107-02-8	Acrolein	204	**176**	**86**	58-129	
67-64-1	Acetone	1,040	**860**	**83**	60-114	
75-69-4	Trichlorofluoromethane	210	**157**	**75**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	396	**286**	**72**	54-118	
107-13-1	Acrylonitrile	206	**214**	**104**	72-143	
75-35-4	1,1-Dichloroethene	218	**195**	**89**	69-119	
75-09-2	Methylene Chloride	212	**171**	**81**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	214	**157**	**73**	59-131	
76-13-1	Trichlorotrifluoroethane	212	**183**	**86**	69-117	
75-15-0	Carbon Disulfide	208	**170**	**82**	65-115	
156-60-5	trans-1,2-Dichloroethene	202	**188**	**93**	70-126	
75-34-3	1,1-Dichloroethane	206	**175**	**85**	68-116	
1634-04-4	Methyl tert-Butyl Ether	204	**147**	**72**	69-120	
108-05-4	Vinyl Acetate	988	**879**	**89**	58-160	
78-93-3	2-Butanone (MEK)	212	**195**	**92**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130703-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**185**	**86**	70-119	
141-78-6	Ethyl Acetate	412	**379**	**92**	72-129	
110-54-3	n-Hexane	206	**175**	**85**	63-115	
67-66-3	Chloroform	222	**178**	**80**	68-110	
109-99-9	Tetrahydrofuran (THF)	208	**197**	**95**	60-126	
107-06-2	1,2-Dichloroethane	208	**173**	**83**	69-118	
71-55-6	1,1,1-Trichloroethane	204	**166**	**81**	68-120	
71-43-2	Benzene	208	**178**	**86**	69-117	
56-23-5	Carbon Tetrachloride	212	**177**	**83**	65-134	
110-82-7	Cyclohexane	402	**347**	**86**	69-114	
78-87-5	1,2-Dichloropropane	204	**175**	**86**	70-116	
75-27-4	Bromodichloromethane	204	**178**	**87**	71-126	
79-01-6	Trichloroethene	198	**174**	**88**	71-119	
123-91-1	1,4-Dioxane	206	**196**	**95**	72-126	
80-62-6	Methyl Methacrylate	414	**394**	**95**	75-136	
142-82-5	n-Heptane	202	**179**	**89**	70-117	
10061-01-5	cis-1,3-Dichloropropene	196	**181**	**92**	75-132	
108-10-1	4-Methyl-2-pentanone	210	**179**	**85**	70-133	
10061-02-6	trans-1,3-Dichloropropene	218	**207**	**95**	78-136	
79-00-5	1,1,2-Trichloroethane	202	**180**	**89**	72-119	
108-88-3	Toluene	208	**177**	**85**	65-116	
591-78-6	2-Hexanone	228	**174**	**76**	62-132	
124-48-1	Dibromochloromethane	216	**190**	**88**	66-140	
106-93-4	1,2-Dibromoethane	208	**182**	**88**	69-130	
123-86-4	n-Butyl Acetate	228	**163**	**71**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130703-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	206	**175**	**85**	66-118	
127-18-4	Tetrachloroethene	190	**161**	**85**	63-123	
108-90-7	Chlorobenzene	208	**175**	**84**	66-118	
100-41-4	Ethylbenzene	206	**178**	**86**	66-119	
179601-23-1	m,p-Xylenes	412	**349**	**85**	64-118	
75-25-2	Bromoform	216	**180**	**83**	64-140	
100-42-5	Styrene	208	**176**	**85**	68-132	
95-47-6	o-Xylene	200	**171**	**86**	65-120	
111-84-2	n-Nonane	202	**164**	**81**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	198	**168**	**85**	63-128	
98-82-8	Cumene	196	**168**	**86**	65-121	
80-56-8	alpha-Pinene	192	**157**	**82**	66-123	
103-65-1	n-Propylbenzene	198	**157**	**79**	65-121	
622-96-8	4-Ethyltoluene	204	**169**	**83**	64-122	
108-67-8	1,3,5-Trimethylbenzene	208	**178**	**86**	64-125	
95-63-6	1,2,4-Trimethylbenzene	200	**177**	**89**	64-131	
100-44-7	Benzyl Chloride	206	**156**	**76**	67-146	
541-73-1	1,3-Dichlorobenzene	206	**178**	**86**	64-130	
106-46-7	1,4-Dichlorobenzene	212	**178**	**84**	61-124	
95-50-1	1,2-Dichlorobenzene	204	**172**	**84**	63-126	
5989-27-5	d-Limonene	206	**156**	**76**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	202	**176**	**87**	62-155	
120-82-1	1,2,4-Trichlorobenzene	200	**168**	**84**	59-146	
91-20-3	Naphthalene	178	**147**	**83**	56-143	
87-68-3	Hexachlorobutadiene	208	**152**	**73**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **6-27 BLK** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302819-001DUP

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00090 Liter(s)
Test Notes:
Container ID: 1SC00582

Initial Pressure (psig): -0.83 Final Pressure (psig): 5.24

Canister Dilution Factor: 1.44

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
Propene	ND	ND	ND	ND	-	-	25	
Dichlorodifluoromethane (CFC 12)	ND	ND	ND	ND	-	-	25	
Chloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	ND	ND	ND	-	-	25	
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Butadiene	ND	ND	ND	ND	-	-	25	
Bromomethane	ND	ND	ND	ND	-	-	25	
Chloroethane	ND	ND	ND	ND	-	-	25	
Ethanol	ND	ND	ND	ND	-	-	25	
Acetonitrile	ND	ND	ND	ND	-	-	25	
Acrolein	ND	ND	ND	ND	-	-	25	
Acetone	ND	ND	ND	ND	-	-	25	
Trichlorofluoromethane	ND	ND	ND	ND	-	-	25	
2-Propanol (Isopropyl Alcohol)	ND	ND	ND	ND	-	-	25	
Acrylonitrile	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
3-Chloro-1-propene (Allyl Chloride)	ND	ND	ND	ND	-	-	25	
Trichlorotrifluoroethane	ND	ND	ND	ND	-	-	25	
Carbon Disulfide	ND	ND	ND	ND	-	-	25	
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
Methyl tert-Butyl Ether	ND	ND	ND	ND	-	-	25	
Vinyl Acetate	ND	ND	ND	ND	-	-	25	
2-Butanone (MEK)	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **6-27 BLK** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302819-001DUP

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00090 Liter(s)
Test Notes:
Container ID: 1SC00582

Initial Pressure (psig): -0.83 Final Pressure (psig): 5.24

Canister Dilution Factor: 1.44

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
cis-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
Ethyl Acetate	ND	ND	ND	ND	-	-	25	
n-Hexane	ND	ND	ND	ND	-	-	25	
Chloroform	ND	ND	ND	ND	-	-	25	
Tetrahydrofuran (THF)	ND	ND	ND	ND	-	-	25	
1,2-Dichloroethane	ND	ND	ND	ND	-	-	25	
1,1,1-Trichloroethane	ND	ND	ND	ND	-	-	25	
Benzene	131,000	40,900	134,000	41,900	132500	**2**	25	
Carbon Tetrachloride	ND	ND	ND	ND	-	-	25	
Cyclohexane	ND	ND	ND	ND	-	-	25	
1,2-Dichloropropane	ND	ND	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	ND	ND	-	-	25	
Trichloroethene	ND	ND	ND	ND	-	-	25	
1,4-Dioxane	ND	ND	ND	ND	-	-	25	
Methyl Methacrylate	ND	ND	ND	ND	-	-	25	
n-Heptane	ND	ND	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
4-Methyl-2-pentanone	ND	ND	ND	ND	-	-	25	
trans-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	24,000	6,380	24,800	6,590	24400	**3**	25	
2-Hexanone	ND	ND	ND	ND	-	-	25	
Dibromochloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dibromoethane	ND	ND	ND	ND	-	-	25	
n-Butyl Acetate	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **6-27 BLK** ALS Project ID: P1302819
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302819-001DUP

Test Code: EPA TO-15 Date Collected: 6/27/13
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 6/29/13
Analyst: John Rice Date Analyzed: 7/3/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.00090 Liter(s)
Test Notes:
Container ID: 1SC00582

Initial Pressure (psig): -0.83 Final Pressure (psig): 5.24

Canister Dilution Factor: 1.44

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
n-Octane	ND	ND	ND	ND	-	-	25	
Tetrachloroethene	ND	ND	ND	ND	-	-	25	
Chlorobenzene	ND	ND	ND	ND	-	-	25	
Ethylbenzene	ND	ND	ND	ND	-	-	25	
m,p-Xylenes	ND	ND	ND	ND	-	-	25	
Bromoform	ND	ND	ND	ND	-	-	25	
Styrene	ND	ND	ND	ND	-	-	25	
o-Xylene	ND	ND	ND	ND	-	-	25	
n-Nonane	ND	ND	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	-	-	25	
Cumene	ND	ND	ND	ND	-	-	25	
alpha-Pinene	ND	ND	ND	ND	-	-	25	
n-Propylbenzene	ND	ND	ND	ND	-	-	25	
4-Ethyltoluene	ND	ND	ND	ND	-	-	25	
1,3,5-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
1,2,4-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
Benzyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,4-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,2-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
d-Limonene	ND	ND	ND	ND	-	-	25	
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	-	-	25	
1,2,4-Trichlorobenzene	ND	ND	ND	ND	-	-	25	
Naphthalene	ND	ND	ND	ND	-	-	25	
Hexachlorobutadiene	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

Response Factor Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

COLUMBIA ANALYTICAL INC.

REPORT SUMMARY

Method : 20 Sulfurs
Client & Job# : CH2M Hill / P1302819
Analyst : MC

Printed : 07/01/13
Instrument : GC#13, SCD#13
Date Acquired : 06/29/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-05291304		lcs 2000ppb s27-05241304	% R	mb 1ml	2819-003 1ml	2819-004 1ml						std 2000ppb s27-05291304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0	1.0						0.200	
Dilution:			1				1	1.0	1.0						1	
Pi:			1.0				1.00	1.00	1.00						1.00	
Pf:			1.0				1.00	1.00	1.00						1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00	1.00						1.00	
Hydrogen_Sulfide	1.7	5.0	8626.20	13.4%	2035.4	99.5%	ND	ND	**ND**						**10786.60**	8.3%
Carbonyl_Sulfide	5.0	5.0	8864.80	12.7%	2035.8	100.9%	ND	**26.00**	75.41						**10922.90**	7.5%
Methyl_Mercaptan	2.2	5.0	8859.70	12.4%	2115.7	112.1%	ND	**ND**	**ND**						**10784.75**	6.7%
Ethyl_Mercaptan	2.2	5.0					ND	**ND**	ND						**ND**	
Dimethyl_Sulfide	2.2	5.0				Spike	ND	**79.41**	**227.64**						**ND**	
Carbon_Disulfide	2.5	2.5				Amount	ND	**1267.69**	3668.23						**ND**	
2-Propyl_Mercaptan	2.2	5.0			Hydrogen_Sulfide	2045.5	ND	**ND**	**ND**						**ND**	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			Carbonyl Sulfide	2017.5	ND	**ND**	ND						**ND**	
Propyl_Mercaptan	2.2	5.0			Methyl Mercaptan	1887.7	ND	**ND**	ND						**ND**	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	**20.76**	52.06						**ND**	
Thiophene	2.2	5.0					ND	**148.32**	437.30						**ND**	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	**24.77**	69.30						**ND**	
Diethyl_Sulfide	2.2	5.0					ND	ND	ND						**ND**	
n-Butyl_Mercaptan	2.2	5.0					ND	ND	ND						**ND**	
Dimethyl_Disulfide	1.10	2.5					ND	**3.82**	13.04						**ND**	
2-Methyl_Thiophene	2.2	5.0					ND	~~**18.48**~~	~~82.45~~						ND	
3-Methyl_Thiophene	2.2	5.0					ND	**23.11**	79.23						**ND**	
Tetrahydrothiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2-Ethyl_Thiophene	2.2	5.0					ND	**6.70**	38.16						**ND**	
Diethyl_Disulfide	1.10	2.5					ND	ND	ND						**ND**	
Methyltrisulfide	1.10	2.5					ND	ND	ND						ND	

j = estimated concentration. Concentration greater than MDL but below RL.

MC 7/1/13

Response Factor Report Instrument #MS08

Method Path : J:\MS08\Methods\
Method File : R8062413.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Jun 25 07:22:58 2013
Response Via : Initial Calibration

Calibration Files
0.08=06241328.D 0.10=06241329.D 0.20=06241330.D 0.40=06241331.D 1.0 =06241332.D 5.0 =06241333.D
25 =06241334.D 50 =06241335.D 100 =06241336.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------								
2)	T	Propene	1.376	1.482	1.285	1.452	1.334	1.240	1.564	1.467	1.457	1.406	7.43
3)	T	Dichlorodifluo...	2.962	3.473	2.906	3.119	2.978	2.666	2.924	2.529	2.343	2.878	11.55
4)	T	Chloromethane	2.029	2.164	1.866	2.098	2.045	1.842	2.028	1.762	1.596	1.937	9.44
5)	T	1,2-Dichloro-1...	1.645	1.858	1.603	1.775	1.728	1.551	1.725	1.490	1.408	1.643	8.78
6)	T	Vinyl Chloride	1.875	2.011	1.836	2.071	2.013	1.835	2.083	1.802	1.682	1.912	7.22
7)	T	1,3-Butadiene	1.171	1.128	1.254	1.377	1.442	1.346	1.569	1.392	1.304	1.331	10.22
8)	T	Bromomethane	2.317	2.030	1.700	1.572	1.389	1.182	1.331	1.180	1.114	1.535	27.02
9)	T	Chloroethane	0.962	1.045	1.054	1.078	1.108	1.002	1.124	0.988	0.925	1.032	6.52
10)	T	Ethanol	1.000	0.930	0.879	0.899	1.032	0.936	1.040	0.921	0.856	0.944	6.98
11)	T	Acetonitrile	1.659	1.627	1.775	1.916	2.083	1.924	2.160	1.966	1.928	1.893	9.42
12)	T	Acrolein	0.585	0.632	0.632	0.675	0.734	0.655	0.757	0.684	0.639	0.666	8.05
13)	T	Acetone	1.115	1.014	1.008	1.058	1.018	0.890	0.975	0.856	0.800	0.970	10.49
14)	T	Trichlorofluor...	3.014	2.845	2.753	2.978	2.807	2.491	2.748	2.408	2.276	2.702	9.46
15)	T	2-Propanol (Is...	3.206	3.259	3.419	3.973	3.862	3.491	3.413	2.702	2.257	3.287	16.26
16)	T	Acrylonitrile	0.839	1.036	1.175	1.375	1.529	1.435	1.623	1.468	1.392	1.319	19.18
17)	T	1,1-Dichloroet...	1.413	1.236	1.311	1.361	1.341	1.231	1.367	1.227	1.191	1.297	6.02
18)	T	2-Methyl-2-Pro...	3.380	3.260	3.300	3.651	3.712	3.116	3.377	2.231	1.610	3.071	22.64
19)	T	Methylene Chlo...	1.712	1.837	1.461	1.515	1.366	1.231	1.356	1.210	1.158	1.427	16.14
20)	T	3-Chloro-1-pro...	2.151	2.418	2.281	2.506	2.206	1.805	2.008	1.772	1.651	2.089	14.32
21)	T	Trichlorotrifl...	1.393	1.393	1.361	1.427	1.429	1.264	1.393	1.239	1.191	1.343	6.58
22)	T	Carbon Disulfide		5.921	4.852	5.706	4.599	4.233	4.846	4.381	4.247	4.848	13.29
23)	T	trans-1,2-Dich...	1.525	1.571	1.535	1.822	1.851	1.729	1.984	1.754	1.666	1.715	9.12
24)	T	1,1-Dichloroet...	2.578	2.476	2.362	2.519	2.499	2.218	2.472	2.177	2.061	2.374	7.59
25)	T	Methyl tert-Bu...	4.210	4.139	4.075	4.378	4.344	3.920	4.418	3.669	2.598	3.972	14.30
26)	T	Vinyl Acetate	0.265	0.278	0.310	0.386	0.399	0.382	0.441	0.399	0.387	0.361	16.88
27)	T	2-Butanone (MEK)			0.743	0.882	0.932	0.853	0.984	0.871	0.841	0.872	8.65
28)	T	cis-1,2-Dichlo...	1.827	1.649	1.640	1.860	1.824	1.656	1.861	1.645	1.561	1.725	6.74
29)	T	Diisopropyl Ether	1.033	1.066	1.124	1.469	1.471	1.311	1.457	1.300	1.258	1.277	13.47
30)	T	Ethyl Acetate	0.380	0.393	0.412	0.500	0.498	0.450	0.513	0.460	0.441	0.450	10.72
31)	T	n-Hexane	2.467	2.471	2.342	2.540	2.456	2.206	2.399	2.107	2.009	2.333	7.90
32)	T	Chloroform	2.620	2.500	2.392	2.442	2.341	2.099	2.349	2.085	2.007	2.315	8.97
33)	S	1,2-Dichloroet...	1.284	1.319	1.310	1.288	1.309	1.295	1.295	1.296	1.267	1.296	1.20
34)	T	Tetrahydrofura...			0.724	0.846	0.849	0.836	0.945	0.843	0.807	0.836	7.80
35)	T	Ethyl tert-But...	1.640	1.670	1.797	1.939	1.880	1.726	1.944	1.733	1.660	1.777	6.71
36)	T	1,2-Dichloroet...	1.772	1.824	1.830	1.931	1.861	1.682	1.868	1.660	1.567	1.777	6.63
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------								
38)	T	1,1,1-Trichlor...	0.550	0.500	0.474	0.517	0.486	0.438	0.496	0.433	0.411	0.478	9.27

Method Path : J:\MS08\Methods\
Method File : R8062413.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.154	0.161	0.157	0.173	0.174	0.161	0.179	0.157	0.149	0.163	6.32
40)	T	1-Butanol				0.234	0.279	0.281	0.322	0.288	0.289	0.282	10.10
41)	T	Benzene	1.341	1.267	1.186	1.215	1.116	1.003	1.124	0.977	0.934	1.129	12.20
42)	T	Carbon Tetrach...	0.424	0.413	0.372	0.412	0.408	0.367	0.426	0.374	0.361	0.395	6.61
43)	T	Cyclohexane	0.524	0.495	0.480	0.526	0.498	0.447	0.510	0.449	0.431	0.484	7.21
44)	T	tert-Amyl Meth...	0.880	0.889	0.822	0.895	0.896	0.813	0.928	0.813	0.770	0.856	6.16
45)	T	1,2-Dichloropr...	0.283	0.275	0.285	0.292	0.296	0.261	0.296	0.257	0.244	0.277	6.78
46)	T	Bromodichlorom...	0.405	0.350	0.353	0.396	0.375	0.358	0.407	0.357	0.340	0.371	6.85
47)	T	Trichloroethene	0.403	0.374	0.374	0.400	0.371	0.340	0.388	0.346	0.337	0.370	6.75
48)	T	1,4-Dioxane	0.174	0.185	0.189	0.243	0.243	0.225	0.261	0.231	0.222	0.219	13.64
49)	T	2,2,4-Trimethy...	1.279	1.318	1.280	1.365	1.323	1.163	1.295	1.125	1.062	1.246	8.28
50)	T	Methyl Methacr...	0.116	0.127	0.121	0.138	0.141	0.132	0.155	0.138	0.134	0.134	8.70
51)	T	n-Heptane	0.305	0.319	0.298	0.321	0.331	0.294	0.330	0.289	0.277	0.307	6.23
52)	T	cis-1,3-Dichlo...	0.420	0.400	0.410	0.461	0.451	0.435	0.505	0.442	0.422	0.438	7.23
53)	T	4-Methyl-2-pen...	0.183	0.205	0.211	0.254	0.268	0.246	0.283	0.245	0.231	0.236	13.47
54)	T	trans-1,3-Dich...	0.358	0.349	0.348	0.387	0.408	0.398	0.466	0.410	0.391	0.390	9.49
55)	T	1,1,2-Trichlor...	0.288	0.269	0.278	0.305	0.293	0.268	0.305	0.266	0.255	0.281	6.35
56)	IR	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.835	2.822	2.759	2.720	2.754	2.738	2.710	2.726	2.740	2.756	1.59
58)	T	Toluene	4.167	3.992	3.708	3.812	3.652	3.283	3.680	3.269	3.147	3.634	9.46
59)	T	2-Hexanone	1.362	1.358	1.424	1.479	1.611	1.514	1.686	1.480	1.396	1.479	7.55
60)	T	Dibromochlorom...	0.964	0.985	0.937	0.994	0.989	0.912	1.055	0.942	0.923	0.967	4.59
61)	T	1,2-Dibromoethane	0.957	0.927	0.938	0.948	0.949	0.863	0.987	0.889	0.860	0.924	4.75
62)	T	n-Butyl Acetate	1.636	1.727	1.695	1.807	1.910	1.817	2.032	1.782	1.671	1.786	7.00
63)	T	n-Octane	0.745	0.739	0.727	0.754	0.776	0.695	0.773	0.681	0.644	0.726	6.09
64)	T	Tetrachloroethene	1.373	1.373	1.342	1.362	1.321	1.168	1.330	1.205	1.190	1.296	6.46
65)	T	Chlorobenzene	2.873	2.733	2.521	2.572	2.517	2.278	2.538	2.272	2.185	2.499	8.96
66)	T	Ethylbenzene	4.436	4.111	3.821	4.131	4.004	3.767	4.222	3.720	3.580	3.977	6.92
67)	T	m- & p-Xylenes	3.482	3.353	3.113	3.320	3.323	3.038	3.453	3.069	2.978	3.236	5.83
68)	T	Bromoform	0.964	0.944	0.896	0.963	0.948	0.924	1.099	1.013	1.026	0.975	6.28
69)	T	Styrene	2.291	2.474	2.215	2.436	2.553	2.394	2.755	2.448	2.381	2.439	6.35
70)	T	o-Xylene	3.636	3.355	3.223	3.481	3.398	3.103	3.545	3.148	3.043	3.326	6.25
71)	T	n-Nonane	1.768	1.606	1.664	1.692	1.745	1.626	1.775	1.526	1.398	1.644	7.51
72)	T	1,1,2,2-Tetrac...	1.433	1.465	1.443	1.572	1.489	1.363	1.548	1.389	1.330	1.448	5.58
73)	S	Bromofluoroben...	0.968	0.979	0.995	1.006	1.019	1.025	1.045	1.024	1.032	1.010	2.52
74)	T	Cumene	4.814	4.643	4.353	4.616	4.590	4.211	4.750	4.173	3.990	4.460	6.44
75)	T	alpha-Pinene	2.251	2.206	1.995	2.155	2.176	2.051	2.285	2.040	1.957	2.124	5.50
76)	T	n-Propylbenzene	7.112	5.934	5.404	5.555	5.234	4.826	5.443	4.761	4.495	5.418	14.33
77)	T	3-Ethyltoluene	4.484	4.218	3.967	4.198	4.237	4.350	4.627	4.368	4.284	4.304	4.35
78)	T	4-Ethyltoluene	4.642	4.247	4.150	4.422	4.384	3.583	4.389	3.613	3.367	4.089	11.03
79)	T	1,3,5-Trimethy...	3.728	3.372	3.324	3.591	3.560	3.234	3.687	3.258	3.151	3.434	6.16
80)	T	alpha-Methylst...	1.811	1.771	1.789	1.916	2.008	1.933	2.142	1.917	1.881	1.908	6.11
81)	T	2-Ethyltoluene	4.646	4.234	4.242	4.493	4.526	4.071	4.596	4.094	3.939	4.316	5.94
82)	T	1,2,4-Trimethy...	3.629	3.319	3.398	3.669	3.647	3.351	3.877	3.481	3.372	3.527	5.35
83)	T	n-Decane	1.827	1.722	1.679	1.879	1.922	1.727	1.917	1.631	1.448	1.750	8.85
84)	T	Benzyl Chloride	2.230	2.207	2.204	2.405	2.731	2.784	3.404	3.102	3.030	2.678	16.53
85)	T	1,3-Dichlorobe...	2.340	2.196	2.141	2.228	2.239	2.047	2.395	2.204	2.233	2.225	4.57
86)	T	1,4-Dichlorobe...	2.371	2.308	2.112	2.246	2.216	2.026	2.376	2.117	2.074	2.205	5.88

Method Path : J:\MS08\Methods\
Method File : R8062413.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	4.829	4.625	4.409	4.809	4.851	4.417	5.023	4.431	4.194	4.621	5.92
88)	T	4-Isopropyltol...	5.831	4.874	4.642	5.066	5.085	4.607	5.341	4.735	4.558	4.971	8.34
89)	T	1,2,3-Trimethy...	3.670	3.370	3.331	3.606	3.661	3.401	3.950	3.518	3.434	3.549	5.52
90)	T	1,2-Dichlorobe...	2.194	2.203	2.128	2.127	2.157	1.972	2.265	2.028	1.989	2.118	4.80
91)	T	d-Limonene	1.126	1.143	1.060	1.205	1.310	1.246	1.365	1.201	1.130	1.198	8.07
92)	T	1,2-Dibromo-3-...	0.645	0.706	0.689	0.760	0.803	0.781	0.919	0.820	0.793	0.769	10.58
93)	T	n-Undecane	1.452	1.557	1.503	1.678	1.870	1.761	1.937	1.678	1.535	1.664	10.09
94)	T	1,2,4-Trichlor...	1.759	1.605	1.471	1.616	1.663	1.593	1.900	1.696	1.654	1.662	7.19
95)	T	Naphthalene	4.259	4.142	4.079	4.532	5.166	5.020	6.022	5.302	5.028	4.839	13.24
96)	T	n-Dodecane	1.284	1.401	1.456	1.735	1.906	1.891	1.948	1.691	1.561	1.653	14.54
97)	T	Hexachlorobuta...	1.263	1.255	1.129	1.208	1.202	1.092	1.264	1.120	1.101	1.182	6.04
98)	T	Cyclohexanone	0.868	0.949	1.013	1.073	1.154	1.106	1.232	1.089	1.037	1.058	10.21
99)	T	tert-Butylbenzene	4.034	3.825	3.712	3.899	3.891	3.545	4.077	3.650	3.538	3.797	5.22
100)	T	n-Butylbenzene	3.484	3.330	3.163	3.449	3.515	3.300	3.747	3.262	3.089	3.371	5.96

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File: I:\MS08\Data\2013_07\03\07031302.D
Acq On : 3 Jul 2013 8:50 Operator: JR
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-06171301/S25-06131304 (7/05)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 03 09:13:39 2013
Quant Method : J:\MS08\Methods\R8062413.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jun 25 07:22:58 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	151	0.02
2	T	Propene	1.406	1.292	8.1	125	-0.03
3	T	Dichlorodifluoromethane (CF	2.878	2.522	12.4	130	-0.02
4	T	Chloromethane	1.937	1.737	10.3	129	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.643	1.548	5.8	135	-0.01
6	T	Vinyl Chloride	1.912	1.825	4.6	132	0.00
7	T	1,3-Butadiene	1.331	1.415	-6.3	136	0.00
8	T	Bromomethane	1.535	1.224	20.3	139	0.01
9	T	Chloroethane	1.032	1.021	1.1	137	0.00
10	T	Ethanol	0.944	0.895	5.2	130	0.08
11	T	Acetonitrile	1.893	1.848	2.4	129	0.03
12	T	Acrolein	0.666	0.680	-2.1	136	-0.01
13	T	Acetone	0.970	0.878	9.5	136	0.00
14	T	Trichlorofluoromethane	2.702	2.402	11.1	132	0.00
15	T	2-Propanol (Isopropanol)	3.287	2.937	10.6	130	-0.01
16	T	Acrylonitrile	1.319	1.445	-9.6	134	0.02
17	T	1,1-Dichloroethene	1.297	1.276	1.6	141	0.01
18	T	2-Methyl-2-Propanol (tert-B	3.071	2.815	8.3	126	-0.05
19	T	Methylene Chloride	1.427	1.252	12.3	139	0.03
20	T	3-Chloro-1-propene (Allyl C	2.089	1.718	17.8	129	0.02
21	T	Trichlorotrifluoroethane	1.343	1.270	5.4	138	0.01
22	T	Carbon Disulfide	4.848	4.508	7.0	140	0.00
23	T	trans-1,2-Dichloroethene	1.715	1.745	-1.7	133	0.02
24	T	1,1-Dichloroethane	2.374	2.196	7.5	134	0.02
25	T	Methyl tert-Butyl Ether	3.972	3.787	4.7	129	-0.04
26	T	Vinyl Acetate	0.361	0.402	-11.4	138	0.01
27	T	2-Butanone (MEK)	0.872	0.889	-1.9	136	-0.06
28	T	cis-1,2-Dichloroethene	1.725	1.639	5.0	133	0.01
29	T	Diisopropyl Ether	1.277	1.336	-4.6	138	-0.02
30	T	Ethyl Acetate	0.450	0.464	-3.1	136	-0.02
31	T	n-Hexane	2.333	2.154	7.7	135	0.01
32	T	Chloroform	2.315	2.103	9.2	135	0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.296	1.217	6.1	142	0.01
34	T	Tetrahydrofuran (THF)	0.836	0.860	-2.9	137	-0.06
35	T	Ethyl tert-Butyl Ether	1.777	1.765	0.7	137	-0.02
36	T	1,2-Dichloroethane	1.777	1.595	10.2	129	0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	154	0.00
38	T	1,1,1-Trichloroethane	0.478	0.430	10.0	133	0.01
39	T	Isopropyl Acetate	0.163	0.158	3.1	135	-0.02
40	T	1-Butanol	0.282	0.283	-0.4	135	-0.02
41	T	Benzene	1.129	1.009	10.6	138	0.00
42	T	Carbon Tetrachloride	0.395	0.364	7.8	131	0.00
43	T	Cyclohexane	0.484	0.460	5.0	139	0.00
44	T	tert-Amyl Methyl Ether	0.856	0.822	4.0	136	-0.02
45	T	1,2-Dichloropropane	0.277	0.259	6.5	134	0.00
46	T	Bromodichloromethane	0.371	0.356	4.0	134	0.00
47	T	Trichloroethene	0.370	0.347	6.2	137	0.00
48	T	1,4-Dioxane	0.219	0.235	-7.3	138	-0.04
49	T	2,2,4-Trimethylpentane (Iso	1.246	1.130	9.3	134	0.00
50	T	Methyl Methacrylate	0.134	0.141	-5.2	139	0.00

JR 7-5-13

Evaluate Continuing Calibration Report

Data File: I:\MS08\Data\2013_07\03\07031302.D
Acq On : 3 Jul 2013 8:50 Operator: JR
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-06171301/S25-06131304 (7/05)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 03 09:13:39 2013
Quant Method : J:\MS08\Methods\R8062413.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jun 25 07:22:58 2013
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	n-Heptane	0.307	0.295	3.9	137	0.01
52	T	cis-1,3-Dichloropropene	0.438	0.444	-1.4	135	0.00
53	T	4-Methyl-2-pentanone	0.236	0.243	-3.0	132	-0.02
54	T	trans-1,3-Dichloropropene	0.390	0.407	-4.4	134	0.00
55	T	1,1,2-Trichloroethane	0.281	0.273	2.8	137	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	148	0.00
57	S	Toluene-d8 (SS2)	2.756	2.798	-1.5	153	0.00
58	T	Toluene	3.634	3.416	6.0	137	0.00
59	T	2-Hexanone	1.479	1.453	1.8	127	-0.01
60	T	Dibromochloromethane	0.967	0.962	0.5	135	0.00
61	T	1,2-Dibromoethane	0.924	0.912	1.3	137	0.00
62	T	n-Butyl Acetate	1.786	1.750	2.0	127	-0.01
63	T	n-Octane	0.726	0.694	4.4	133	0.00
64	T	Tetrachloroethene	1.296	1.231	5.0	137	0.00
65	T	Chlorobenzene	2.499	2.352	5.9	137	0.00
66	T	Ethylbenzene	3.977	3.858	3.0	135	0.00
67	T	m- & p-Xylenes	3.236	3.156	2.5	135	0.00
68	T	Bromoform	0.975	0.986	-1.1	133	0.00
69	T	Styrene	2.439	2.532	-3.8	136	0.00
70	T	o-Xylene	3.326	3.246	2.4	135	0.00
71	T	n-Nonane	1.644	1.513	8.0	126	0.00
72	T	1,1,2,2-Tetrachloroethane	1.448	1.433	1.0	137	0.00
73	S	Bromofluorobenzene (SS3)	1.010	0.927	8.2	131	0.00
74	T	Cumene	4.460	4.334	2.8	135	0.00
75	T	alpha-Pinene	2.124	2.091	1.6	135	0.00
76	T	n-Propylbenzene	5.418	4.972	8.2	135	0.00
77	T	3-Ethyltoluene	4.304	4.276	0.7	137	0.00
78	T	4-Ethyltoluene	4.089	3.893	4.8	131	0.00
79	T	1,3,5-Trimethylbenzene	3.434	3.334	2.9	134	0.00
80	T	alpha-Methylstyrene	1.908	1.897	0.6	131	0.00
81	T	2-Ethyltoluene	4.316	4.175	3.3	134	0.00
82	T	1,2,4-Trimethylbenzene	3.527	3.474	1.5	132	0.00
83	T	n-Decane	1.750	1.667	4.7	129	0.00
84	T	Benzyl Chloride	2.678	3.074	-14.8	134	0.00
85	T	1,3-Dichlorobenzene	2.225	2.169	2.5	134	0.00
86	T	1,4-Dichlorobenzene	2.205	2.128	3.5	132	0.00
87	T	sec-Butylbenzene	4.621	4.538	1.8	134	0.00
88	T	4-Isopropyltoluene (p-Cymen	4.971	4.767	4.1	132	0.00
89	T	1,2,3-Trimethylbenzene	3.549	3.516	0.9	132	0.00
90	T	1,2-Dichlorobenzene	2.118	2.037	3.8	133	0.00
91	T	d-Limonene	1.198	1.206	-0.7	131	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.769	0.816	-6.1	131	0.00
93	T	n-Undecane	1.664	1.673	-0.5	128	0.00
94	T	1,2,4-Trichlorobenzene	1.662	1.667	-0.3	130	0.00
95	T	Naphthalene	4.839	5.307	-9.7	130	0.00
96	T	n-Dodecane	1.653	1.650	0.2	125	0.00
97	T	Hexachlorobutadiene	1.182	1.076	9.0	126	0.00
98	T	Cyclohexanone	1.058	1.095	-3.5	132	-0.01
99	T	tert-Butylbenzene	3.797	3.645	4.0	132	0.00
100	T	n-Butylbenzene	3.371	3.337	1.0	132	0.00

JR 7-5-13

Evaluate Continuing Calibration Report

Data File: I:\MS08\Data\2013_07\03\07031302.D
Acq On : 3 Jul 2013 8:50 Operator: JR
Sample : 25ng TO-15 CCV STD (125mL)
Misc : S25-06171301/S25-06131304 (7/05)
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Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

JR 7-5-13

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LABORATORY REPORT

July 15, 2013

Richard Traver
CH2M Hill
1717 Arch Street Suite 4400
Philadelphia, PA 19103

RE: Pfizer Tier IV / Recon #2-3620

Dear Richard:

Enclosed are the results of the samples submitted to our laboratory on June 28, 2013. For your reference, these analyses have been assigned our service request number P1302775.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 3:19 pm, Jul 15, 2013

Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

Client: CH2M Hill
Project: Pfizer Tier IV / Recon #2-3620

Service Request No: P1302775

CASE NARRATIVE

The samples were received intact under chain of custody on June 28, 2013 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Sulfur Analysis

The tedlar bag samples were analyzed for twenty sulfur compounds per ASTM D 5504-08 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP scope of accreditation.

Volatile Organic Compound Analysis

The summa canister samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is not included on the laboratory's AIHA-LAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

The Summa canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 508 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

Certifications, Accreditations, and Registrations

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L11-203
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2012039
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	494864
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	CA200007
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-12-3
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA015272012-2
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CH2M Hill
Project ID: Pfizer Tier IV / Recon #2-3620
Service Request: P1302775

Date Received: 6/28/2013
Time Received: 07:20

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	ASTM D5504-08 - Sulfur Bag
6-26 (BLK)	P1302775-001	Air	6/26/2013	10:01	1SC00417	-0.40	5.44	X	
2-3620-003 (250g)	P1302775-002	Air	6/26/2013	10:01	1SC00246	-0.61	5.22	X	
6-27 BLK	P1302775-003	Air	6/27/2013	09:45					X
2-3620-003	P1302775-004	Air	6/27/2013	09:30					X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. P1302775

ALS Contact:

Company Name & Address (Reporting Information): CH2M Hill, 1717 Arch Street, Suite 4400, Philadelphia, PA 19103

Project Name: Pfizer Tier IV

Project Number: RECON # 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information:

Phone: 215 640 9105 Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2M.com

Sampler (Print & Sign): Glenn R. Knierien

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Malodorous Cmpds	Comments e.g. Actual Preservative or specific instructions
											Started 6-26-13
6-26 (BLK)	1 -0.23	6-26	10:01	1SC00417	0A01527	-26 Hg	-0 Hg	1l	X		24-hr total
2-3620-003 (250g)	2 -0.45	6-26	10:01	1SC00246	0A00449	-29 Hg	-0 Hg	1l	X		24-hr total
—	—	—	—	—	—	—	—	—	—	—	
6-27 BLK	3	6-27	0945	—	—	—	—	1l		X	Tedlar
2-3620-003	4	6-27	0930	—	—	—	—	1l		X	Tedlar

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries ____ Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Glenn R. Knierien	6-27-13	1300	FedEx 8022 2388 1603	6-27	1300
Fedex			[signature]	6/28/13	0720

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1302775

Project: Pfizer Tier IV / Recon #2-3620

Sample(s) received on: 6/28/13 Date opened: 6/28/13 by: MZAMORA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☐	☒	☐
10	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1302775-001.01	1.0 L Source Can					
P1302775-002.01	1.0 L Source Can					
P1302775-003.01	1 L Zefon Bag					
P1302775-004.01	1 L Zefon Bag					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **6-27 BLK**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302775
ALS Sample ID: P1302775-003

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 6/27/13
Time Collected: 09:45
Date Received: 6/28/13
Date Analyzed: 6/28/13
Time Analyzed: 09:45
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	**40**	12	**16**	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	**310**	13	**120**	5.0	
75-15-0	Carbon Disulfide	**6,900**	7.8	**2,200**	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	**72**	16	**23**	5.0	
110-02-1	Thiophene	**360**	17	**100**	5.0	
513-44-0	Isobutyl Mercaptan	**82**	18	**22**	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	**16**	9.6	**4.1**	2.5	
616-44-4	3-Methylthiophene	**59**	20	**15**	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-003**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302775
ALS Sample ID: P1302775-004

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: 6/27/13
Time Collected: 09:30
Date Received: 6/28/13
Date Analyzed: 6/28/13
Time Analyzed: 09:28
Volume(s) Analyzed: 0.70 ml(s)

CAS #	Compound	Result µg/m³		MRL µg/m³	Result ppbV		MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide		ND	10		ND	7.1	
463-58-1	Carbonyl Sulfide	**230**		18	**92**		7.1	
74-93-1	Methyl Mercaptan		ND	14		ND	7.1	
75-08-1	Ethyl Mercaptan		ND	18		ND	7.1	
75-18-3	Dimethyl Sulfide	**1,800**		18	**700**		7.1	
75-15-0	Carbon Disulfide	**42,000**		11	**13,000**		3.6	
75-33-2	Isopropyl Mercaptan		ND	22		ND	7.1	
75-66-1	tert-Butyl Mercaptan		ND	26		ND	7.1	
107-03-9	n-Propyl Mercaptan		ND	22		ND	7.1	
624-89-5	Ethyl Methyl Sulfide	**400**		22	**130**		7.1	
110-02-1	Thiophene	**2,300**		25	**660**		7.1	
513-44-0	Isobutyl Mercaptan	**480**		26	**130**		7.1	
352-93-2	Diethyl Sulfide	**38**		26	**10**		7.1	
109-79-5	n-Butyl Mercaptan		ND	26		ND	7.1	
624-92-0	Dimethyl Disulfide	**100**		14	**27**		3.6	
616-44-4	3-Methylthiophene	**330**		29	**81**		7.1	
110-01-0	Tetrahydrothiophene		ND	26		ND	7.1	
638-02-8	2,5-Dimethylthiophene		ND	33		ND	7.1	
872-55-9	2-Ethylthiophene	**200**		33	**44**		7.1	
110-81-6	Diethyl Disulfide		ND	18		ND	3.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302775
ALS Sample ID: P130628-MB

Test Code: ASTM D 5504-08
Instrument ID: Agilent 6890A/GC13/SCD
Analyst: Mike Conejo
Sample Type: 1 L Zefon Bag
Test Notes:

Date Collected: NA
Time Collected: NA
Date Received: NA
Date Analyzed: 6/28/13
Time Analyzed: 08:22
Volume(s) Analyzed: 1.0 ml(s)

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
7783-06-4	Hydrogen Sulfide	ND	7.0	ND	5.0	
463-58-1	Carbonyl Sulfide	ND	12	ND	5.0	
74-93-1	Methyl Mercaptan	ND	9.8	ND	5.0	
75-08-1	Ethyl Mercaptan	ND	13	ND	5.0	
75-18-3	Dimethyl Sulfide	ND	13	ND	5.0	
75-15-0	Carbon Disulfide	ND	7.8	ND	2.5	
75-33-2	Isopropyl Mercaptan	ND	16	ND	5.0	
75-66-1	tert-Butyl Mercaptan	ND	18	ND	5.0	
107-03-9	n-Propyl Mercaptan	ND	16	ND	5.0	
624-89-5	Ethyl Methyl Sulfide	ND	16	ND	5.0	
110-02-1	Thiophene	ND	17	ND	5.0	
513-44-0	Isobutyl Mercaptan	ND	18	ND	5.0	
352-93-2	Diethyl Sulfide	ND	18	ND	5.0	
109-79-5	n-Butyl Mercaptan	ND	18	ND	5.0	
624-92-0	Dimethyl Disulfide	ND	9.6	ND	2.5	
616-44-4	3-Methylthiophene	ND	20	ND	5.0	
110-01-0	Tetrahydrothiophene	ND	18	ND	5.0	
638-02-8	2,5-Dimethylthiophene	ND	23	ND	5.0	
872-55-9	2-Ethylthiophene	ND	23	ND	5.0	
110-81-6	Diethyl Disulfide	ND	12	ND	2.5	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130628-LCS

Test Code: ASTM D 5504-08 Date Collected: NA
Instrument ID: Agilent 6890A/GC13/SCD Date Received: NA
Analyst: Mike Conejo Date Analyzed: 6/28/13
Sample Type: 1 L Zefon Bag Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	ALS Acceptance Limits	Data Qualifier
7783-06-4	Hydrogen Sulfide	2,050	**1,990**	**97**	63-140	
463-58-1	Carbonyl Sulfide	2,020	**1,980**	**98**	63-138	
74-93-1	Methyl Mercaptan	1,890	**2,020**	**107**	63-144	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **6-26 (BLK)** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302775-001

Test Code: EPA TO-15 Date Collected: 6/26/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/28/13
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.015 Liter(s)
Test Notes:
Container ID: 1SC00417

Initial Pressure (psig): -0.40 Final Pressure (psig): 5.44

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	47	ND	27	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	47	ND	9.5	
74-87-3	Chloromethane	ND	47	ND	23	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	47	ND	6.7	
75-01-4	Vinyl Chloride	ND	47	ND	18	
106-99-0	1,3-Butadiene	ND	47	ND	21	
74-83-9	Bromomethane	ND	47	ND	12	
75-00-3	Chloroethane	ND	47	ND	18	
64-17-5	Ethanol	ND	470	ND	250	
75-05-8	Acetonitrile	ND	47	ND	28	
107-02-8	Acrolein	ND	190	ND	82	
67-64-1	Acetone	ND	470	ND	200	
75-69-4	Trichlorofluoromethane	ND	47	ND	8.4	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	470	ND	190	
107-13-1	Acrylonitrile	ND	47	ND	22	
75-35-4	1,1-Dichloroethene	ND	47	ND	12	
75-09-2	Methylene Chloride	ND	47	ND	14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	47	ND	15	
76-13-1	Trichlorotrifluoroethane	ND	47	ND	6.1	
75-15-0	Carbon Disulfide	ND	470	ND	150	
156-60-5	trans-1,2-Dichloroethene	ND	47	ND	12	
75-34-3	1,1-Dichloroethane	ND	47	ND	12	
1634-04-4	Methyl tert-Butyl Ether	ND	47	ND	13	
108-05-4	Vinyl Acetate	ND	470	ND	130	
78-93-3	2-Butanone (MEK)	ND	470	ND	160	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **6-26 (BLK)** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302775-001

Test Code: EPA TO-15 Date Collected: 6/26/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/28/13
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.015 Liter(s)
Test Notes:
Container ID: 1SC00417

Initial Pressure (psig): -0.40 Final Pressure (psig): 5.44

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	47	ND	12	
141-78-6	Ethyl Acetate	ND	94	ND	26	
110-54-3	n-Hexane	ND	47	ND	13	
67-66-3	Chloroform	ND	47	ND	9.6	
109-99-9	Tetrahydrofuran (THF)	ND	47	ND	16	
107-06-2	1,2-Dichloroethane	ND	47	ND	12	
71-55-6	1,1,1-Trichloroethane	ND	47	ND	8.6	
71-43-2	Benzene	**8,000**	47	**2,500**	15	
56-23-5	Carbon Tetrachloride	ND	47	ND	7.5	
110-82-7	Cyclohexane	ND	94	ND	27	
78-87-5	1,2-Dichloropropane	ND	47	ND	10	
75-27-4	Bromodichloromethane	ND	47	ND	7.0	
79-01-6	Trichloroethene	ND	47	ND	8.7	
123-91-1	1,4-Dioxane	ND	47	ND	13	
80-62-6	Methyl Methacrylate	ND	94	ND	23	
142-82-5	n-Heptane	ND	47	ND	11	
10061-01-5	cis-1,3-Dichloropropene	ND	47	ND	10	
108-10-1	4-Methyl-2-pentanone	ND	47	ND	11	
10061-02-6	trans-1,3-Dichloropropene	ND	47	ND	10	
79-00-5	1,1,2-Trichloroethane	ND	47	ND	8.6	
108-88-3	Toluene	**1,700**	47	**450**	12	
591-78-6	2-Hexanone	ND	47	ND	11	
124-48-1	Dibromochloromethane	ND	47	ND	5.5	
106-93-4	1,2-Dibromoethane	ND	47	ND	6.1	
123-86-4	n-Butyl Acetate	ND	47	ND	9.9	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302775
Client Sample ID: **6-26 (BLK)** ALS Sample ID: P1302775-001
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 6/26/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/28/13
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.015 Liter(s)
Test Notes:
Container ID: 1SC00417

Initial Pressure (psig): -0.40 Final Pressure (psig): 5.44

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	47	ND	10	
127-18-4	Tetrachloroethene	ND	47	ND	6.9	
108-90-7	Chlorobenzene	ND	47	ND	10	
100-41-4	Ethylbenzene	ND	47	ND	11	
179601-23-1	m,p-Xylenes	**170**	94	**40**	22	
75-25-2	Bromoform	ND	47	ND	4.5	
100-42-5	Styrene	ND	47	ND	11	
95-47-6	o-Xylene	ND	47	ND	11	
111-84-2	n-Nonane	ND	47	ND	9.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	47	ND	6.8	
98-82-8	Cumene	ND	47	ND	9.6	
80-56-8	alpha-Pinene	ND	47	ND	8.4	
103-65-1	n-Propylbenzene	ND	47	ND	9.6	
622-96-8	4-Ethyltoluene	ND	47	ND	9.6	
108-67-8	1,3,5-Trimethylbenzene	ND	47	ND	9.6	
95-63-6	1,2,4-Trimethylbenzene	ND	47	ND	9.6	
100-44-7	Benzyl Chloride	ND	47	ND	9.1	
541-73-1	1,3-Dichlorobenzene	ND	47	ND	7.8	
106-46-7	1,4-Dichlorobenzene	ND	47	ND	7.8	
95-50-1	1,2-Dichlorobenzene	ND	47	ND	7.8	
5989-27-5	d-Limonene	ND	47	ND	8.4	
96-12-8	1,2-Dibromo-3-chloropropane	ND	47	ND	4.9	
120-82-1	1,2,4-Trichlorobenzene	ND	47	ND	6.3	
91-20-3	Naphthalene	ND	47	ND	9.0	
87-68-3	Hexachlorobutadiene	ND	47	ND	4.4	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-003 (250g)** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302775-002

Test Code: EPA TO-15 Date Collected: 6/26/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/28/13
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0000050 Liter(s)
Test Notes: 0.00000050 Liter(s)
Container ID: 1SC00246

Initial Pressure (psig): -0.61 Final Pressure (psig): 5.22

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	140,000	ND	82,000	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	140,000	ND	29,000	
74-87-3	Chloromethane	ND	140,000	ND	68,000	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	140,000	ND	20,000	
75-01-4	Vinyl Chloride	ND	140,000	ND	55,000	
106-99-0	1,3-Butadiene	ND	140,000	ND	64,000	
74-83-9	Bromomethane	ND	140,000	ND	36,000	
75-00-3	Chloroethane	ND	140,000	ND	53,000	
64-17-5	Ethanol	ND	1,400,000	ND	750,000	
75-05-8	Acetonitrile	ND	140,000	ND	84,000	
107-02-8	Acrolein	ND	560,000	ND	250,000	
67-64-1	Acetone	ND	1,400,000	ND	590,000	
75-69-4	Trichlorofluoromethane	ND	140,000	ND	25,000	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1,400,000	ND	570,000	
107-13-1	Acrylonitrile	ND	140,000	ND	65,000	
75-35-4	1,1-Dichloroethene	ND	140,000	ND	36,000	
75-09-2	Methylene Chloride	ND	140,000	ND	41,000	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	140,000	ND	45,000	
76-13-1	Trichlorotrifluoroethane	ND	140,000	ND	18,000	
75-15-0	Carbon Disulfide	ND	1,400,000	ND	450,000	
156-60-5	trans-1,2-Dichloroethene	ND	140,000	ND	36,000	
75-34-3	1,1-Dichloroethane	ND	140,000	ND	35,000	
1634-04-4	Methyl tert-Butyl Ether	ND	140,000	ND	39,000	
108-05-4	Vinyl Acetate	ND	1,400,000	ND	400,000	
78-93-3	2-Butanone (MEK)	ND	1,400,000	ND	480,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **2-3620-003 (250g)** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P1302775-002

Test Code: EPA TO-15 Date Collected: 6/26/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/28/13
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0000050 Liter(s)
Test Notes: 0.00000050 Liter(s)
Container ID: 1SC00246

Initial Pressure (psig): -0.61 Final Pressure (psig): 5.22

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	140,000	ND	36,000	
141-78-6	Ethyl Acetate	ND	280,000	ND	78,000	
110-54-3	n-Hexane	ND	140,000	ND	40,000	
67-66-3	Chloroform	ND	140,000	ND	29,000	
109-99-9	Tetrahydrofuran (THF)	ND	140,000	ND	48,000	
107-06-2	1,2-Dichloroethane	ND	140,000	ND	35,000	
71-55-6	1,1,1-Trichloroethane	ND	140,000	ND	26,000	
71-43-2	Benzene	**47,000,000**	1,400,000	**15,000,000**	440,000	**D**
56-23-5	Carbon Tetrachloride	ND	140,000	ND	22,000	
110-82-7	Cyclohexane	ND	280,000	ND	82,000	
78-87-5	1,2-Dichloropropane	ND	140,000	ND	31,000	
75-27-4	Bromodichloromethane	ND	140,000	ND	21,000	
79-01-6	Trichloroethene	ND	140,000	ND	26,000	
123-91-1	1,4-Dioxane	ND	140,000	ND	39,000	
80-62-6	Methyl Methacrylate	ND	280,000	ND	69,000	
142-82-5	n-Heptane	ND	140,000	ND	34,000	
10061-01-5	cis-1,3-Dichloropropene	ND	140,000	ND	31,000	
108-10-1	4-Methyl-2-pentanone	ND	140,000	ND	34,000	
10061-02-6	trans-1,3-Dichloropropene	ND	140,000	ND	31,000	
79-00-5	1,1,2-Trichloroethane	ND	140,000	ND	26,000	
108-88-3	Toluene	**3,900,000**	140,000	**1,000,000**	37,000	
591-78-6	2-Hexanone	ND	140,000	ND	34,000	
124-48-1	Dibromochloromethane	ND	140,000	ND	17,000	
106-93-4	1,2-Dibromoethane	ND	140,000	ND	18,000	
123-86-4	n-Butyl Acetate	ND	140,000	ND	30,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Client: **CH2M Hill** ALS Project ID: P1302775
Client Sample ID: **2-3620-003 (250g)** ALS Sample ID: P1302775-002
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: 6/26/13
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: 6/28/13
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0000050 Liter(s)
Test Notes: 0.00000050 Liter(s)
Container ID: 1SC00246

Initial Pressure (psig): -0.61 Final Pressure (psig): 5.22

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	140,000	ND	30,000	
127-18-4	Tetrachloroethene	ND	140,000	ND	21,000	
108-90-7	Chlorobenzene	ND	140,000	ND	31,000	
100-41-4	Ethylbenzene	ND	140,000	ND	32,000	
179601-23-1	m,p-Xylenes	ND	280,000	ND	65,000	
75-25-2	Bromoform	ND	140,000	ND	14,000	
100-42-5	Styrene	ND	140,000	ND	33,000	
95-47-6	o-Xylene	ND	140,000	ND	32,000	
111-84-2	n-Nonane	ND	140,000	ND	27,000	
79-34-5	1,1,2,2-Tetrachloroethane	ND	140,000	ND	21,000	
98-82-8	Cumene	ND	140,000	ND	29,000	
80-56-8	alpha-Pinene	ND	140,000	ND	25,000	
103-65-1	n-Propylbenzene	ND	140,000	ND	29,000	
622-96-8	4-Ethyltoluene	ND	140,000	ND	29,000	
108-67-8	1,3,5-Trimethylbenzene	ND	140,000	ND	29,000	
95-63-6	1,2,4-Trimethylbenzene	ND	140,000	ND	29,000	
100-44-7	Benzyl Chloride	ND	140,000	ND	27,000	
541-73-1	1,3-Dichlorobenzene	ND	140,000	ND	23,000	
106-46-7	1,4-Dichlorobenzene	ND	140,000	ND	23,000	
95-50-1	1,2-Dichlorobenzene	ND	140,000	ND	23,000	
5989-27-5	d-Limonene	ND	140,000	ND	25,000	
96-12-8	1,2-Dibromo-3-chloropropane	ND	140,000	ND	15,000	
120-82-1	1,2,4-Trichlorobenzene	ND	140,000	ND	19,000	
91-20-3	Naphthalene	ND	140,000	ND	27,000	
87-68-3	Hexachlorobutadiene	ND	140,000	ND	13,000	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

ALS Project ID: P1302775
ALS Sample ID: P130709-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3
Analyst: Simon Cao
Sample Type: 1.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/9/13
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**

Client Sample ID: **Method Blank** ALS Project ID: P1302775

Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130709-MB

Test Code: EPA TO-15 Date Collected: NA

Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA

Analyst: Simon Cao Date Analyzed: 7/9/13

Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill** ALS Project ID: P1302775
Client Sample ID: **Method Blank** ALS Sample ID: P130709-MB
Client Project ID: **Pfizer Tier IV / Recon #2-3620**

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	0.50	ND	0.097	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Project ID: P1302775

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date(s) Collected: 6/26/13
Analyst: Simon Cao Date(s) Received: 6/28/13
Sample Type: 1.0 L Summa Canister(s) Date(s) Analyzed: 7/9/13
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P130709-MB	**99**	**104**	**99**	70-130	
Lab Control Sample	P130709-LCS	**96**	**100**	**102**	70-130	
6-26 (BLK)	P1302775-001	**99**	**101**	**100**	70-130	
2-3620-003 (250g)	P1302775-002	**101**	**100**	**100**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130709-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	200	**168**	**84**	58-139	
75-71-8	Dichlorodifluoromethane (CFC 12)	204	**172**	**84**	63-115	
74-87-3	Chloromethane	198	**168**	**85**	58-122	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	204	**177**	**87**	65-115	
75-01-4	Vinyl Chloride	200	**185**	**93**	64-122	
106-99-0	1,3-Butadiene	212	**212**	**100**	57-141	
74-83-9	Bromomethane	200	**154**	**77**	68-122	
75-00-3	Chloroethane	202	**188**	**93**	66-120	
64-17-5	Ethanol	1,020	**905**	**89**	58-126	
75-05-8	Acetonitrile	202	**183**	**91**	64-136	
107-02-8	Acrolein	214	**220**	**103**	58-129	
67-64-1	Acetone	1,080	**943**	**87**	60-114	
75-69-4	Trichlorofluoromethane	198	**157**	**79**	62-107	
67-63-0	2-Propanol (Isopropyl Alcohol)	420	**410**	**98**	54-118	
107-13-1	Acrylonitrile	208	**226**	**109**	72-143	
75-35-4	1,1-Dichloroethene	214	**195**	**91**	69-119	
75-09-2	Methylene Chloride	216	**171**	**79**	64-113	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	216	**237**	**110**	59-131	
76-13-1	Trichlorotrifluoroethane	214	**185**	**86**	69-117	
75-15-0	Carbon Disulfide	196	**190**	**97**	65-115	
156-60-5	trans-1,2-Dichloroethene	212	**197**	**93**	70-126	
75-34-3	1,1-Dichloroethane	208	**179**	**86**	68-116	
1634-04-4	Methyl tert-Butyl Ether	212	**194**	**92**	69-120	
108-05-4	Vinyl Acetate	1,020	**1090**	**107**	58-160	
78-93-3	2-Butanone (MEK)	218	**220**	**101**	70-127	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130709-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
156-59-2	cis-1,2-Dichloroethene	214	**196**	**92**	70-119	
141-78-6	Ethyl Acetate	426	**405**	**95**	72-129	
110-54-3	n-Hexane	210	**169**	**80**	63-115	
67-66-3	Chloroform	214	**184**	**86**	68-110	
109-99-9	Tetrahydrofuran (THF)	206	**202**	**98**	60-126	
107-06-2	1,2-Dichloroethane	210	**184**	**88**	69-118	
71-55-6	1,1,1-Trichloroethane	206	**193**	**94**	68-120	
71-43-2	Benzene	220	**185**	**84**	69-117	
56-23-5	Carbon Tetrachloride	210	**206**	**98**	65-134	
110-82-7	Cyclohexane	420	**381**	**91**	69-114	
78-87-5	1,2-Dichloropropane	212	**190**	**90**	70-116	
75-27-4	Bromodichloromethane	214	**224**	**105**	71-126	
79-01-6	Trichloroethene	208	**190**	**91**	71-119	
123-91-1	1,4-Dioxane	218	**222**	**102**	72-126	
80-62-6	Methyl Methacrylate	420	**463**	**110**	75-136	
142-82-5	n-Heptane	214	**190**	**89**	70-117	
10061-01-5	cis-1,3-Dichloropropene	226	**242**	**107**	75-132	
108-10-1	4-Methyl-2-pentanone	218	**226**	**104**	70-133	
10061-02-6	trans-1,3-Dichloropropene	216	**244**	**113**	78-136	
79-00-5	1,1,2-Trichloroethane	210	**206**	**98**	72-119	
108-88-3	Toluene	210	**189**	**90**	65-116	
591-78-6	2-Hexanone	222	**244**	**110**	62-132	
124-48-1	Dibromochloromethane	220	**247**	**112**	66-140	
106-93-4	1,2-Dibromoethane	216	**217**	**100**	69-130	
123-86-4	n-Butyl Acetate	224	**255**	**114**	63-136	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1302775
Client Project ID: **Pfizer Tier IV / Recon #2-3620** ALS Sample ID: P130709-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/HP5973/HP6890/MS3 Date Received: NA
Analyst: Simon Cao Date Analyzed: 7/9/13
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	**Result µg/m³**	**% Recovery**	ALS Acceptance Limits	**Data Qualifier**
111-65-9	n-Octane	208	**195**	**94**	66-118	
127-18-4	Tetrachloroethene	196	**178**	**91**	63-123	
108-90-7	Chlorobenzene	216	**194**	**90**	66-118	
100-41-4	Ethylbenzene	212	**205**	**97**	66-119	
179601-23-1	m,p-Xylenes	420	**404**	**96**	64-118	
75-25-2	Bromoform	216	**250**	**116**	64-140	
100-42-5	Styrene	218	**238**	**109**	68-132	
95-47-6	o-Xylene	206	**198**	**96**	65-120	
111-84-2	n-Nonane	206	**195**	**95**	64-117	
79-34-5	1,1,2,2-Tetrachloroethane	202	**203**	**100**	63-128	
98-82-8	Cumene	204	**195**	**96**	65-121	
80-56-8	alpha-Pinene	208	**208**	**100**	66-123	
103-65-1	n-Propylbenzene	202	**199**	**99**	65-121	
622-96-8	4-Ethyltoluene	212	**202**	**95**	64-122	
108-67-8	1,3,5-Trimethylbenzene	212	**208**	**98**	64-125	
95-63-6	1,2,4-Trimethylbenzene	212	**212**	**100**	64-131	
100-44-7	Benzyl Chloride	222	**253**	**114**	67-146	
541-73-1	1,3-Dichlorobenzene	222	**211**	**95**	64-130	
106-46-7	1,4-Dichlorobenzene	214	**206**	**96**	61-124	
95-50-1	1,2-Dichlorobenzene	218	**211**	**97**	63-126	
5989-27-5	d-Limonene	210	**236**	**112**	62-133	
96-12-8	1,2-Dibromo-3-chloropropane	212	**244**	**115**	62-155	
120-82-1	1,2,4-Trichlorobenzene	220	**244**	**111**	59-146	
91-20-3	Naphthalene	204	**224**	**110**	56-143	
87-68-3	Hexachlorobutadiene	218	**219**	**100**	58-133	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Response Factor Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13061113.M
Title : 20 Sulfurs
Last Update : Tue Jun 11 17:34:05 2013
Response Via : Initial Calibration

Calibration Files
1 =06111306.D 2 =06111307.D 3 =06111308.D
4 =06111312.D 5 =06111310.D 6 =06111311.D

		Compound	1	2	3	4	5	6	Avg		%RSD
1)	Z	Hydrogen_Sulfide	2.473	3.028	3.482	2.777	2.865	2.984	2.935	E4	11.33
2)	W	Carbonyl_Sulfide	3.589	3.239	3.934	3.025	3.160	3.016	3.327	E4	10.92
3)	T	Methyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
4)	T	Ethyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
5)	T	Dimethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
6)	T	Carbon_Disulfide	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
7)	T	2-Propyl_Merc...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
8)	T	t-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
9)	T	Propyl_Mercaptan	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
10)	T	Ethyl_Methyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
11)	T	Thiophene	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
12)	T	i-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
13)	T	Diethyl_Sulfide	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
14)		n-Butyl_Merca...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
15)		Dimethyl_Disu...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
16)	T	2-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
17)		3-Methyl_Thio...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
18)	T	Tetrahydrothi...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
19)		2,5-Dimethyl_...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
20)	T	2-Ethyl_Thiop...	2.733	2.674	3.338	2.626	2.743	2.731	2.807	E4	9.39
21)	T	Diethyl_Disul...	5.465	5.349	6.676	5.251	5.485	5.463	5.615	E4	9.39
22)	T	Methyltrisulfide	0.820	0.802	1.001	0.788	0.823	0.819	0.842	E5	9.39

(#) = Out of Range

GC13061113.M Tue Jun 11 17:57:05 2013

COLUMBIA ANALYTICAL INC.

REPORT SUMMARY

Method : 20 Sulfurs
Client & Job# : CH2M Hill / P1302775
Analyst : MC

Printed : 06/28/13
Instrument : GC#13, SCD#13
Date Acquired : 06/28/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-05291304		lcs 2000ppb s27-05241304	% R	mb 1ml	2775-003 1ml	2775-004 0.7ml						std 2000ppb s27-05291304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0	0.70						0.200	
Dilution:			1				1	1.0	1.0						1	
Pi:			1.0				1.00	1.00	1.00						1.00	
Pf:			1.0				1.00	1.00	1.00						1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00	1.00						1.00	
Hydrogen_Sulfide	1.7	5.0	**7738.90**	**22.3%**	**1993.5**	**97.5%**	ND	ND	**ND**						**9797.50**	**1.6%**
Carbonyl_Sulfide	5.0	5.0	**7752.75**	**23.7%**	**1976.9**	**98.0%**	ND	**16.40**	92.09						**9834.90**	**3.2%**
Methyl_Mercaptan	2.2	5.0	**7500.40**	**25.8%**	**2020.3**	**107.0%**	ND	**ND**	**ND**						**9741.00**	**3.6%**
Ethyl_Mercaptan	2.2	5.0					ND	**ND**	ND						**ND**	
Dimethyl_Sulfide	2.2	5.0				**Spike**	ND	**122.64**	**697.71**						**ND**	
Carbon_Disulfide	2.5	2.5				**Amount**	ND	**2204.54**	13390.94						**ND**	
2-Propyl_Mercaptan	2.2	5.0			**Hydrogen_Sulfide**	**2045.5**	ND	**ND**	**ND**						**ND**	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			**Carbonyl Sulfide**	**2017.5**	ND	**ND**	ND						**ND**	
Propyl_Mercaptan	2.2	5.0			**Methyl Mercaptan**	**1887.7**	ND	**ND**	ND						**ND**	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	**23.02**	128.94						**ND**	
Thiophene	2.2	5.0					ND	**104.09**	659.46						**ND**	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	**22.22**	130.34						**ND**	
Diethyl_Sulfide	2.2	5.0					ND	ND	10.26						**ND**	
n-Butyl_Mercaptan	2.2	5.0					ND	ND	ND						**ND**	
Dimethyl_Disulfide	1.10	2.5					ND	**4.12**	26.74						**ND**	
2-Methyl_Thiophene	2.2	5.0					ND	~~8.24~~	~~65.19~~						ND	
3-Methyl_Thiophene	2.2	5.0					ND	**14.81**	81.21						**ND**	
Tetrahydrothiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2-Ethyl_Thiophene	2.2	5.0					ND	**ND**	43.66						**ND**	
Diethyl_Disulfide	1.10	2.5					ND	ND	ND						**ND**	
Methyltrisulfide	1.10	2.5					ND	ND	ND						ND	

j = estimated concentration. Concentration greater than MDL but below RL.

MC
6/28/13

Response Factor Report MSD3

Method Path : J:\MS03\METHODS\
Method File : R3070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jul 08 10:36:52 2013
Response Via : Initial Calibration

Calibration Files
0.08=07051332.D 0.10=07051333.D 0.20=07051334.D 0.40=07051335.D 1.0 =07051336.D 5.0 =07051337.D
25 =07051338.D 50 =07051339.D 100 =07051340.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------										
2)	T	Propene	1.801	1.609	1.569	1.502	1.628	1.485	1.471	1.274	1.497	1.537	9.29
3)	T	Dichlorodifluo...	3.953	3.858	3.802	3.582	4.050	3.650	3.442	2.930	2.713	3.553	12.89
4)	T	Chloromethane	2.487	2.422	2.416	2.238	2.444	2.215	2.266	1.900	1.750	2.238	11.43
5)	T	1,2-Dichloro-1...	1.940	1.971	1.932	1.742	1.867	1.695	1.720	1.500	1.448	1.757	10.82
6)	T	Vinyl Chloride	2.069	2.121	2.033	2.054	2.243	2.046	2.172	1.880	1.767	2.043	7.06
7)	T	1,3-Butadiene	1.477	1.193	1.445	1.231	1.512	1.439	1.589	1.375	1.299	1.396	9.48
8)	T	Bromomethane	2.267	2.053	1.618	1.464	1.427	1.243	1.313	1.185	1.127	1.522	25.98
9)	T	Chloroethane	1.035	1.101	0.908	1.130	1.196	1.092	1.137	1.032	0.970	1.067	8.39
10)	T	Ethanol	1.102	1.142	1.099	1.059	1.119	1.002	0.985	0.878	0.828	1.024	10.78
11)	T	Acetonitrile	2.978	2.706	2.739	2.676	2.871	2.545	2.635	2.420	2.252	2.647	8.35
12)	T	Acrolein			0.622	0.713	0.812	0.781	0.863	0.793	0.756	0.763	10.15
13)	T	Acetone	1.097	1.108	1.059	1.010	1.082	0.982	0.982	0.873	0.817	1.001	10.07
14)	T	Trichlorofluor...	3.435	3.410	3.265	3.122	3.263	2.927	2.732	2.549	2.504	3.023	11.88
15)	T	2-Propanol (Is...	3.591	3.674	3.540	3.536	3.979	3.738	3.911	3.464	2.593	3.558	11.28
16)	T	Acrylonitrile	1.130	0.963	1.342	1.444	1.758	1.668	1.792	1.669	1.604	1.486	19.50
17)	T	1,1-Dichloroet...	1.428	1.332	1.200	1.310	1.373	1.255	1.321	1.238	1.218	1.297	5.83
18)	T	2-Methyl-2-Pro...	3.793	3.652	3.760	3.684	4.282	3.893	4.118	3.454	2.541	3.686	13.45
19)	T	Methylene Chlo...			2.002	1.611	1.687	1.429	1.471	1.362	1.330	1.556	15.09
20)	T	3-Chloro-1-pro...	1.339	1.423	1.375	1.407	1.599	1.707	1.863	1.859	1.809	1.598	13.61
21)	T	Trichlorotrifl...	1.708	1.475	1.393	1.255	1.425	1.204	1.231	1.136	1.112	1.327	14.43
22)	T	Carbon Disulfide	4.911	4.668	4.408	4.548	5.193	4.826	5.033	4.641	4.491	4.747	5.53
23)	T	trans-1,2-Dich...	1.930	1.920	1.968	1.909	2.162	2.025	2.030	1.958	1.875	1.975	4.40
24)	T	1,1-Dichloroet...	2.643	2.908	2.648	2.632	2.788	2.491	2.424	2.363	2.274	2.575	7.94
25)	T	Methyl tert-Bu...	4.926	4.707	4.514	4.431	4.904	4.446	4.534	4.232	3.968	4.518	6.76
26)	T	Vinyl Acetate	0.217	0.210	0.267	0.326	0.362	0.356	0.359	0.360	0.359	0.313	20.46
27)	T	2-Butanone (MEK)			0.592	0.661	0.904	0.887	0.900	0.865	0.851	0.808	15.72
28)	T	cis-1,2-Dichlo...	2.059	1.943	1.998	1.939	2.073	1.941	2.009	1.873	1.792	1.959	4.54
29)	T	Diisopropyl Ether	1.270	1.171	1.118	1.221	1.264	1.111	1.131	1.105	1.102	1.166	5.90
30)	T	Ethyl Acetate			0.429	0.418	0.537	0.464	0.479	0.456	0.434	0.460	8.72
31)	T	n-Hexane				2.410	2.331	1.872	1.662	1.731	1.699	1.951	17.12

Method Path : J:\MS03\METHODS\
Method File : R3070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

32)	T	Chloroform	3.013	2.716	2.749	2.627	2.856	2.573	2.598	2.423	2.356	2.657	7.70
33)	S	1,2-Dichloroet...	1.566	1.620	1.679	1.753	1.774	1.805	1.730	1.634	1.591	1.684	5.09
34)	T	Tetrahydrofura...	0.795	0.953	0.825	0.750	1.002	0.912	0.919	0.893	0.878	0.881	8.97
35)	T	Ethyl tert-But...	1.935	1.834	1.752	1.856	1.904	1.793	1.875	1.787	1.750	1.832	3.60
36)	T	1,2-Dichloroet...	2.159	2.207	2.155	2.111	2.373	2.188	2.150	1.944	1.849	2.126	7.13
37)	IR	1,4-Difluorobenzen...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
38)	T	1,1,1-Trichlor...	0.516	0.523	0.476	0.439	0.503	0.485	0.507	0.465	0.449	0.485	6.11
39)	T	Isopropyl Acetate	0.147	0.140	0.141	0.144	0.163	0.153	0.166	0.154	0.146	0.151	6.07
40)	T	1-Butanol				0.196	0.282	0.297	0.308	0.284	0.270	0.273	14.57
41)	T	Benzene	1.339	1.204	1.121	1.075	1.102	0.988	1.019	0.947	0.912	1.079	12.38
42)	T	Carbon Tetrach...	0.402	0.394	0.395	0.370	0.420	0.413	0.451	0.415	0.405	0.407	5.42
43)	T	Cyclohexane	0.522	0.477	0.446	0.441	0.464	0.430	0.451	0.420	0.403	0.450	7.73
44)	T	tert-Amyl Meth...	0.910	0.802	0.755	0.761	0.845	0.843	0.908	0.841	0.797	0.829	6.78
45)	T	1,2-Dichloropr...	0.309	0.306	0.273	0.262	0.280	0.266	0.283	0.260	0.250	0.276	7.34
46)	T	Bromodichlorom...	0.301	0.372	0.309	0.310	0.387	0.386	0.418	0.383	0.371	0.360	11.67
47)	T	Trichloroethene	0.361	0.362	0.325	0.323	0.334	0.311	0.328	0.314	0.315	0.330	5.74
48)	T	1,4-Dioxane	0.194	0.170	0.196	0.181	0.238	0.226	0.235	0.218	0.213	0.208	11.47
49)	T	2,2,4-Trimethy...	1.365	1.351	1.289	1.217	1.385	1.284	1.320	1.185	1.091	1.276	7.53
50)	T	Methyl Methacr...		0.073	0.085	0.087	0.115	0.115	0.129	0.122	0.122	0.106	19.77
51)	T	n-Heptane	0.322	0.301	0.276	0.276	0.300	0.273	0.279	0.264	0.258	0.283	7.20
52)	T	cis-1,3-Dichlo...	0.340	0.340	0.345	0.345	0.429	0.441	0.490	0.447	0.428	0.400	14.51
53)	T	4-Methyl-2-pen...			0.182	0.195	0.253	0.266	0.284	0.254	0.241	0.239	15.55
54)	T	trans-1,3-Dich...		0.250	0.268	0.281	0.397	0.427	0.475	0.431	0.413	0.368	23.70
55)	T	1,1,2-Trichlor...	0.267	0.282	0.249	0.261	0.291	0.274	0.294	0.269	0.262	0.272	5.42
56)	IR	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.506	2.493	2.458	2.427	2.434	2.410	2.432	2.492	2.540	2.466	1.77
58)	T	Toluene	3.363	3.311	2.948	2.706	2.986	2.735	2.869	2.767	2.670	2.928	8.72
59)	T	2-Hexanone		0.824	0.943	1.038	1.492	1.492	1.532	1.445	1.361	1.266	22.46
60)	T	Dibromochlorom...	0.575	0.591	0.530	0.522	0.626	0.680	0.778	0.767	0.778	0.650	16.11
61)	T	1,2-Dibromoethane	0.645	0.627	0.596	0.571	0.688	0.674	0.730	0.703	0.703	0.660	8.12
62)	T	n-Butyl Acetate	0.919	1.065	1.066	1.158	1.524	1.585	1.709	1.603	1.499	1.348	21.71
63)	T	n-Octane	0.616	0.550	0.590	0.560	0.621	0.572	0.612	0.580	0.556	0.584	4.65
64)	T	Tetrachloroethene	1.076	1.003	0.964	0.859	0.924	0.845	0.907	0.895	0.931	0.934	7.75
65)	T	Chlorobenzene	2.396	2.100	1.883	1.809	1.986	1.807	1.886	1.821	1.794	1.942	10.17
66)	T	Ethylbenzene	3.447	3.372	3.121	2.936	3.533	3.319	3.485	3.276	3.092	3.287	6.11
67)	T	m- & p-Xylenes	2.683	2.666	2.506	2.415	2.863	2.664	2.799	2.630	2.469	2.633	5.62
68)	T	Bromoform				0.388	0.509	0.559	0.684	0.688	0.711	0.590	21.60
69)	T	Styrene	1.456	1.402	1.370	1.414	1.835	1.901	2.018	1.933	1.905	1.693	16.09
70)	T	o-Xylene	2.848	2.776	2.728	2.624	3.102	2.911	3.023	2.807	2.701	2.836	5.45

Evaluate Continuing Calibration Report

Data Path : I:\MS03\DATA\2013_07\11\
Data File : 07111302.D
Acq On : 11 Jul 2013 10:18
Operator : SC
Sample : 25ng TO-15 CCV STD
Misc : S25-0619302/S25-07021304 (7/31)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 11 10:54:12 2013
Quant Method : J:\MS03\METHODS\R3070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 10:36:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
77	T	3-Ethyltoluene	3.394	3.361	1.0	122	0.00
78	T	4-Ethyltoluene	3.435	3.118	9.2	115	0.00
79	T	1,3,5-Trimethylbenzene	2.951	2.757	6.6	119	0.00
80	T	alpha-Methylstyrene	1.273	1.377	-8.2	118	-0.01
81	T	2-Ethyltoluene	3.491	3.218	7.8	118	0.00
82	T	1,2,4-Trimethylbenzene	3.010	2.891	4.0	116	-0.01
83	T	n-Decane	1.586	1.414	10.8	114	-0.01
84	T	Benzyl Chloride	2.255	2.359	-4.6	115	-0.01
85	T	1,3-Dichlorobenzene	1.695	1.572	7.3	120	-0.01
86	T	1,4-Dichlorobenzene	1.773	1.633	7.9	120	-0.01
87	T	sec-Butylbenzene	3.864	3.619	6.3	117	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.755	3.643	3.0	117	-0.01
89	T	1,2,3-Trimethylbenzene	3.093	2.906	6.0	116	-0.01
90	T	1,2-Dichlorobenzene	1.645	1.538	6.5	120	-0.01
91	T	d-Limonene	1.001	1.042	-4.1	112	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.542	0.582	-7.4	120	0.00
93	T	n-Undecane	1.453	1.475	-1.5	111	0.00
94	T	1,2,4-Trichlorobenzene	1.254	1.319	-5.2	119	0.00
95	T	Naphthalene	4.005	3.967	0.9	117	0.00
96	T	n-Dodecane	1.446	1.386	4.1	111	0.00
97	T	Hexachlorobutadiene	0.875	0.816	6.7	120	0.00
98	T	Cyclohexanone	0.884	0.862	2.5	115	-0.01
99	T	tert-Butylbenzene	3.011	2.792	7.3	117	-0.01
100	T	n-Butylbenzene	2.734	2.698	1.3	114	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No: P1302519

Company Name & Address (Reporting Information): CH2m Hill, 1717 Arch Street; Suite 4400, Philadelphia, PA 19103

Project Name: Pfizer Tier IV

Project Number: Recon # 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information

Phone: 215 640 9105 Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2m.com

Sampler (Print & Sign): Glenn R. Knierien

ALS Contact:

Analysis Method: TO-15 | Analyze Surrogates Compds

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Analyze Surrogates Compds	Comments e.g. Actual Preservative or specific instructions
6-27 BLK	1-0468	6-27	13:30	ISC00582	OA00587	-27	-0	1l	b	-	24-hr Started 6-27-13
2-3620-004/250	2-0466	6-27	13:30	ISS00026	OA01172	-29	-0	1l	b	-	24-hr
-	-	-	-	-	-	-	-	-	-	-	-
6-28 BLK	3	6-28	1315-30	-	-	-	-	1l	-	b	15 min Tedlar
2-3620-004	4	6-28	1300-15	-	-	-	-	1l	-	b	15 min Tedlar

Report Tier Levels - please select

Tier I - Results (Default in not specified) _____ Tier III (Results + QC & Calibration Summaries) _____

Tier II (Results + QC Summaries _____ Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No

Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Glenn R. Knierien	6-28	1600	FedEx 8022 2388 1691	6-28	1600
Fuller				6/28/13	0845

Cooler / Blank Temperature _____ °C

5 of 34

COLUMBIA ANALYTICAL INC.

REPORT SUMMARY

Method : 20 Sulfurs
Client & Job# : CH2M Hill / P1302819
Analyst : MC

Printed : 07/01/13
Instrument : GC#13, SCD#13
Date Acquired : 06/29/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-05291304		lcs 2000ppb s27-05241304	% R	mb 1ml	2819-003 1ml	2819-004 1ml						std 2000ppb s27-05291304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0	1.0						0.200	
Dilution:			1				1	1.0	1.0						1	
Pi:			1.0				1.00	1.00	1.00						1.00	
Pf:			1.0				1.00	1.00	1.00						1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00	1.00						1.00	
Hydrogen_Sulfide	1.7	5.0	8626.20	13.4%	2035.4	99.5%	ND	ND	**ND**						**10786.60**	8.3%
Carbonyl_Sulfide	5.0	5.0	8864.80	12.7%	2035.8	100.9%	ND	**26.00**	75.41						**10922.90**	7.5%
Methyl_Mercaptan	2.2	5.0	8859.70	12.4%	2115.7	112.1%	ND	**ND**	**ND**						**10784.75**	6.7%
Ethyl_Mercaptan	2.2	5.0					ND	**ND**	ND						**ND**	
Dimethyl_Sulfide	2.2	5.0				Spike	ND	**79.41**	**227.64**						**ND**	
Carbon_Disulfide	2.5	2.5				Amount	ND	**1267.69**	3668.23						**ND**	
2-Propyl_Mercaptan	2.2	5.0			Hydrogen_Sulfide	2045.5	ND	**ND**	**ND**						**ND**	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			Carbonyl Sulfide	2017.5	ND	**ND**	ND						**ND**	
Propyl_Mercaptan	2.2	5.0			Methyl Mercaptan	1887.7	ND	**ND**	ND						**ND**	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	**20.76**	52.06						**ND**	
Thiophene	2.2	5.0					ND	**148.32**	437.30						**ND**	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	**24.77**	69.30						**ND**	
Diethyl_Sulfide	2.2	5.0					ND	ND	ND						**ND**	
n-Butyl_Mercaptan	2.2	5.0					ND	ND	ND						**ND**	
Dimethyl_Disulfide	1.10	2.5					ND	**3.82**	13.04						**ND**	
2-Methyl_Thiophene	2.2	5.0					ND	~~**18.48**~~	~~82.45~~						ND	
3-Methyl_Thiophene	2.2	5.0					ND	**23.11**	79.23						**ND**	
Tetrahydrothiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2-Ethyl_Thiophene	2.2	5.0					ND	**6.70**	38.16						**ND**	
Diethyl_Disulfide	1.10	2.5					ND	ND	ND						**ND**	
Methyltrisulfide	1.10	2.5					ND	ND	ND						ND	

j = estimated concentration. Concentration greater than MDL but below RL.

MC 7/1/13

Response Factor Report Instrument #MS08

Method Path : J:\MS08\Methods\
Method File : R8062413.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Jun 25 07:22:58 2013
Response Via : Initial Calibration

Calibration Files
0.08=06241328.D 0.10=06241329.D 0.20=06241330.D 0.40=06241331.D 1.0 =06241332.D 5.0 =06241333.D
25 =06241334.D 50 =06241335.D 100 =06241336.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------								
2)	T	Propene	1.376	1.482	1.285	1.452	1.334	1.240	1.564	1.467	1.457	1.406	7.43
3)	T	Dichlorodifluo...	2.962	3.473	2.906	3.119	2.978	2.666	2.924	2.529	2.343	2.878	11.55
4)	T	Chloromethane	2.029	2.164	1.866	2.098	2.045	1.842	2.028	1.762	1.596	1.937	9.44
5)	T	1,2-Dichloro-1...	1.645	1.858	1.603	1.775	1.728	1.551	1.725	1.490	1.408	1.643	8.78
6)	T	Vinyl Chloride	1.875	2.011	1.836	2.071	2.013	1.835	2.083	1.802	1.682	1.912	7.22
7)	T	1,3-Butadiene	1.171	1.128	1.254	1.377	1.442	1.346	1.569	1.392	1.304	1.331	10.22
8)	T	Bromomethane	2.317	2.030	1.700	1.572	1.389	1.182	1.331	1.180	1.114	1.535	27.02
9)	T	Chloroethane	0.962	1.045	1.054	1.078	1.108	1.002	1.124	0.988	0.925	1.032	6.52
10)	T	Ethanol	1.000	0.930	0.879	0.899	1.032	0.936	1.040	0.921	0.856	0.944	6.98
11)	T	Acetonitrile	1.659	1.627	1.775	1.916	2.083	1.924	2.160	1.966	1.928	1.893	9.42
12)	T	Acrolein	0.585	0.632	0.632	0.675	0.734	0.655	0.757	0.684	0.639	0.666	8.05
13)	T	Acetone	1.115	1.014	1.008	1.058	1.018	0.890	0.975	0.856	0.800	0.970	10.49
14)	T	Trichlorofluor...	3.014	2.845	2.753	2.978	2.807	2.491	2.748	2.408	2.276	2.702	9.46
15)	T	2-Propanol (Is...	3.206	3.259	3.419	3.973	3.862	3.491	3.413	2.702	2.257	3.287	16.26
16)	T	Acrylonitrile	0.839	1.036	1.175	1.375	1.529	1.435	1.623	1.468	1.392	1.319	19.18
17)	T	1,1-Dichloroet...	1.413	1.236	1.311	1.361	1.341	1.231	1.367	1.227	1.191	1.297	6.02
18)	T	2-Methyl-2-Pro...	3.380	3.260	3.300	3.651	3.712	3.116	3.377	2.231	1.610	3.071	22.64
19)	T	Methylene Chlo...	1.712	1.837	1.461	1.515	1.366	1.231	1.356	1.210	1.158	1.427	16.14
20)	T	3-Chloro-1-pro...	2.151	2.418	2.281	2.506	2.206	1.805	2.008	1.772	1.651	2.089	14.32
21)	T	Trichlorotrifl...	1.393	1.393	1.361	1.427	1.429	1.264	1.393	1.239	1.191	1.343	6.58
22)	T	Carbon Disulfide		5.921	4.852	5.706	4.599	4.233	4.846	4.381	4.247	4.848	13.29
23)	T	trans-1,2-Dich...	1.525	1.571	1.535	1.822	1.851	1.729	1.984	1.754	1.666	1.715	9.12
24)	T	1,1-Dichloroet...	2.578	2.476	2.362	2.519	2.499	2.218	2.472	2.177	2.061	2.374	7.59
25)	T	Methyl tert-Bu...	4.210	4.139	4.075	4.378	4.344	3.920	4.418	3.669	2.598	3.972	14.30
26)	T	Vinyl Acetate	0.265	0.278	0.310	0.386	0.399	0.382	0.441	0.399	0.387	0.361	16.88
27)	T	2-Butanone (MEK)			0.743	0.882	0.932	0.853	0.984	0.871	0.841	0.872	8.65
28)	T	cis-1,2-Dichlo...	1.827	1.649	1.640	1.860	1.824	1.656	1.861	1.645	1.561	1.725	6.74
29)	T	Diisopropyl Ether	1.033	1.066	1.124	1.469	1.471	1.311	1.457	1.300	1.258	1.277	13.47
30)	T	Ethyl Acetate	0.380	0.393	0.412	0.500	0.498	0.450	0.513	0.460	0.441	0.450	10.72
31)	T	n-Hexane	2.467	2.471	2.342	2.540	2.456	2.206	2.399	2.107	2.009	2.333	7.90
32)	T	Chloroform	2.620	2.500	2.392	2.442	2.341	2.099	2.349	2.085	2.007	2.315	8.97
33)	S	1,2-Dichloroet...	1.284	1.319	1.310	1.288	1.309	1.295	1.295	1.296	1.267	1.296	1.20
34)	T	Tetrahydrofura...			0.724	0.846	0.849	0.836	0.945	0.843	0.807	0.836	7.80
35)	T	Ethyl tert-But...	1.640	1.670	1.797	1.939	1.880	1.726	1.944	1.733	1.660	1.777	6.71
36)	T	1,2-Dichloroet...	1.772	1.824	1.830	1.931	1.861	1.682	1.868	1.660	1.567	1.777	6.63
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------								
38)	T	1,1,1-Trichlor...	0.550	0.500	0.474	0.517	0.486	0.438	0.496	0.433	0.411	0.478	9.27

Method Path : J:\MS08\Methods\
Method File : R8062413.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

39)	T	Isopropyl Acetate	0.154	0.161	0.157	0.173	0.174	0.161	0.179	0.157	0.149	0.163	6.32
40)	T	1-Butanol				0.234	0.279	0.281	0.322	0.288	0.289	0.282	10.10
41)	T	Benzene	1.341	1.267	1.186	1.215	1.116	1.003	1.124	0.977	0.934	1.129	12.20
42)	T	Carbon Tetrach...	0.424	0.413	0.372	0.412	0.408	0.367	0.426	0.374	0.361	0.395	6.61
43)	T	Cyclohexane	0.524	0.495	0.480	0.526	0.498	0.447	0.510	0.449	0.431	0.484	7.21
44)	T	tert-Amyl Meth...	0.880	0.889	0.822	0.895	0.896	0.813	0.928	0.813	0.770	0.856	6.16
45)	T	1,2-Dichloropr...	0.283	0.275	0.285	0.292	0.296	0.261	0.296	0.257	0.244	0.277	6.78
46)	T	Bromodichlorom...	0.405	0.350	0.353	0.396	0.375	0.358	0.407	0.357	0.340	0.371	6.85
47)	T	Trichloroethene	0.403	0.374	0.374	0.400	0.371	0.340	0.388	0.346	0.337	0.370	6.75
48)	T	1,4-Dioxane	0.174	0.185	0.189	0.243	0.243	0.225	0.261	0.231	0.222	0.219	13.64
49)	T	2,2,4-Trimethy...	1.279	1.318	1.280	1.365	1.323	1.163	1.295	1.125	1.062	1.246	8.28
50)	T	Methyl Methacr...	0.116	0.127	0.121	0.138	0.141	0.132	0.155	0.138	0.134	0.134	8.70
51)	T	n-Heptane	0.305	0.319	0.298	0.321	0.331	0.294	0.330	0.289	0.277	0.307	6.23
52)	T	cis-1,3-Dichlo...	0.420	0.400	0.410	0.461	0.451	0.435	0.505	0.442	0.422	0.438	7.23
53)	T	4-Methyl-2-pen...	0.183	0.205	0.211	0.254	0.268	0.246	0.283	0.245	0.231	0.236	13.47
54)	T	trans-1,3-Dich...	0.358	0.349	0.348	0.387	0.408	0.398	0.466	0.410	0.391	0.390	9.49
55)	T	1,1,2-Trichlor...	0.288	0.269	0.278	0.305	0.293	0.268	0.305	0.266	0.255	0.281	6.35
56)	IR	Chlorobenzene-d5 (...	----------	----------	----------	ISTD	----------	----------	----------	----------	----------	----------	
57)	S	Toluene-d8 (SS2)	2.835	2.822	2.759	2.720	2.754	2.738	2.710	2.726	2.740	2.756	1.59
58)	T	Toluene	4.167	3.992	3.708	3.812	3.652	3.283	3.680	3.269	3.147	3.634	9.46
59)	T	2-Hexanone	1.362	1.358	1.424	1.479	1.611	1.514	1.686	1.480	1.396	1.479	7.55
60)	T	Dibromochlorom...	0.964	0.985	0.937	0.994	0.989	0.912	1.055	0.942	0.923	0.967	4.59
61)	T	1,2-Dibromoethane	0.957	0.927	0.938	0.948	0.949	0.863	0.987	0.889	0.860	0.924	4.75
62)	T	n-Butyl Acetate	1.636	1.727	1.695	1.807	1.910	1.817	2.032	1.782	1.671	1.786	7.00
63)	T	n-Octane	0.745	0.739	0.727	0.754	0.776	0.695	0.773	0.681	0.644	0.726	6.09
64)	T	Tetrachloroethene	1.373	1.373	1.342	1.362	1.321	1.168	1.330	1.205	1.190	1.296	6.46
65)	T	Chlorobenzene	2.873	2.733	2.521	2.572	2.517	2.278	2.538	2.272	2.185	2.499	8.96
66)	T	Ethylbenzene	4.436	4.111	3.821	4.131	4.004	3.767	4.222	3.720	3.580	3.977	6.92
67)	T	m- & p-Xylenes	3.482	3.353	3.113	3.320	3.323	3.038	3.453	3.069	2.978	3.236	5.83
68)	T	Bromoform	0.964	0.944	0.896	0.963	0.948	0.924	1.099	1.013	1.026	0.975	6.28
69)	T	Styrene	2.291	2.474	2.215	2.436	2.553	2.394	2.755	2.448	2.381	2.439	6.35
70)	T	o-Xylene	3.636	3.355	3.223	3.481	3.398	3.103	3.545	3.148	3.043	3.326	6.25
71)	T	n-Nonane	1.768	1.606	1.664	1.692	1.745	1.626	1.775	1.526	1.398	1.644	7.51
72)	T	1,1,2,2-Tetrac...	1.433	1.465	1.443	1.572	1.489	1.363	1.548	1.389	1.330	1.448	5.58
73)	S	Bromofluoroben...	0.968	0.979	0.995	1.006	1.019	1.025	1.045	1.024	1.032	1.010	2.52
74)	T	Cumene	4.814	4.643	4.353	4.616	4.590	4.211	4.750	4.173	3.990	4.460	6.44
75)	T	alpha-Pinene	2.251	2.206	1.995	2.155	2.176	2.051	2.285	2.040	1.957	2.124	5.50
76)	T	n-Propylbenzene	7.112	5.934	5.404	5.555	5.234	4.826	5.443	4.761	4.495	5.418	14.33
77)	T	3-Ethyltoluene	4.484	4.218	3.967	4.198	4.237	4.350	4.627	4.368	4.284	4.304	4.35
78)	T	4-Ethyltoluene	4.642	4.247	4.150	4.422	4.384	3.583	4.389	3.613	3.367	4.089	11.03
79)	T	1,3,5-Trimethy...	3.728	3.372	3.324	3.591	3.560	3.234	3.687	3.258	3.151	3.434	6.16
80)	T	alpha-Methylst...	1.811	1.771	1.789	1.916	2.008	1.933	2.142	1.917	1.881	1.908	6.11
81)	T	2-Ethyltoluene	4.646	4.234	4.242	4.493	4.526	4.071	4.596	4.094	3.939	4.316	5.94
82)	T	1,2,4-Trimethy...	3.629	3.319	3.398	3.669	3.647	3.351	3.877	3.481	3.372	3.527	5.35
83)	T	n-Decane	1.827	1.722	1.679	1.879	1.922	1.727	1.917	1.631	1.448	1.750	8.85
84)	T	Benzyl Chloride	2.230	2.207	2.204	2.405	2.731	2.784	3.404	3.102	3.030	2.678	16.53
85)	T	1,3-Dichlorobe...	2.340	2.196	2.141	2.228	2.239	2.047	2.395	2.204	2.233	2.225	4.57
86)	T	1,4-Dichlorobe...	2.371	2.308	2.112	2.246	2.216	2.026	2.376	2.117	2.074	2.205	5.88

Method Path : J:\MS08\Methods\
Method File : R8062413.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

87)	T	sec-Butylbenzene	4.829	4.625	4.409	4.809	4.851	4.417	5.023	4.431	4.194	4.621	5.92
88)	T	4-Isopropyltol...	5.831	4.874	4.642	5.066	5.085	4.607	5.341	4.735	4.558	4.971	8.34
89)	T	1,2,3-Trimethy...	3.670	3.370	3.331	3.606	3.661	3.401	3.950	3.518	3.434	3.549	5.52
90)	T	1,2-Dichlorobe...	2.194	2.203	2.128	2.127	2.157	1.972	2.265	2.028	1.989	2.118	4.80
91)	T	d-Limonene	1.126	1.143	1.060	1.205	1.310	1.246	1.365	1.201	1.130	1.198	8.07
92)	T	1,2-Dibromo-3-...	0.645	0.706	0.689	0.760	0.803	0.781	0.919	0.820	0.793	0.769	10.58
93)	T	n-Undecane	1.452	1.557	1.503	1.678	1.870	1.761	1.937	1.678	1.535	1.664	10.09
94)	T	1,2,4-Trichlor...	1.759	1.605	1.471	1.616	1.663	1.593	1.900	1.696	1.654	1.662	7.19
95)	T	Naphthalene	4.259	4.142	4.079	4.532	5.166	5.020	6.022	5.302	5.028	4.839	13.24
96)	T	n-Dodecane	1.284	1.401	1.456	1.735	1.906	1.891	1.948	1.691	1.561	1.653	14.54
97)	T	Hexachlorobuta...	1.263	1.255	1.129	1.208	1.202	1.092	1.264	1.120	1.101	1.182	6.04
98)	T	Cyclohexanone	0.868	0.949	1.013	1.073	1.154	1.106	1.232	1.089	1.037	1.058	10.21
99)	T	tert-Butylbenzene	4.034	3.825	3.712	3.899	3.891	3.545	4.077	3.650	3.538	3.797	5.22
100)	T	n-Butylbenzene	3.484	3.330	3.163	3.449	3.515	3.300	3.747	3.262	3.089	3.371	5.96

(#) = Out of Range

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. P1302775

ALS Contact:

Company Name & Address (Reporting Information): CH2M Hill, 1717 Arch Street, Suite 4400, Philadelphia, PA 19103

Project Name: Pfizer Tier IV

Project Number: RECON # 2-3620

Project Manager: Richard Traver

P.O. # / Billing Information:

Phone: 215 640 9105 Fax: 215 640 9305

Email Address for Result Reporting: Richard.Traver@CH2M.com

Sampler (Print & Sign): Glenn R. Knierien

Analysis Method

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	TO-15	Malodorous Cmpds	Comments e.g. Actual Preservative or specific instructions
											Started 6-26-13
6-26 (BLK)	1 -0.23	6-26	10:01	1SC00417	0A01527	-26 Hg	-0 Hg	1l	X		24-hr total
2-3620-003 (250g)	2 -0.45	6-26	10:01	1SC00246	0A00449	-29 Hg	-0 Hg	1l	X		24-hr total
—	—	—	—	—	—	—	—	—	—	—	
6-27 BLK	3	6-27	0945	—	—	—	—	1l		X	Tedlar
2-3620-003	4	6-27	0930	—	—	—	—	1l		X	Tedlar

Report Tier Levels - please select
Tier I - Results (Default in not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries ____ Tier IV (Date Validation Package) 10% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Glenn R. Knierien	6-27-13	1300	FedEx 8022 2388 1603	6-27	1300
Fedex			[signature]	6/28/13	0720

Cooler / Blank Temperature ____ °C

COLUMBIA ANALYTICAL INC.

REPORT SUMMARY

Method : 20 Sulfurs
Client & Job# : CH2M Hill / P1302775
Analyst : MC

Printed : 06/28/13
Instrument : GC#13, SCD#13
Date Acquired : 06/28/13

SAMPLE RESULT SUMMARIES (ppb)

Compounds	MDL	RL	ppbv	% Diff	ppbv		ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	% Diff
Sample Information :	ppbv	ppbv	std 2000ppb s27-05291304		lcs 2000ppb s27-05241304	% R	mb 1ml	2775-003 1ml	2775-004 0.7ml						std 2000ppb s27-05291304	
Injection Volume (mL):	1.0	1.0	0.200				1.000	1.0	0.70						0.200	
Dilution:			1				1	1.0	1.0						1	
Pi:			1.0				1.00	1.00	1.00						1.00	
Pf:			1.0				1.00	1.00	1.00						1.00	
PiPf DF:	1.00	1.00	1.00				1.00	1.00	1.00						1.00	
Hydrogen_Sulfide	1.7	5.0	**7738.90**	**22.3%**	**1993.5**	**97.5%**	ND	ND	**ND**						**9797.50**	**1.6%**
Carbonyl_Sulfide	5.0	5.0	**7752.75**	**23.7%**	**1976.9**	**98.0%**	ND	**16.40**	92.09						**9834.90**	**3.2%**
Methyl_Mercaptan	2.2	5.0	**7500.40**	**25.8%**	**2020.3**	**107.0%**	ND	**ND**	**ND**						**9741.00**	**3.6%**
Ethyl_Mercaptan	2.2	5.0					ND	**ND**	ND						**ND**	
Dimethyl_Sulfide	2.2	5.0				**Spike**	ND	**122.64**	**697.71**						**ND**	
Carbon_Disulfide	2.5	2.5				**Amount**	ND	**2204.54**	13390.94						**ND**	
2-Propyl_Mercaptan	2.2	5.0			**Hydrogen_Sulfide**	**2045.5**	ND	**ND**	**ND**						**ND**	
t-Butyl_Mercaptan(2-Me-2-	2.2	5.0			**Carbonyl Sulfide**	**2017.5**	ND	**ND**	ND						**ND**	
Propyl_Mercaptan	2.2	5.0			**Methyl Mercaptan**	**1887.7**	ND	**ND**	ND						**ND**	
Ethyl_Methyl_Sulfide	2.2	5.0					ND	**23.02**	128.94						**ND**	
Thiophene	2.2	5.0					ND	**104.09**	659.46						**ND**	
i-Butyl_Mercaptan(2-Me-1-	2.2	5.0					ND	**22.22**	130.34						**ND**	
Diethyl_Sulfide	2.2	5.0					ND	ND	10.26						**ND**	
n-Butyl_Mercaptan	2.2	5.0					ND	ND	ND						**ND**	
Dimethyl_Disulfide	1.10	2.5					ND	**4.12**	26.74						**ND**	
2-Methyl_Thiophene	2.2	5.0					ND	~~8.24~~	~~65.19~~						ND	
3-Methyl_Thiophene	2.2	5.0					ND	**14.81**	81.21						**ND**	
Tetrahydrothiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2,5-Dimethyl_Thiophene	2.2	5.0					ND	**ND**	ND						**ND**	
2-Ethyl_Thiophene	2.2	5.0					ND	**ND**	43.66						**ND**	
Diethyl_Disulfide	1.10	2.5					ND	ND	ND						**ND**	
Methyltrisulfide	1.10	2.5					ND	ND	ND						ND	

j = estimated concentration. Concentration greater than MDL but below RL.

MC
6/28/13

Response Factor Report MSD3

Method Path : J:\MS03\METHODS\
Method File : R3070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Jul 08 10:36:52 2013
Response Via : Initial Calibration

Calibration Files
0.08=07051332.D 0.10=07051333.D 0.20=07051334.D 0.40=07051335.D 1.0 =07051336.D 5.0 =07051337.D
25 =07051338.D 50 =07051339.D 100 =07051340.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------										
2)	T	Propene	1.801	1.609	1.569	1.502	1.628	1.485	1.471	1.274	1.497	1.537	9.29
3)	T	Dichlorodifluo...	3.953	3.858	3.802	3.582	4.050	3.650	3.442	2.930	2.713	3.553	12.89
4)	T	Chloromethane	2.487	2.422	2.416	2.238	2.444	2.215	2.266	1.900	1.750	2.238	11.43
5)	T	1,2-Dichloro-1...	1.940	1.971	1.932	1.742	1.867	1.695	1.720	1.500	1.448	1.757	10.82
6)	T	Vinyl Chloride	2.069	2.121	2.033	2.054	2.243	2.046	2.172	1.880	1.767	2.043	7.06
7)	T	1,3-Butadiene	1.477	1.193	1.445	1.231	1.512	1.439	1.589	1.375	1.299	1.396	9.48
8)	T	Bromomethane	2.267	2.053	1.618	1.464	1.427	1.243	1.313	1.185	1.127	1.522	25.98
9)	T	Chloroethane	1.035	1.101	0.908	1.130	1.196	1.092	1.137	1.032	0.970	1.067	8.39
10)	T	Ethanol	1.102	1.142	1.099	1.059	1.119	1.002	0.985	0.878	0.828	1.024	10.78
11)	T	Acetonitrile	2.978	2.706	2.739	2.676	2.871	2.545	2.635	2.420	2.252	2.647	8.35
12)	T	Acrolein			0.622	0.713	0.812	0.781	0.863	0.793	0.756	0.763	10.15
13)	T	Acetone	1.097	1.108	1.059	1.010	1.082	0.982	0.982	0.873	0.817	1.001	10.07
14)	T	Trichlorofluor...	3.435	3.410	3.265	3.122	3.263	2.927	2.732	2.549	2.504	3.023	11.88
15)	T	2-Propanol (Is...	3.591	3.674	3.540	3.536	3.979	3.738	3.911	3.464	2.593	3.558	11.28
16)	T	Acrylonitrile	1.130	0.963	1.342	1.444	1.758	1.668	1.792	1.669	1.604	1.486	19.50
17)	T	1,1-Dichloroet...	1.428	1.332	1.200	1.310	1.373	1.255	1.321	1.238	1.218	1.297	5.83
18)	T	2-Methyl-2-Pro...	3.793	3.652	3.760	3.684	4.282	3.893	4.118	3.454	2.541	3.686	13.45
19)	T	Methylene Chlo...			2.002	1.611	1.687	1.429	1.471	1.362	1.330	1.556	15.09
20)	T	3-Chloro-1-pro...	1.339	1.423	1.375	1.407	1.599	1.707	1.863	1.859	1.809	1.598	13.61
21)	T	Trichlorotrifl...	1.708	1.475	1.393	1.255	1.425	1.204	1.231	1.136	1.112	1.327	14.43
22)	T	Carbon Disulfide	4.911	4.668	4.408	4.548	5.193	4.826	5.033	4.641	4.491	4.747	5.53
23)	T	trans-1,2-Dich...	1.930	1.920	1.968	1.909	2.162	2.025	2.030	1.958	1.875	1.975	4.40
24)	T	1,1-Dichloroet...	2.643	2.908	2.648	2.632	2.788	2.491	2.424	2.363	2.274	2.575	7.94
25)	T	Methyl tert-Bu...	4.926	4.707	4.514	4.431	4.904	4.446	4.534	4.232	3.968	4.518	6.76
26)	T	Vinyl Acetate	0.217	0.210	0.267	0.326	0.362	0.356	0.359	0.360	0.359	0.313	20.46
27)	T	2-Butanone (MEK)			0.592	0.661	0.904	0.887	0.900	0.865	0.851	0.808	15.72
28)	T	cis-1,2-Dichlo...	2.059	1.943	1.998	1.939	2.073	1.941	2.009	1.873	1.792	1.959	4.54
29)	T	Diisopropyl Ether	1.270	1.171	1.118	1.221	1.264	1.111	1.131	1.105	1.102	1.166	5.90
30)	T	Ethyl Acetate			0.429	0.418	0.537	0.464	0.479	0.456	0.434	0.460	8.72
31)	T	n-Hexane				2.410	2.331	1.872	1.662	1.731	1.699	1.951	17.12

Method Path : J:\MS03\METHODS\
Method File : R3070513.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

71)	T	n-Nonane	1.477	1.310	1.310	1.349	1.626	1.500	1.540	1.382	1.268	1.418	8.66
72)	T	1,1,2,2-Tetrac...	1.187	1.063	1.072	1.097	1.295	1.263	1.317	1.232	1.197	1.191	8.02
73)	S	Bromofluoroben...	0.838	0.823	0.815	0.796	0.776	0.774	0.761	0.756	0.768	0.790	3.75
74)	T	Cumene	3.940	3.753	3.611	3.344	3.945	3.780	3.944	3.650	3.412	3.709	6.07
75)	T	alpha-Pinene	1.696	1.604	1.599	1.491	1.801	1.799	1.896	1.803	1.763	1.717	7.51
76)	T	n-Propylbenzene	4.188	3.920	3.991	3.857	4.668	4.505	4.611	4.183	3.812	4.193	7.87
77)	T	3-Ethyltoluene	3.247	3.393	2.980	2.986	3.695	3.708	3.765	3.475	3.295	3.394	8.74
78)	T	4-Ethyltoluene	3.635	3.159	3.183	3.163	3.828	3.557	3.716	3.447	3.224	3.435	7.61
79)	T	1,3,5-Trimethy...	3.023	2.837	2.726	2.688	3.266	3.096	3.159	2.950	2.811	2.951	6.79
80)	T	alpha-Methylst...	0.983	0.948	0.979	1.043	1.406	1.492	1.594	1.510	1.505	1.273	21.65
81)	T	2-Ethyltoluene	3.523	3.489	3.309	3.171	3.831	3.705	3.714	3.428	3.244	3.491	6.51
82)	T	1,2,4-Trimethy...	2.812	2.751	2.619	2.616	3.392	3.294	3.395	3.176	3.034	3.010	10.62
83)	T	n-Decane	1.617	1.439	1.490	1.466	1.826	1.766	1.701	1.547	1.420	1.586	9.42
84)	T	Benzyl Chloride				1.225	1.915	2.411	2.802	2.636	2.542	2.255	26.06
85)	T	1,3-Dichlorobe...	1.845	1.651	1.617	1.459	1.770	1.727	1.791	1.691	1.708	1.695	6.67
86)	T	1,4-Dichlorobe...	1.927	1.736	1.639	1.544	1.842	1.784	1.867	1.790	1.825	1.773	6.68
87)	T	sec-Butylbenzene	3.894	3.688	3.556	3.475	4.309	4.176	4.221	3.869	3.586	3.864	8.07
88)	T	4-Isopropyltol...	3.624	3.361	3.401	3.291	4.183	4.153	4.243	3.894	3.647	3.755	9.98
89)	T	1,2,3-Trimethy...	2.984	2.823	2.768	2.796	3.489	3.370	3.424	3.155	3.028	3.093	9.07
90)	T	1,2-Dichlorobe...	1.661	1.666	1.509	1.446	1.759	1.703	1.753	1.652	1.658	1.645	6.33
91)	T	d-Limonene	0.780	0.752	0.797	0.845	1.092	1.217	1.269	1.158	1.098	1.001	20.52
92)	T	1,2-Dibromo-3-...			0.363	0.375	0.514	0.594	0.663	0.637	0.650	0.542	23.65
93)	T	n-Undecane	1.112	1.056	1.128	1.239	1.791	1.823	1.822	1.621	1.489	1.453	22.32
94)	T	1,2,4-Trichlor...		0.829	0.922	0.964	1.345	1.445	1.514	1.477	1.534	1.254	23.65
95)	T	Naphthalene				2.193	4.119	4.847	4.619	4.317	3.934	4.005	23.65
96)	T	n-Dodecane				0.719	1.583	1.802	1.705	1.515	1.352	1.446	26.86
97)	T	Hexachlorobuta...	0.972	0.755	0.812	0.762	0.911	0.908	0.926	0.893	0.932	0.875	8.94
98)	T	Cyclohexanone	0.844	0.801	0.771	0.718	0.942	0.960	1.027	0.967	0.927	0.884	11.80
99)	T	tert-Butylbenzene	3.083	2.954	2.779	2.655	3.226	3.127	3.257	3.059	2.958	3.011	6.57
100)	T	n-Butylbenzene	2.295	2.191	2.366	2.418	3.247	3.244	3.225	2.917	2.699	2.734	15.96

(#) = Out of Range

Response Factor Report MSD3

Path : J:\MS03\METHODS\
File : R3070513.M
: EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

n-Nonane	1.477	1.310	1.310	1.349	1.626	1.500	1.540	1.382	1.268	1.418	8.66
1,1,2,2-Tetrac...	1.187	1.063	1.072	1.097	1.295	1.263	1.317	1.232	1.197	1.191	8.02
Bromofluoroben...	0.838	0.823	0.815	0.796	0.776	0.774	0.761	0.756	0.768	0.790	3.75
Cumene	3.940	3.753	3.611	3.344	3.945	3.780	3.944	3.650	3.412	3.709	6.07
alpha-Pinene	1.696	1.604	1.599	1.491	1.801	1.799	1.896	1.803	1.763	1.717	7.51
n-Propylbenzene	4.188	3.920	3.991	3.857	4.668	4.505	4.611	4.183	3.812	4.193	7.87
3-Ethyltoluene	3.247	3.393	2.980	2.986	3.695	3.708	3.765	3.475	3.295	3.394	8.74
4-Ethyltoluene	3.635	3.159	3.183	3.163	3.828	3.557	3.716	3.447	3.224	3.435	7.61
1,3,5-Trimethy...	3.023	2.837	2.726	2.688	3.266	3.096	3.159	2.950	2.811	2.951	6.79
alpha-Methylst...	0.983	0.948	0.979	1.043	1.406	1.492	1.594	1.510	1.505	1.273	21.65
2-Ethyltoluene	3.523	3.489	3.309	3.171	3.831	3.705	3.714	3.428	3.244	3.491	6.51
1,2,4-Trimethy...	2.812	2.751	2.619	2.616	3.392	3.294	3.395	3.176	3.034	3.010	10.62
n-Decane	1.617	1.439	1.490	1.466	1.826	1.766	1.701	1.547	1.420	1.586	9.42
Benzyl Chloride				1.225	1.915	2.411	2.802	2.636	2.542	2.255	26.06
1,3-Dichlorobe...	1.845	1.651	1.617	1.459	1.770	1.727	1.791	1.691	1.708	1.695	6.67
1,4-Dichlorobe...	1.927	1.736	1.639	1.544	1.842	1.784	1.867	1.790	1.825	1.773	6.68
sec-Butylbenzene	3.894	3.688	3.556	3.475	4.309	4.176	4.221	3.869	3.586	3.864	8.07
4-Isopropyltol...	3.624	3.361	3.401	3.291	4.183	4.153	4.243	3.894	3.647	3.755	9.98
1,2,3-Trimethy...	2.984	2.823	2.768	2.796	3.489	3.370	3.424	3.155	3.028	3.093	9.07
1,2-Dichlorobe...	1.661	1.666	1.509	1.446	1.759	1.703	1.753	1.652	1.658	1.645	6.33
d-Limonene	0.780	0.752	0.797	0.845	1.092	1.217	1.269	1.158	1.098	1.001	20.52
1,2-Dibromo-3-...			0.363	0.375	0.514	0.594	0.663	0.637	0.650	0.542	23.65
n-Undecane	1.112	1.056	1.128	1.239	1.791	1.823	1.822	1.621	1.489	1.453	22.32
1,2,4-Trichlor...		0.829	0.922	0.964	1.345	1.445	1.514	1.477	1.534	1.254	23.65
Naphthalene				2.193	4.119	4.847	4.619	4.317	3.934	4.005	23.65
n-Dodecane				0.719	1.583	1.802	1.705	1.515	1.352	1.446	26.86
Hexachlorobuta...	0.972	0.755	0.812	0.762	0.911	0.908	0.926	0.893	0.932	0.875	8.94
Cyclohexanone	0.844	0.801	0.771	0.718	0.942	0.960	1.027	0.967	0.927	0.884	11.80
tert-Butylbenzene	3.083	2.954	2.779	2.655	3.226	3.127	3.257	3.059	2.958	3.011	6.57
n-Butylbenzene	2.295	2.191	2.366	2.418	3.247	3.244	3.225	2.917	2.699	2.734	15.96

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ut of Range

Evaluate Continuing Calibration Report

Data Path : I:\MS03\DATA\2013_07\09\
Data File : 07091302.D
Acq On : 9 Jul 2013 9:37
Operator : SC
Sample : 25ng TO-15 CCV STD
Misc : S25-0619302/S25-07021304 (7/31)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 09 10:16:15 2013
Quant Method : J:\MS03\METHODS\R3070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 10:36:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	119	-0.02
2	T	Propene	1.537	1.259	18.1	102	0.00
3	T	Dichlorodifluoromethane (CF	3.553	2.995	15.7	103	0.00
4	T	Chloromethane	2.238	1.930	13.8	101	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.757	1.522	13.4	105	0.00
6	T	Vinyl Chloride	2.043	1.869	8.5	102	-0.01
7	T	1,3-Butadiene	1.396	1.359	2.7	101	-0.01
8	T	Bromomethane	1.522	1.150	24.4	104	0.00
9	T	Chloroethane	1.067	0.981	8.1	102	0.00
10	T	Ethanol	1.024	0.868	15.2	104	-0.08
11	T	Acetonitrile	2.647	2.311	12.7	104	-0.04
12	T	Acrolein	0.763	0.762	0.1	105	-0.03
13	T	Acetone	1.001	0.873	12.8	105	-0.04
14	T	Trichlorofluoromethane	3.023	2.476	18.1	107	-0.02
15	T	2-Propanol (Isopropanol)	3.558	3.457	2.8	105	-0.06
16	T	Acrylonitrile	1.486	1.591	-7.1	105	-0.03
17	T	1,1-Dichloroethene	1.297	1.196	7.8	107	0.00
18	T	2-Methyl-2-Propanol (tert-B	3.686	3.622	1.7	104	-0.05
19	T	Methylene Chloride	1.556	1.321	15.1	106	-0.02
20	T	3-Chloro-1-propene (Allyl C	1.598	1.689	-5.7	107	-0.02
21	T	Trichlorotrifluoroethane	1.327	1.139	14.2	110	0.00
22	T	Carbon Disulfide	4.747	4.502	5.2	106	0.00
23	T	trans-1,2-Dichloroethene	1.975	1.815	8.1	106	0.00
24	T	1,1-Dichloroethane	2.575	2.172	15.7	106	0.00
25	T	Methyl tert-Butyl Ether	4.518	4.136	8.5	108	-0.02
26	T	Vinyl Acetate	0.313	0.324	-3.5	107	-0.03
27	T	2-Butanone (MEK)	0.808	0.807	0.1	106	-0.03
28	T	cis-1,2-Dichloroethene	1.959	1.774	9.4	105	-0.02
29	T	Diisopropyl Ether	1.166	1.033	11.4	108	-0.02
30	T	Ethyl Acetate	0.460	0.424	7.8	105	-0.03
31	T	n-Hexane	1.951	1.466	24.9	105	-0.01
32	T	Chloroform	2.657	2.331	12.3	106	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.684	1.626	3.4	111	-0.02
34	T	Tetrahydrofuran (THF)	0.881	0.842	4.4	109	-0.02
35	T	Ethyl tert-Butyl Ether	1.832	1.723	5.9	109	-0.02
36	T	1,2-Dichloroethane	2.126	1.864	12.3	103	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	117	-0.01
38	T	1,1,1-Trichloroethane	0.485	0.460	5.2	107	0.00

7/9/13

Evaluate Continuing Calibration Report

Data Path : I:\MS03\DATA\2013_07\09\
Data File : 07091302.D
Acq On : 9 Jul 2013 9:37
Operator : SC
Sample : 25ng TO-15 CCV STD
Misc : S25-0619302/S25-07021304 (7/31)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 09 10:16:15 2013
Quant Method : J:\MS03\METHODS\R3070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 10:36:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
39	T	Isopropyl Acetate	0.151	0.148	2.0	104	-0.02
40	T	1-Butanol	0.273	0.278	-1.8	106	-0.04
41	T	Benzene	1.079	0.917	15.0	105	0.00
42	T	Carbon Tetrachloride	0.407	0.408	-0.2	106	-0.01
43	T	Cyclohexane	0.450	0.412	8.4	107	-0.02
44	T	tert-Amyl Methyl Ether	0.829	0.830	-0.1	107	0.00
45	T	1,2-Dichloropropane	0.276	0.253	8.3	105	-0.02
46	T	Bromodichloromethane	0.360	0.374	-3.9	105	-0.01
47	T	Trichloroethene	0.330	0.300	9.1	107	-0.02
48	T	1,4-Dioxane	0.208	0.214	-2.9	107	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.276	1.200	6.0	107	0.00
50	T	Methyl Methacrylate	0.106	0.118	-11.3	107	-0.02
51	T	n-Heptane	0.283	0.246	13.1	104	0.00
52	T	cis-1,3-Dichloropropene	0.400	0.436	-9.0	104	0.00
53	T	4-Methyl-2-pentanone	0.239	0.251	-5.0	104	-0.02
54	T	trans-1,3-Dichloropropene	0.368	0.422	-14.7	104	-0.01
55	T	1,1,2-Trichloroethane	0.272	0.268	1.5	107	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	115	0.00
57	S	Toluene-d8 (SS2)	2.466	2.461	0.2	116	0.00
58	T	Toluene	2.928	2.644	9.7	106	0.00
59	T	2-Hexanone	1.266	1.375	-8.6	103	-0.02
60	T	Dibromochloromethane	0.650	0.727	-11.8	107	0.00
61	T	1,2-Dibromoethane	0.660	0.673	-2.0	106	0.00
62	T	n-Butyl Acetate	1.348	1.532	-13.6	103	-0.01
63	T	n-Octane	0.584	0.548	6.2	103	0.00
64	T	Tetrachloroethene	0.934	0.855	8.5	108	0.00
65	T	Chlorobenzene	1.942	1.764	9.2	107	0.00
66	T	Ethylbenzene	3.287	3.201	2.6	105	0.00
67	T	m- & p-Xylenes	2.633	2.563	2.7	105	0.00
68	T	Bromoform	0.590	0.649	-10.0	109	0.00
69	T	Styrene	1.693	1.879	-11.0	107	0.00
70	T	o-Xylene	2.836	2.769	2.4	105	-0.01
71	T	n-Nonane	1.418	1.359	4.2	101	0.00
72	T	1,1,2,2-Tetrachloroethane	1.191	1.213	-1.8	106	0.00
73	S	Bromofluorobenzene (SS3)	0.790	0.801	-1.4	121	0.00
74	T	Cumene	3.709	3.637	1.9	106	0.00
75	T	alpha-Pinene	1.717	1.751	-2.0	106	0.00
76	T	n-Propylbenzene	4.193	4.201	-0.2	104	0.00

Evaluate Continuing Calibration Report

Data Path : I:\MS03\DATA\2013_07\09\
Data File : 07091302.D
Acq On : 9 Jul 2013 9:37
Operator : SC
Sample : 25ng TO-15 CCV STD
Misc : S25-0619302/S25-07021304 (7/31)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 09 10:16:15 2013
Quant Method : J:\MS03\METHODS\R3070513.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Jul 08 10:36:52 2013
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
77	T	3-Ethyltoluene	3.394	3.441	-1.4	105	-0.01
78	T	4-Ethyltoluene	3.435	3.479	-1.3	107	0.00
79	T	1,3,5-Trimethylbenzene	2.951	2.945	0.2	107	0.00
80	T	alpha-Methylstyrene	1.273	1.471	-15.6	106	0.00
81	T	2-Ethyltoluene	3.491	3.447	1.3	106	-0.01
82	T	1,2,4-Trimethylbenzene	3.010	3.128	-3.9	106	-0.02
83	T	n-Decane	1.586	1.542	2.8	104	0.00
84	T	Benzyl Chloride	2.255	2.547	-12.9	104	0.00
85	T	1,3-Dichlorobenzene	1.695	1.668	1.6	107	0.00
86	T	1,4-Dichlorobenzene	1.773	1.749	1.4	107	0.00
87	T	sec-Butylbenzene	3.864	3.887	-0.6	106	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.755	3.914	-4.2	106	-0.01
89	T	1,2,3-Trimethylbenzene	3.093	3.143	-1.6	105	-0.01
90	T	1,2-Dichlorobenzene	1.645	1.636	0.5	107	-0.01
91	T	d-Limonene	1.001	1.141	-14.0	103	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.542	0.631	-16.4	109	0.00
93	T	n-Undecane	1.453	1.633	-12.4	103	0.00
94	T	1,2,4-Trichlorobenzene	1.254	1.423	-13.5	108	0.00
95	T	Naphthalene	4.005	4.313	-7.7	107	0.00
96	T	n-Dodecane	1.446	1.550	-7.2	104	0.00
97	T	Hexachlorobutadiene	0.875	0.874	0.1	108	0.00
98	T	Cyclohexanone	0.884	0.930	-5.2	104	-0.02
99	T	tert-Butylbenzene	3.011	3.005	0.2	106	-0.01
100	T	n-Butylbenzene	2.734	2.927	-7.1	104	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
RECON/Pfizer

ASL Report #: M2357

Project ID: 473604.01.TS

Attn: Richard Traver/PHL

cc:
Stephen Maxwell/PHL
Emil Filc/DAY

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
August 22, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Accredited in accordance with NELAP:
Oregon (100022)
Arizona (0771)
Louisiana (05031)

ASL Report #: M2357

Sample Receipt Comments

We certify that the test results meet all NELAP requirements except those listed below:

- CH2M HILL Applied Sciences Laboratory is not accredited by NELAP for the following tests: E1312.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M235701	RECON ID 009-CH2M Run 004	07/29/13 17:00	07/30/13
M235702	RECON ID 010-CH2M Run 005	07/29/13 17:00	07/30/13

ASL Report #: M2357

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CH2M HILL
Applied Sciences Laboratory (ASL)
1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Fax 541.752.0276

Organic CLP-Like Data Qualifiers

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

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

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

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

P The primary and confirmation analyte result recoveries do not match.

E The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Inorganic CLP-Like Data Qualifiers

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

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

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

E The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.

N The matrix spike/matrix spike duplicate recovery for the analyte is outside of acceptance criteria—qualifier is applied to the native sample only.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ANALYSIS METHOD

SW8260B

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GC/MS VOLATILES ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2357

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW8260B: SW5035, E1312, SW5030

SAMPLE DATA SUMMARY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235701

Percent Moisture: 100 Lab File ID: M235701.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 10

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	2.00	5.00	2.00	U
74-87-3	Chloromethane	2.00	5.00	2.00	U
75-01-4	Vinyl Chloride	2.00	5.00	2.00	U
74-83-9	Bromomethane	2.00	5.00	2.00	U
75-00-3	Chloroethane	2.00	5.00	2.00	U
75-69-4	Trichlorofluoromethane	2.00	5.00	2.00	U
67-64-1	Acetone	5.00	10.0	24.4	
75-35-4	1,1-Dichloroethene	2.00	5.00	2.00	U
75-09-2	Methylene chloride	2.00	5.00	2.00	U
156-60-5	trans-1,2-Dichloroethene	2.00	5.00	2.00	U
1634-04-4	Methyl tert-butyl ether (MTBE)	2.00	5.00	2.00	U
75-34-3	1,1-Dichloroethane	2.00	5.00	2.00	U
78-93-3	2-Butanone (MEK)	5.00	10.0	5.00	U
156-59-2	cis-1,2-Dichloroethene	2.00	5.00	2.00	U
74-97-5	Bromochloromethane	2.00	5.00	2.00	U
67-66-3	Chloroform	1.50	5.00	1.50	U
594-20-7	2,2-Dichloropropane	2.00	5.00	2.00	U
107-06-2	1,2-Dichloroethane	2.00	5.00	2.00	U
71-55-6	1,1,1-Trichloroethane	2.00	5.00	2.00	U
563-58-6	1,1-Dichloropropene	2.00	5.00	2.00	U
56-23-5	Carbon tetrachloride	2.00	5.00	2.00	U
71-43-2	Benzene	2.00	5.00	148	
74-95-3	Dibromomethane	2.00	5.00	2.00	U
78-87-5	1,2-Dichloropropane	2.00	5.00	2.00	U
79-01-6	Trichloroethene (TCE)	2.00	5.00	2.00	U
75-27-4	Bromodichloromethane	2.00	5.00	2.00	U
10061-01-5	cis-1,3-Dichloropropene	2.00	5.00	2.00	U
108-10-1	4-Methyl-2-pentanone (MIBK)	5.00	10.0	5.00	U
10061-02-6	trans-1,3-Dichloropropene	2.00	5.00	2.00	U
79-00-5	1,1,2-Trichloroethane	2.00	5.00	2.00	U
108-88-3	Toluene	2.00	5.00	170	
142-28-9	1,3-Dichloropropane	2.00	5.00	2.00	U
124-48-1	Dibromochloromethane	2.00	5.00	2.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235701

Percent Moisture: 100 Lab File ID: M235701.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 10

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	2.00	5.00	2.00	U
127-18-4	Tetrachloroethene (PCE)	2.00	5.00	2.00	U
544-10-5	1-Chlorohexane	2.00	5.00	2.00	U
630-20-6	1,1,1,2-Tetrachloroethane	2.00	5.00	2.00	U
108-90-7	Chlorobenzene	2.00	5.00	2.00	U
100-41-4	Ethylbenzene	2.00	5.00	7.97	
108-38-3/1	m,p-Xylene	4.00	10.0	123	
75-25-2	Bromoform	2.00	5.00	2.00	U
100-42-5	Styrene	2.00	5.00	2.00	U
79-34-5	1,1,2,2-Tetrachloroethane	2.00	5.00	2.00	U
95-47-6	o-Xylene	2.00	5.00	52.6	
96-18-4	1,2,3-Trichloropropane	2.00	5.00	2.00	U
98-82-8	Isopropylbenzene	2.00	5.00	20.7	
108-86-1	Bromobenzene	2.00	5.00	2.00	U
103-65-1	n-Propylbenzene	2.00	5.00	2.00	U
95-49-8	2-Chlorotoluene	2.00	5.00	2.00	U
106-43-4	4-Chlorotoluene	2.00	5.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene	2.00	5.00	26.4	
98-06-6	tert-Butylbenzene	2.00	5.00	3.50	J
95-63-6	1,2,4-Trimethylbenzene	2.00	5.00	59.4	
135-98-8	sec-Butylbenzene	2.00	5.00	13.5	
541-73-1	1,3-Dichlorobenzene	2.00	5.00	6.97	
106-46-7	1,4-Dichlorobenzene	2.00	5.00	43.8	
99-87-6	p-Isopropyltoluene	2.00	5.00	3.57	J
95-50-1	1,2-Dichlorobenzene	2.00	5.00	673	
104-51-8	n-Butylbenzene	2.00	5.00	2.00	U
96-12-8	1,2-Dibromo-3-chloropropane	2.00	5.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene	2.00	5.00	7.03	
91-20-3	Naphthalene	2.00	5.00	2750	
87-68-3	Hexachlorobutadiene	2.00	5.00	2.00	U
87-61-6	1,2,3-Trichlorobenzene	2.00	5.00	2.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004DL

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235701DL

Percent Moisture: 100 Lab File ID: M235701DL.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 1000

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	200	500	200	U
74-87-3	Chloromethane	200	500	200	U
75-01-4	Vinyl Chloride	200	500	200	U
74-83-9	Bromomethane	200	500	200	U
75-00-3	Chloroethane	200	500	200	U
75-69-4	Trichlorofluoromethane	200	500	200	U
67-64-1	Acetone	500	1000	703	J
75-35-4	1,1-Dichloroethene	200	500	200	U
75-09-2	Methylene chloride	200	500	200	U
156-60-5	trans-1,2-Dichloroethene	200	500	200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	200	500	200	U
75-34-3	1,1-Dichloroethane	200	500	200	U
78-93-3	2-Butanone (MEK)	500	1000	500	U
156-59-2	cis-1,2-Dichloroethene	200	500	200	U
74-97-5	Bromochloromethane	200	500	200	U
67-66-3	Chloroform	150	500	150	U
594-20-7	2,2-Dichloropropane	200	500	200	U
107-06-2	1,2-Dichloroethane	200	500	200	U
71-55-6	1,1,1-Trichloroethane	200	500	200	U
563-58-6	1,1-Dichloropropene	200	500	200	U
56-23-5	Carbon tetrachloride	200	500	200	U
71-43-2	Benzene	200	500	200	U
74-95-3	Dibromomethane	200	500	200	U
78-87-5	1,2-Dichloropropane	200	500	200	U
79-01-6	Trichloroethene (TCE)	200	500	200	U
75-27-4	Bromodichloromethane	200	500	200	U
10061-01-5	cis-1,3-Dichloropropene	200	500	200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	500	1000	500	U
10061-02-6	trans-1,3-Dichloropropene	200	500	200	U
79-00-5	1,1,2-Trichloroethane	200	500	200	U
108-88-3	Toluene	200	500	200	U
142-28-9	1,3-Dichloropropane	200	500	200	U
124-48-1	Dibromochloromethane	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004DL

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235701DL

Percent Moisture: 100 Lab File ID: M235701DL.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 1000

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	200	500	200	U
127-18-4	Tetrachloroethene (PCE)	200	500	200	U
544-10-5	1-Chlorohexane	200	500	200	U
630-20-6	1,1,1,2-Tetrachloroethane	200	500	200	U
108-90-7	Chlorobenzene	200	500	200	U
100-41-4	Ethylbenzene	200	500	200	U
108-38-3/1	m,p-Xylene	400	1000	400	U
75-25-2	Bromoform	200	500	200	U
100-42-5	Styrene	200	500	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	500	200	U
95-47-6	o-Xylene	200	500	200	U
96-18-4	1,2,3-Trichloropropane	200	500	200	U
98-82-8	Isopropylbenzene	200	500	200	U
108-86-1	Bromobenzene	200	500	200	U
103-65-1	n-Propylbenzene	200	500	200	U
95-49-8	2-Chlorotoluene	200	500	200	U
106-43-4	4-Chlorotoluene	200	500	200	U
108-67-8	1,3,5-Trimethylbenzene	200	500	200	U
98-06-6	tert-Butylbenzene	200	500	200	U
95-63-6	1,2,4-Trimethylbenzene	200	500	200	U
135-98-8	sec-Butylbenzene	200	500	200	U
541-73-1	1,3-Dichlorobenzene	200	500	200	U
106-46-7	1,4-Dichlorobenzene	200	500	200	U
99-87-6	p-Isopropyltoluene	200	500	200	U
95-50-1	1,2-Dichlorobenzene	200	500	640	
104-51-8	n-Butylbenzene	200	500	200	U
96-12-8	1,2-Dibromo-3-chloropropane	200	500	200	U
120-82-1	1,2,4-Trichlorobenzene	200	500	200	U
91-20-3	Naphthalene	200	500	2210	
87-68-3	Hexachlorobutadiene	200	500	200	U
87-61-6	1,2,3-Trichlorobenzene	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235702

Percent Moisture: 100 Lab File ID: M235702.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 10

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	2.00	5.00	2.00	U
74-87-3	Chloromethane	2.00	5.00	2.00	U
75-01-4	Vinyl Chloride	2.00	5.00	2.00	U
74-83-9	Bromomethane	2.00	5.00	2.00	U
75-00-3	Chloroethane	2.00	5.00	2.00	U
75-69-4	Trichlorofluoromethane	2.00	5.00	2.00	U
67-64-1	Acetone	5.00	10.0	37.7	
75-35-4	1,1-Dichloroethene	2.00	5.00	2.00	U
75-09-2	Methylene chloride	2.00	5.00	2.00	U
156-60-5	trans-1,2-Dichloroethene	2.00	5.00	2.00	U
1634-04-4	Methyl tert-butyl ether (MTBE)	2.00	5.00	2.00	U
75-34-3	1,1-Dichloroethane	2.00	5.00	2.00	U
78-93-3	2-Butanone (MEK)	5.00	10.0	9.65	J
156-59-2	cis-1,2-Dichloroethene	2.00	5.00	2.00	U
74-97-5	Bromochloromethane	2.00	5.00	2.00	U
67-66-3	Chloroform	1.50	5.00	1.50	U
594-20-7	2,2-Dichloropropane	2.00	5.00	2.00	U
107-06-2	1,2-Dichloroethane	2.00	5.00	2.00	U
71-55-6	1,1,1-Trichloroethane	2.00	5.00	2.00	U
563-58-6	1,1-Dichloropropene	2.00	5.00	2.00	U
56-23-5	Carbon tetrachloride	2.00	5.00	2.00	U
71-43-2	Benzene	2.00	5.00	138	
74-95-3	Dibromomethane	2.00	5.00	2.00	U
78-87-5	1,2-Dichloropropane	2.00	5.00	2.00	U
79-01-6	Trichloroethene (TCE)	2.00	5.00	2.00	U
75-27-4	Bromodichloromethane	2.00	5.00	2.00	U
10061-01-5	cis-1,3-Dichloropropene	2.00	5.00	2.00	U
108-10-1	4-Methyl-2-pentanone (MIBK)	5.00	10.0	5.00	U
10061-02-6	trans-1,3-Dichloropropene	2.00	5.00	2.00	U
79-00-5	1,1,2-Trichloroethane	2.00	5.00	2.00	U
108-88-3	Toluene	2.00	5.00	216	
142-28-9	1,3-Dichloropropane	2.00	5.00	2.00	U
124-48-1	Dibromochloromethane	2.00	5.00	2.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235702

Percent Moisture: 100 Lab File ID: M235702.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 10

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	2.00	5.00	2.00	U
127-18-4	Tetrachloroethene (PCE)	2.00	5.00	2.00	U
544-10-5	1-Chlorohexane	2.00	5.00	2.00	U
630-20-6	1,1,1,2-Tetrachloroethane	2.00	5.00	2.00	U
108-90-7	Chlorobenzene	2.00	5.00	2.00	U
100-41-4	Ethylbenzene	2.00	5.00	10.7	
108-38-3/1	m,p-Xylene	4.00	10.0	159	
75-25-2	Bromoform	2.00	5.00	2.00	U
100-42-5	Styrene	2.00	5.00	2.00	U
79-34-5	1,1,2,2-Tetrachloroethane	2.00	5.00	2.00	U
95-47-6	o-Xylene	2.00	5.00	67.5	
96-18-4	1,2,3-Trichloropropane	2.00	5.00	2.00	U
98-82-8	Isopropylbenzene	2.00	5.00	28.5	
108-86-1	Bromobenzene	2.00	5.00	2.00	U
103-65-1	n-Propylbenzene	2.00	5.00	2.00	U
95-49-8	2-Chlorotoluene	2.00	5.00	2.00	U
106-43-4	4-Chlorotoluene	2.00	5.00	2.00	U
108-67-8	1,3,5-Trimethylbenzene	2.00	5.00	34.0	
98-06-6	tert-Butylbenzene	2.00	5.00	4.90	J
95-63-6	1,2,4-Trimethylbenzene	2.00	5.00	72.6	
135-98-8	sec-Butylbenzene	2.00	5.00	17.5	
541-73-1	1,3-Dichlorobenzene	2.00	5.00	7.99	
106-46-7	1,4-Dichlorobenzene	2.00	5.00	47.4	
99-87-6	p-Isopropyltoluene	2.00	5.00	4.38	J
95-50-1	1,2-Dichlorobenzene	2.00	5.00	728	
104-51-8	n-Butylbenzene	2.00	5.00	2.00	U
96-12-8	1,2-Dibromo-3-chloropropane	2.00	5.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene	2.00	5.00	2.00	U
91-20-3	Naphthalene	2.00	5.00	2570	
87-68-3	Hexachlorobutadiene	2.00	5.00	2.00	U
87-61-6	1,2,3-Trichlorobenzene	2.00	5.00	2.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005DL

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235702DL

Percent Moisture: 100 Lab File ID: M235702DL.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 1000

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	200	500	200	U
74-87-3	Chloromethane	200	500	200	U
75-01-4	Vinyl Chloride	200	500	200	U
74-83-9	Bromomethane	200	500	200	U
75-00-3	Chloroethane	200	500	200	U
75-69-4	Trichlorofluoromethane	200	500	200	U
67-64-1	Acetone	500	1000	500	U
75-35-4	1,1-Dichloroethene	200	500	200	U
75-09-2	Methylene chloride	200	500	200	U
156-60-5	trans-1,2-Dichloroethene	200	500	200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	200	500	200	U
75-34-3	1,1-Dichloroethane	200	500	200	U
78-93-3	2-Butanone (MEK)	500	1000	500	U
156-59-2	cis-1,2-Dichloroethene	200	500	200	U
74-97-5	Bromochloromethane	200	500	200	U
67-66-3	Chloroform	150	500	150	U
594-20-7	2,2-Dichloropropane	200	500	200	U
107-06-2	1,2-Dichloroethane	200	500	200	U
71-55-6	1,1,1-Trichloroethane	200	500	200	U
563-58-6	1,1-Dichloropropene	200	500	200	U
56-23-5	Carbon tetrachloride	200	500	200	U
71-43-2	Benzene	200	500	200	U
74-95-3	Dibromomethane	200	500	200	U
78-87-5	1,2-Dichloropropane	200	500	200	U
79-01-6	Trichloroethene (TCE)	200	500	200	U
75-27-4	Bromodichloromethane	200	500	200	U
10061-01-5	cis-1,3-Dichloropropene	200	500	200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	500	1000	500	U
10061-02-6	trans-1,3-Dichloropropene	200	500	200	U
79-00-5	1,1,2-Trichloroethane	200	500	200	U
108-88-3	Toluene	200	500	214	J
142-28-9	1,3-Dichloropropane	200	500	200	U
124-48-1	Dibromochloromethane	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005DL

SDG No.: M2357

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M235702DL

Percent Moisture: 100 Lab File ID: M235702DL.D

Level: (LOW/MED) LOW Date Received: 07/30/13

Soil Extract Volume: (ML) 1 Date Analyzed: 08/02/13

Dilution Factor: 1000

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	200	500	200	U
127-18-4	Tetrachloroethene (PCE)	200	500	200	U
544-10-5	1-Chlorohexane	200	500	200	U
630-20-6	1,1,1,2-Tetrachloroethane	200	500	200	U
108-90-7	Chlorobenzene	200	500	200	U
100-41-4	Ethylbenzene	200	500	200	U
108-38-3/1	m,p-Xylene	400	1000	400	U
75-25-2	Bromoform	200	500	200	U
100-42-5	Styrene	200	500	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	500	200	U
95-47-6	o-Xylene	200	500	200	U
96-18-4	1,2,3-Trichloropropane	200	500	200	U
98-82-8	Isopropylbenzene	200	500	200	U
108-86-1	Bromobenzene	200	500	200	U
103-65-1	n-Propylbenzene	200	500	200	U
95-49-8	2-Chlorotoluene	200	500	200	U
106-43-4	4-Chlorotoluene	200	500	200	U
108-67-8	1,3,5-Trimethylbenzene	200	500	200	U
98-06-6	tert-Butylbenzene	200	500	200	U
95-63-6	1,2,4-Trimethylbenzene	200	500	200	U
135-98-8	sec-Butylbenzene	200	500	200	U
541-73-1	1,3-Dichlorobenzene	200	500	200	U
106-46-7	1,4-Dichlorobenzene	200	500	200	U
99-87-6	p-Isopropyltoluene	200	500	200	U
95-50-1	1,2-Dichlorobenzene	200	500	706	
104-51-8	n-Butylbenzene	200	500	200	U
96-12-8	1,2-Dibromo-3-chloropropane	200	500	200	U
120-82-1	1,2,4-Trichlorobenzene	200	500	200	U
91-20-3	Naphthalene	200	500	2260	
87-68-3	Hexachlorobutadiene	200	500	200	U
87-61-6	1,2,3-Trichlorobenzene	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **SPLPBLK**

SDG No.: M2357

Analysis Method: SW8260B

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm)

Lab Name: CH2M HILL ASL

Lab Sample ID: SPLPBLK

Lab File ID: SPLPBLK.D

Date Received: / /

Date Analyzed: 08/02/13

Dilution Factor: 1

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	0.200	0.500	0.200	U
74-87-3	Chloromethane	0.200	0.500	0.200	U
75-01-4	Vinyl Chloride	0.200	0.500	0.200	U
74-83-9	Bromomethane	0.200	0.500	0.200	U
75-00-3	Chloroethane	0.200	0.500	0.200	U
75-69-4	Trichlorofluoromethane	0.200	0.500	0.200	U
67-64-1	Acetone	0.500	1.00	2.32	
75-35-4	1,1-Dichloroethene	0.200	0.500	0.200	U
75-09-2	Methylene chloride	0.200	0.500	0.680	
156-60-5	trans-1,2-Dichloroethene	0.200	0.500	0.200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	0.200	0.500	0.200	U
75-34-3	1,1-Dichloroethane	0.200	0.500	0.200	U
78-93-3	2-Butanone (MEK)	0.500	1.00	0.500	U
156-59-2	cis-1,2-Dichloroethene	0.200	0.500	0.200	U
74-97-5	Bromochloromethane	0.200	0.500	0.200	U
67-66-3	Chloroform	0.150	0.500	0.150	U
594-20-7	2,2-Dichloropropane	0.200	0.500	0.200	U
107-06-2	1,2-Dichloroethane	0.200	0.500	0.200	U
71-55-6	1,1,1-Trichloroethane	0.200	0.500	0.200	U
563-58-6	1,1-Dichloropropene	0.200	0.500	0.200	U
56-23-5	Carbon tetrachloride	0.200	0.500	0.200	U
71-43-2	Benzene	0.200	0.500	0.200	U
74-95-3	Dibromomethane	0.200	0.500	0.200	U
78-87-5	1,2-Dichloropropane	0.200	0.500	0.200	U
79-01-6	Trichloroethene (TCE)	0.200	0.500	0.200	U
75-27-4	Bromodichloromethane	0.200	0.500	0.200	U
10061-01-5	cis-1,3-Dichloropropene	0.200	0.500	0.200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.500	1.00	0.500	U
10061-02-6	trans-1,3-Dichloropropene	0.200	0.500	0.200	U
79-00-5	1,1,2-Trichloroethane	0.200	0.500	0.200	U
108-88-3	Toluene	0.200	0.500	0.200	U
142-28-9	1,3-Dichloropropane	0.200	0.500	0.200	U
124-48-1	Dibromochloromethane	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **SPLPBLK**

SDG No.: M2357

Analysis Method: SW8260B

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm)

Lab Name: CH2M HILL ASL

Lab Sample ID: SPLPBLK

Lab File ID: SPLPBLK.D

Date Received: / /

Date Analyzed: 08/02/13

Dilution Factor: 1

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	0.200	0.500	0.200	U
127-18-4	Tetrachloroethene (PCE)	0.200	0.500	0.200	U
544-10-5	1-Chlorohexane	0.200	0.500	0.200	U
630-20-6	1,1,1,2-Tetrachloroethane	0.200	0.500	0.200	U
108-90-7	Chlorobenzene	0.200	0.500	0.200	U
100-41-4	Ethylbenzene	0.200	0.500	0.200	U
108-38-3/1	m,p-Xylene	0.400	1.00	0.400	U
75-25-2	Bromoform	0.200	0.500	0.200	U
100-42-5	Styrene	0.200	0.500	0.200	U
79-34-5	1,1,2,2-Tetrachloroethane	0.200	0.500	0.200	U
95-47-6	o-Xylene	0.200	0.500	0.200	U
96-18-4	1,2,3-Trichloropropane	0.200	0.500	0.200	U
98-82-8	Isopropylbenzene	0.200	0.500	0.200	U
108-86-1	Bromobenzene	0.200	0.500	0.200	U
103-65-1	n-Propylbenzene	0.200	0.500	0.200	U
95-49-8	2-Chlorotoluene	0.200	0.500	0.200	U
106-43-4	4-Chlorotoluene	0.200	0.500	0.200	U
108-67-8	1,3,5-Trimethylbenzene	0.200	0.500	0.200	U
98-06-6	tert-Butylbenzene	0.200	0.500	0.200	U
95-63-6	1,2,4-Trimethylbenzene	0.200	0.500	0.200	U
135-98-8	sec-Butylbenzene	0.200	0.500	0.200	U
541-73-1	1,3-Dichlorobenzene	0.200	0.500	0.200	U
106-46-7	1,4-Dichlorobenzene	0.200	0.500	0.200	U
99-87-6	p-Isopropyltoluene	0.200	0.500	0.200	U
95-50-1	1,2-Dichlorobenzene	0.200	0.500	0.880	
104-51-8	n-Butylbenzene	0.200	0.500	0.200	U
96-12-8	1,2-Dibromo-3-chloropropane	0.200	0.500	0.200	U
120-82-1	1,2,4-Trichlorobenzene	0.200	0.500	0.880	
91-20-3	Naphthalene	0.200	0.500	1.97	
87-68-3	Hexachlorobutadiene	0.200	0.500	0.200	U
87-61-6	1,2,3-Trichlorobenzene	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0802**

SDG No.: M2357

Analysis Method: SW8260B

Matrix: WATER

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-0802

Lab File ID: WB1_0802.D

Date Received: / /

Date Analyzed: 08/02/13

Dilution Factor: 1

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	0.200	0.500	0.200	U
74-87-3	Chloromethane	0.200	0.500	0.200	U
75-01-4	Vinyl Chloride	0.200	0.500	0.200	U
74-83-9	Bromomethane	0.200	0.500	0.200	U
75-00-3	Chloroethane	0.200	0.500	0.200	U
75-69-4	Trichlorofluoromethane	0.200	0.500	0.200	U
67-64-1	Acetone	0.500	1.00	0.500	U
75-35-4	1,1-Dichloroethene	0.200	0.500	0.200	U
75-09-2	Methylene chloride	0.200	0.500	0.200	U
156-60-5	trans-1,2-Dichloroethene	0.200	0.500	0.200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	0.200	0.500	0.200	U
75-34-3	1,1-Dichloroethane	0.200	0.500	0.200	U
78-93-3	2-Butanone (MEK)	0.500	1.00	0.500	U
156-59-2	cis-1,2-Dichloroethene	0.200	0.500	0.200	U
74-97-5	Bromochloromethane	0.200	0.500	0.200	U
67-66-3	Chloroform	0.150	0.500	0.150	U
594-20-7	2,2-Dichloropropane	0.200	0.500	0.200	U
107-06-2	1,2-Dichloroethane	0.200	0.500	0.200	U
71-55-6	1,1,1-Trichloroethane	0.200	0.500	0.200	U
563-58-6	1,1-Dichloropropene	0.200	0.500	0.200	U
56-23-5	Carbon tetrachloride	0.200	0.500	0.200	U
71-43-2	Benzene	0.200	0.500	0.200	U
74-95-3	Dibromomethane	0.200	0.500	0.200	U
78-87-5	1,2-Dichloropropane	0.200	0.500	0.200	U
79-01-6	Trichloroethene (TCE)	0.200	0.500	0.200	U
75-27-4	Bromodichloromethane	0.200	0.500	0.200	U
10061-01-5	cis-1,3-Dichloropropene	0.200	0.500	0.200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.500	1.00	0.500	U
10061-02-6	trans-1,3-Dichloropropene	0.200	0.500	0.200	U
79-00-5	1,1,2-Trichloroethane	0.200	0.500	0.200	U
108-88-3	Toluene	0.200	0.500	0.200	U
142-28-9	1,3-Dichloropropane	0.200	0.500	0.200	U
124-48-1	Dibromochloromethane	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0802**

SDG No.: M2357

Analysis Method: SW8260B

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML

Lab Sample ID: WB1-0802

Lab File ID: WB1_0802.D

Level: (LOW/MED) LOW

Date Received: / /

Date Analyzed: 08/02/13

Dilution Factor: 1

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	0.200	0.500	0.200	U
127-18-4	Tetrachloroethene (PCE)	0.200	0.500	0.200	U
544-10-5	1-Chlorohexane	0.200	0.500	0.200	U
630-20-6	1,1,1,2-Tetrachloroethane	0.200	0.500	0.200	U
108-90-7	Chlorobenzene	0.200	0.500	0.200	U
100-41-4	Ethylbenzene	0.200	0.500	0.200	U
108-38-3/1	m,p-Xylene	0.400	1.00	0.400	U
75-25-2	Bromoform	0.200	0.500	0.200	U
100-42-5	Styrene	0.200	0.500	0.200	U
79-34-5	1,1,2,2-Tetrachloroethane	0.200	0.500	0.200	U
95-47-6	o-Xylene	0.200	0.500	0.200	U
96-18-4	1,2,3-Trichloropropane	0.200	0.500	0.200	U
98-82-8	Isopropylbenzene	0.200	0.500	0.200	U
108-86-1	Bromobenzene	0.200	0.500	0.200	U
103-65-1	n-Propylbenzene	0.200	0.500	0.200	U
95-49-8	2-Chlorotoluene	0.200	0.500	0.200	U
106-43-4	4-Chlorotoluene	0.200	0.500	0.200	U
108-67-8	1,3,5-Trimethylbenzene	0.200	0.500	0.200	U
98-06-6	tert-Butylbenzene	0.200	0.500	0.200	U
95-63-6	1,2,4-Trimethylbenzene	0.200	0.500	0.200	U
135-98-8	sec-Butylbenzene	0.200	0.500	0.200	U
541-73-1	1,3-Dichlorobenzene	0.200	0.500	0.200	U
106-46-7	1,4-Dichlorobenzene	0.200	0.500	0.200	U
99-87-6	p-Isopropyltoluene	0.200	0.500	0.200	U
95-50-1	1,2-Dichlorobenzene	0.200	0.500	0.200	U
104-51-8	n-Butylbenzene	0.200	0.500	0.200	U
96-12-8	1,2-Dibromo-3-chloropropane	0.200	0.500	0.200	U
120-82-1	1,2,4-Trichlorobenzene	0.200	0.500	0.200	U
91-20-3	Naphthalene	0.200	0.500	0.200	U
87-68-3	Hexachlorobutadiene	0.200	0.500	0.200	U
87-61-6	1,2,3-Trichlorobenzene	0.200	0.500	0.200	U

QC SUMMARY

SOIL VOLATILE SURROGATE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSP

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	RECON ID 009-CH2M Run	104	106	101	93									
2	RECON ID 010-CH2M Run	102	104	99	93									
3	RECON ID 009-CH2M Run 004	101	102	97	101									
4	RECON ID 010-CH2M Run 005	101	100	98	103									

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	Dibromofluoromethane	(65-135)
S2:	1,2-Dichloroethane-d4	(65-135)
S3:	Toluene-d8	(65-135)
S4:	4-Bromofluorobenzene	(65-135)

WATER VOLATILE SURROGATE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSP

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	BS1W0802	102	99	100	101									
2	WB1-0802	102	103	100	95									
3	SPLPBLK	103	105	101	94									

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	Dibromofluoromethane	(75-125)
S2:	1,2-Dichloroethane-d4	(75-125)
S3:	Toluene-d8	(75-125)
S4:	4-Bromofluorobenzene	(75-125)

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0802

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSP

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Dichlorodifluoromethane	20.0	20.6	103	75-125	
Chloromethane	20.0	20.8	104	75-125	
Vinyl Chloride	20.0	18.6	93	75-125	
Bromomethane	20.0	19.9	100	75-125	
Chloroethane	20.0	23.3	117	75-125	
Trichlorofluoromethane	20.0	21.0	105	75-125	
Acetone	20.0	20.4	102	75-125	
1,1-Dichloroethene	20.0	18.7	93	75-125	
Methylene chloride	20.0	19.5	98	75-125	
trans-1,2-Dichloroethene	20.0	19.6	98	75-125	
Methyl tert-butyl ether (MTBE)	20.0	19.7	99	75-125	
1,1-Dichloroethane	20.0	19.2	96	75-125	
2-Butanone (MEK)	20.0	21.3	106	75-125	
cis-1,2-Dichloroethene	20.0	19.3	97	75-125	
Bromochloromethane	20.0	19.3	97	75-125	
Chloroform	20.0	19.5	97	75-125	
2,2-Dichloropropane	20.0	19.9	100	75-125	
1,2-Dichloroethane	20.0	19.7	99	75-125	
1,1,1-Trichloroethane	20.0	20.2	101	75-125	
1,1-Dichloropropene	20.0	19.4	97	75-125	
Carbon tetrachloride	20.0	20.7	104	75-125	
Benzene	20.0	19.3	97	75-125	
Dibromomethane	20.0	19.2	96	75-125	
1,2-Dichloropropane	20.0	19.4	97	75-125	
Trichloroethene (TCE)	20.0	19.8	99	75-125	
Bromodichloromethane	20.0	19.8	99	75-125	
cis-1,3-Dichloropropene	20.0	20.9	105	75-125	
4-Methyl-2-pentanone (MIBK)	20.0	19.7	98	75-125	
trans-1,3-Dichloropropene	20.0	20.0	100	75-125	
1,1,2-Trichloroethane	20.0	20.0	100	75-125	
Toluene	20.0	19.5	98	75-125	
1,3-Dichloropropane	20.0	19.8	99	75-125	
Dibromochloromethane	20.0	20.9	105	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0802

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSP

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
1,2-Dibromoethane (EDB)	20.0	19.8	99	75-125	
Tetrachloroethene (PCE)	20.0	18.9	94	75-125	
1-Chlorohexane	20.0	20.3	101	75-125	
1,1,1,2-Tetrachloroethane	20.0	21.3	107	75-125	
Chlorobenzene	20.0	17.3	86	75-125	
Ethylbenzene	20.0	19.0	95	75-125	
m,p-Xylene	40.0	37.6	94	75-125	
Bromoform	20.0	22.3	111	75-125	
Styrene	20.0	20.0	100	75-125	
1,1,2,2-Tetrachloroethane	20.0	20.2	101	75-125	
o-Xylene	20.0	17.9	90	75-125	
1,2,3-Trichloropropane	20.0	19.1	96	75-125	
Isopropylbenzene	20.0	17.9	89	75-125	
Bromobenzene	20.0	18.6	93	75-125	
n-Propylbenzene	20.0	17.9	89	75-125	
2-Chlorotoluene	20.0	18.0	90	75-125	
4-Chlorotoluene	20.0	17.5	87	75-125	
1,3,5-Trimethylbenzene	20.0	20.4	102	75-125	
tert-Butylbenzene	20.0	17.9	89	75-125	
1,2,4-Trimethylbenzene	20.0	20.1	101	75-125	
sec-Butylbenzene	20.0	17.9	90	75-125	
1,3-Dichlorobenzene	20.0	17.3	86	75-125	
1,4-Dichlorobenzene	20.0	18.4	92	75-125	
p-Isopropyltoluene	20.0	18.4	92	75-125	
1,2-Dichlorobenzene	20.0	17.4	87	75-125	
n-Butylbenzene	20.0	19.3	97	75-125	
1,2-Dibromo-3-chloropropane	20.0	21.7	109	75-125	
1,2,4-Trichlorobenzene	20.0	18.7	93	75-125	
Naphthalene	20.0	20.5	102	75-125	
Hexachlorobutadiene	20.0	18.9	95	75-125	
1,2,3-Trichlorobenzene	20.0	19.4	97	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE METHOD BLANK SUMMARY

Field Sample ID: WB1-0802

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Lab Sample ID: WB1-0802

Lab File ID: WB1_0802.D Date Analyzed: 08/02/13

GC Column: DB-VRX ID: 0.25 (mm) Time Analyzed: 1035

Instrument Name: MSP

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	BS1W0802	BS1W0802	BS1W0802.D	08/02/13	0939
2	SPLPBLK	SPLPBLK	SPLPBLK.D	08/02/13	1252
3	RECON ID 009-CH2M Run 004DL	M235701DL	M235701DL.D	08/02/13	1723
4	RECON ID 010-CH2M Run 005DL	M235702DL	M235702DL.D	08/02/13	1751
5	RECON ID 009-CH2M Run 004	M235701	M235701.D	08/02/13	1940
6	RECON ID 010-CH2M Run 005	M235702	M235702.D	08/02/13	2007

Comments:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B BFB Injection Date: 07/31/13

Lab File ID: T1_0731.D BFB Injection Time: 0846

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm)

Mass	Ion Abundance Criteria	% Relative	Q
50	15% to 40% of mass 95	2716 (16.9)	
75	30% to 60% of mass 95	7373 (45.9)	
95	base peak, 100% relative abundance	16075 (100.0)	
96	5% to 9% of mass 95	1060 (6.6)	
173	0% to less than 2% of mass 174	36 (0.2)	
174	greater than 50% of mass 95	15151 (94.3)	
175	5% to 9% of mass 174	1095 (7.2)	
176	>95%, but <101% of mass 174	14897 (98.3)	
177	5% to 9% of mass 176	998 (6.7)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	LEVEL-0.3	LEVEL-0.3	LEVEL_1.D	07/31/13	0913
2	LEVEL-1.0	LEVEL-1.0	LEVEL_2.D	07/31/13	1008
3	LEVEL-5.0	LEVEL-5.0	LEVEL_3.D	07/31/13	1035
4	LEVEL-10.0	LEVEL-10.0	LEVEL_4.D	07/31/13	1102
5	LEVEL-20.0	LEVEL-20.0	LEVEL_5.D	07/31/13	1129
6	LEVEL-50.0	LEVEL-50.0	LEVEL_6.D	07/31/13	1156
7	LEVEL-100.0	LEVEL-100.0	LEVEL_7.D	07/31/13	1224
8	ICVW0731	ICVW0731	ICVW0731.D	07/31/13	1318

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B BFB Injection Date: 08/02/13

Lab File ID: T1_0802.D BFB Injection Time: 0911

Instrument: MSP

GC Column: DB-VRX ID: 0.25 (mm)

Mass	Ion Abundance Criteria	% Relative	Q
50	15% to 40% of mass 95	5831 (16.4)	
75	30% to 60% of mass 95	16432 (46.2)	
95	base peak, 100% relative abundance	35601 (100.0)	
96	5% to 9% of mass 95	2494 (7.0)	
173	0% to less than 2% of mass 174	16 (0.0)	
174	greater than 50% of mass 95	33894 (95.2)	
175	5% to 9% of mass 174	2488 (7.3)	
176	>95%, but <101% of mass 174	33563 (99.0)	
177	5% to 9% of mass 176	2240 (6.7)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0802	CV1-0802	CV1_0802.D	08/02/13	0911
2	BS1W0802	BS1W0802	BS1W0802.D	08/02/13	0939
3	WB1-0802	WB1-0802	WB1_0802.D	08/02/13	1035
4	SPLPBLK	SPLPBLK	SPLPBLK.D	08/02/13	1252
5	RECON ID 009-CH2M Run 004DL	M235701DL	M235701DL.D	08/02/13	1723
6	RECON ID 010-CH2M Run 005DL	M235702DL	M235702DL.D	08/02/13	1751
7	RECON ID 009-CH2M Run 004	M235701	M235701.D	08/02/13	1940
8	RECON ID 010-CH2M Run 005	M235702	M235702.D	08/02/13	2007

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
Fluorobenzene	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
Dichlorodifluoromethane	.3	0.282	1	0.282	5	0.332	10	0.313	20	0.328	50	0.263
Chloromethane*	.3	0.333	1	0.319	5	0.318	10	0.289	20	0.306	50	0.289
Vinyl Chloride#	.3	0.344	1	0.336	5	0.337	10	0.312	20	0.325	50	0.292
Bromomethane	.3	0.209	1	0.219	5	0.200	10	0.197	20	0.205	50	0.193
Chloroethane	.3	0.165	1	0.173	5	0.164	10	0.204	20	0.212	50	0.151
Trichlorofluoromethane	.3	0.456	1	0.443	5	0.445	10	0.409	20	0.435	50	0.446
Acetone	1	0.098	5	0.069	10	0.061	20	0.061	50	0.062	100	0.058
1,1-Dichloroethene#	.3	0.416	1	0.391	5	0.384	10	0.388	20	0.388	50	0.394
Methylene chloride	.3	0.404	1	0.380	5	0.363	10	0.361	20	0.357	50	0.352
trans-1,2-Dichloroethene	.3	0.410	1	0.382	5	0.365	10	0.377	20	0.371	50	0.374
Methyl tert-butyl ether	.3	0.779	1	0.698	5	0.687	10	0.697	20	0.711	50	0.718
1,1-Dichloroethane*	.3	0.504	1	0.468	5	0.449	10	0.459	20	0.453	50	0.457
2-Butanone (MEK)	1	0.022	5	0.025	10	0.026	20	0.028	50	0.028	100	0.027
cis-1,2-Dichloroethene	.3	0.391	1	0.361	5	0.347	10	0.357	20	0.353	50	0.360
Bromochloromethane	.3	0.214	1	0.185	5	0.186	10	0.188	20	0.186	50	0.188
Chloroform#	.3	0.485	1	0.453	5	0.445	10	0.456	20	0.449	50	0.453
2,2-Dichloropropane	.3	0.353	1	0.312	5	0.323	10	0.335	20	0.343	50	0.364
Dibromofluoromethane	1	0.247	5	0.244	10	0.246	20	0.252	50	0.248		
1,2-Dichloroethane-d4	1	0.280	5	0.265	10	0.259	20	0.267	50	0.258		
1,2-Dichloroethane	.3	0.330	1	0.321	5	0.311	10	0.315	20	0.314	50	0.314
1,1,1-Trichloroethane	.3	0.406	1	0.357	5	0.364	10	0.376	20	0.385	50	0.398
1,1-Dichloropropene	.3	0.376	1	0.339	5	0.335	10	0.341	20	0.344	50	0.352
Carbon tetrachloride	.3	0.281	1	0.249	5	0.253	10	0.266	20	0.283	50	0.315
Benzene	.3	1.162	1	1.103	5	1.090	10	1.101	20	1.090	50	1.106
Dibromomethane	.3	0.166	1	0.159	5	0.158	10	0.160	20	0.158	50	0.161
1,2-Dichloropropane#	.3	0.270	1	0.258	5	0.254	10	0.252	20	0.254	50	0.258
Trichloroethene (TCE)	.3	0.300	1	0.282	5	0.279	10	0.278	20	0.278	50	0.287
Bromodichloromethane	.3	0.286	1	0.265	5	0.277	10	0.291	20	0.299	50	0.323
cis-1,3-Dichloropropene	.3	0.346	1	0.315	5	0.325	10	0.345	20	0.365	50	0.391

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
4-Methyl-2-pentanone (MIBK)	1	0.200	5	0.203	10	0.209	20	0.218	50	0.223	100	0.215
trans-1,3-Dichloropropene	.3	0.278	1	0.248	5	0.267	10	0.294	20	0.315	50	0.345
1,1,2-Trichloroethane	.3	0.197	1	0.190	5	0.184	10	0.188	20	0.190	50	0.193
Toluene-d8	1	0.921	5	0.915	10	0.928	20	0.956	50	0.933		
Toluene#	.3	1.117	1	1.091	5	1.106	10	1.136	20	1.142	50	1.146
1,3-Dichloropropane	.3	0.386	1	0.389	5	0.379	10	0.381	20	0.384	50	0.383
Dibromochloromethane	.3	0.179	1	0.165	5	0.181	10	0.197	20	0.216	50	0.243
1,2-Dibromoethane (EDB)	.3	0.234	1	0.222	5	0.224	10	0.235	20	0.241	50	0.244
Tetrachloroethene (PCE)	.3	0.337	1	0.300	5	0.297	10	0.298	20	0.299	50	0.304
1-Chlorohexane	.3	0.265	1	0.247	5	0.256	10	0.274	20	0.281	50	0.285
1,1,1,2-Tetrachloroethane	.3	0.201	1	0.189	5	0.196	10	0.218	20	0.232	50	0.257
Chlorobenzene-d5	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
Chlorobenzene*	.3	1.093	1	1.032	5	1.006	10	1.014	20	1.011	50	1.053
Ethylbenzene#	.3	1.624	1	1.544	5	1.560	10	1.619	20	1.645	50	1.730
m,p-Xylene	.6	1.212	2	1.175	10	1.221	20	1.269	40	1.280	100	1.334
Bromoform*	.3	0.150	1	0.128	5	0.142	10	0.161	20	0.180	50	0.226
Styrene	.3	0.863	1	0.862	5	0.938	10	1.013	20	1.063	50	1.150
1,1,2,2-Tetrachloroethane*	.3	0.399	1	0.397	5	0.404	10	0.418	20	0.419	50	0.430
o-Xylene	.3	1.288	1	1.283	5	1.328	10	1.366	20	1.371	50	1.437
1,2,3-Trichloropropane	.3	0.363	1	0.331	5	0.315	10	0.320	20	0.320	50	0.334
Isopropylbenzene	.3	1.468	1	1.415	5	1.489	10	1.546	20	1.567	50	1.667
4-Bromofluorobenzene	1	0.452	5	0.452	10	0.469	20	0.474	50	0.482		
Bromobenzene	.3	0.661	1	0.661	5	0.640	10	0.657	20	0.656	50	0.692
n-Propylbenzene	.3	1.576	1	1.511	5	1.575	10	1.661	20	1.669	50	1.797
2-Chlorotoluene	.3	1.132	1	1.087	5	1.101	10	1.142	20	1.146	50	1.211
4-Chlorotoluene	.3	1.191	1	1.107	5	1.181	10	1.210	20	1.216	50	1.276
1,3,5-Trimethylbenzene	.3	1.164	1	1.125	5	1.228	10	1.289	20	1.314	50	1.388
tert-Butylbenzene	.3	0.987	1	0.905	5	0.975	10	1.010	20	1.035	50	1.116
1,2,4-Trimethylbenzene	.3	1.214	1	1.174	5	1.275	10	1.336	20	1.352	50	1.446
sec-Butylbenzene	.3	1.349	1	1.297	5	1.396	10	1.437	20	1.453	50	1.547

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
1,3-Dichlorobenzene	.3	0.966	1	0.877	5	0.868	10	0.889	20	0.884	50	0.919
1,4-Dichlorobenzene-d4	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
1,4-Dichlorobenzene	.3	1.733	1	1.639	5	1.581	10	1.591	20	1.563	50	1.556
p-Isopropyltoluene	.3	2.089	1	1.963	5	2.041	10	2.103	20	2.112	50	2.147
1,2-Dichlorobenzene	.3	1.649	1	1.526	5	1.517	10	1.539	20	1.525	50	1.542
n-Butylbenzene	.3	1.796	1	1.612	5	1.719	10	1.809	20	1.817	50	1.884
1,2-Dibromo-3-chloropropane	.3	0.122	1	0.117	5	0.124	10	0.134	20	0.149	50	0.163
1,2,4-Trichlorobenzene	.3	1.192	1	1.082	5	1.036	10	1.049	20	1.058	50	1.034
Naphthalene	.3	2.851	1	2.527	5	2.658	10	2.794	20	2.912	50	2.769
Hexachlorobutadiene	.3	0.586	1	0.486	5	0.454	10	0.460	20	0.454	50	0.452
1,2,3-Trichlorobenzene	.3	1.213	1	1.019	5	0.996	10	1.006	20	1.022	50	0.915

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
Fluorobenzene	10	1.000										
Dichlorodifluoromethane	100	0.269										
Chloromethane*	100	0.301										
Vinyl Chloride#	100	0.303										
Bromomethane	100	0.208										
Chloroethane	100	0.206										
Trichlorofluoromethane	100	0.448										
Acetone												
1,1-Dichloroethene#	100	0.390										
Methylene chloride	100	0.345										
trans-1,2-Dichloroethene	100	0.366										
Methyl tert-butyl ether	100	0.705										
1,1-Dichloroethane*	100	0.451										
2-Butanone (MEK)												
cis-1,2-Dichloroethene	100	0.353										
Bromochloromethane	100	0.184										
Chloroform#	100	0.445										
2,2-Dichloropropane	100	0.370										
Dibromofluoromethane												
1,2-Dichloroethane-d4												
1,2-Dichloroethane	100	0.309										
1,1,1-Trichloroethane	100	0.406										
1,1-Dichloropropene	100	0.352										
Carbon tetrachloride	100	0.331										
Benzene	100	1.079										
Dibromomethane	100	0.158										
1,2-Dichloropropane#	100	0.256										
Trichloroethene (TCE)	100	0.283										
Bromodichloromethane	100	0.334										
cis-1,3-Dichloropropene	100	0.401										

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
4-Methyl-2-pentanone (MIBK)												
trans-1,3-Dichloropropene	100	0.356										
1,1,2-Trichloroethane	100	0.190										
Toluene-d8												
Toluene#	100	1.113										
1,3-Dichloropropane	100	0.378										
Dibromochloromethane	100	0.255										
1,2-Dibromoethane (EDB)	100	0.242										
Tetrachloroethene (PCE)	100	0.299										
1-Chlorohexane	100	0.280										
1,1,1,2-Tetrachloroethane	100	0.268										
Chlorobenzene-d5	10	1.000										
Chlorobenzene*	100	1.097										
Ethylbenzene#	100	1.801										
m,p-Xylene	200	1.367										
Bromoform*	100	0.266										
Styrene	100	1.210										
1,1,2,2-Tetrachloroethane*	100	0.448										
o-Xylene	100	1.500										
1,2,3-Trichloropropane	100	0.351										
Isopropylbenzene	100	1.743										
4-Bromofluorobenzene												
Bromobenzene	100	0.730										
n-Propylbenzene	100	1.872										
2-Chlorotoluene	100	1.272										
4-Chlorotoluene	100	1.343										
1,3,5-Trimethylbenzene	100	1.464										
tert-Butylbenzene	100	1.180										
1,2,4-Trimethylbenzene	100	1.523										
sec-Butylbenzene	100	1.630										

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
1,3-Dichlorobenzene	100	0.971										
1,4-Dichlorobenzene-d4	10	1.000										
1,4-Dichlorobenzene	100	1.514										
p-Isopropyltoluene	100	2.109										
1,2-Dichlorobenzene	100	1.528										
n-Butylbenzene	100	1.872										
1,2-Dibromo-3-chloropropane	100	0.176										
1,2,4-Trichlorobenzene	100	1.025										
Naphthalene	100	2.682										
Hexachlorobutadiene	100	0.435										
1,2,3-Trichlorobenzene	100	0.875										

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
Fluorobenzene	AVG	1.000	0.00	6.78			
Dichlorodifluoromethane	AVG	0.295	9.56	6.78			
Chloromethane*	AVG	0.308	5.33	6.78			
Vinyl Chloride#	AVG	0.321	6.06	6.78			
Bromomethane	AVG	0.205	4.30	6.78			
Chloroethane	AVG	0.182	13.5	6.78			
Trichlorofluoromethane	AVG	0.440	3.50	6.78			
Acetone	LINR	0.068			0.999		
1,1-Dichloroethene#	AVG	0.393	2.69	6.78			
Methylene chloride	LINR	0.366			0.999		
trans-1,2-Dichloroethene	AVG	0.378	4.08	6.78			
Methyl tert-butyl ether (MTBE)	AVG	0.714	4.28	6.78			
1,1-Dichloroethane*	AVG	0.463	4.11	6.78			
2-Butanone (MEK)	AVG	0.026	8.47	6.78			
cis-1,2-Dichloroethene	AVG	0.360	4.02	6.78			
Bromochloromethane	AVG	0.190	5.53	6.78			
Chloroform#	AVG	0.455	3.03	6.78			
2,2-Dichloropropane	AVG	0.343	6.19	6.78			
Dibromofluoromethane	AVG	0.247	1.19	6.78			
1,2-Dichloroethane-d4	AVG	0.266	3.19	6.78			
1,2-Dichloroethane	AVG	0.316	2.22	6.78			
1,1,1-Trichloroethane	AVG	0.384	5.13	6.78			
1,1-Dichloropropene	AVG	0.348	3.98	6.78			
Carbon tetrachloride	AVG	0.283	10.9	6.78			
Benzene	AVG	1.104	2.44	6.78			
Dibromomethane	AVG	0.160	1.86	6.78			
1,2-Dichloropropane#	AVG	0.257	2.37	6.78			
Trichloroethene (TCE)	AVG	0.284	2.73	6.78			
Bromodichloromethane	AVG	0.296	8.30	6.78			
cis-1,3-Dichloropropene	AVG	0.355	9.03	6.78			

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
4-Methyl-2-pentanone (MIBK)	AVG	0.211	4.21	6.78			
trans-1,3-Dichloropropene	AVG	0.300	13.3	6.78			
1,1,2-Trichloroethane	AVG	0.190	2.13	6.78			
Toluene-d8	AVG	0.930	1.73	6.78			
Toluene#	AVG	1.121	1.81	6.78			
1,3-Dichloropropane	AVG	0.383	1.01	6.78			
Dibromochloromethane	QUAD	0.205				0.997	
1,2-Dibromoethane (EDB)	AVG	0.235	3.75	6.78			
Tetrachloroethene (PCE)	AVG	0.305	4.75	6.78			
1-Chlorohexane	AVG	0.270	5.24	6.78			
1,1,1,2-Tetrachloroethane	AVG	0.223	13.7	6.78			
Chlorobenzene-d5	AVG	1.000	0.00	6.78			
Chlorobenzene*	AVG	1.044	3.69	6.78			
Ethylbenzene#	AVG	1.646	5.55	6.78			
m,p-Xylene	AVG	1.265	5.40	6.78			
Bromoform*	QUAD	0.179				0.997	
Styrene	AVG	1.014	13.4	6.78			
1,1,2,2-Tetrachloroethane*	AVG	0.416	4.39	6.78			
o-Xylene	AVG	1.367	5.77	6.78			
1,2,3-Trichloropropane	AVG	0.333	5.29	6.78			
Isopropylbenzene	AVG	1.556	7.40	6.78			
4-Bromofluorobenzene	AVG	0.466	2.89	6.78			
Bromobenzene	AVG	0.671	4.51	6.78			
n-Propylbenzene	AVG	1.666	7.75	6.78			
2-Chlorotoluene	AVG	1.156	5.61	6.78			
4-Chlorotoluene	AVG	1.218	6.14	6.78			
1,3,5-Trimethylbenzene	AVG	1.282	9.39	6.78			
tert-Butylbenzene	AVG	1.029	8.93	6.78			
1,2,4-Trimethylbenzene	AVG	1.331	9.29	6.78			
sec-Butylbenzene	AVG	1.444	7.91	6.78			

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 07/31/13 07/31/13

Instrument Name: MSP Calibration Times: 0913 1224

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
1,3-Dichlorobenzene	AVG	0.911	4.69	6.78			
1,4-Dichlorobenzene-d4	AVG	1.000	0.00	6.78			
1,4-Dichlorobenzene	AVG	1.597	4.44	6.78			
p-Isopropyltoluene	AVG	2.081	2.92	6.78			
1,2-Dichlorobenzene	AVG	1.546	2.96	6.78			
n-Butylbenzene	AVG	1.787	5.29	6.78			
1,2-Dibromo-3-chloropropane	QUAD	0.141				0.998	
1,2,4-Trichlorobenzene	AVG	1.068	5.41	6.78			
Naphthalene	AVG	2.742	4.74	6.78			
Hexachlorobutadiene	AVG	0.475	10.7	6.78			
1,2,3-Trichlorobenzene	AVG	1.007	10.6	6.78			

* SPCC # CCC

VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 07/31/13 1318

Instrument ID: MSP Init. Calib. Date(s): 07/31/13 07/31/13

2nd Source ICVW0731 Init. Calib. Time(s): 0913 1224

Lab File ID: ICVW0731.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dichlorodifluoromethane	20.0	22.0	0.326	0.000	10	20	
Chloromethane*	20.0	21.9	0.338	0.100	10	20	
Vinyl Chloride#	20.0	19.5	0.313	0.000	-3	20	
Bromomethane	20.0	20.3	0.207	0.000	1	20	
Chloroethane	20.0	23.2	0.211	0.000	16	20	
Trichlorofluoromethane	20.0	20.9	0.460	0.000	4	20	
Acetone	20.0	19.2	0.059	0.000	-4	20	
1,1-Dichloroethene#	20.0	19.5	0.383	0.000	-2	20	
Methylene chloride	20.0	19.9	0.355	0.000	-0.3	20	
trans-1,2-Dichloroethene	20.0	19.9	0.375	0.000	-0.7	20	
Methyl tert-butyl ether (MTBE)	20.0	19.0	0.677	0.000	-5	20	
1,1-Dichloroethane*	20.0	19.3	0.447	0.100	-3	20	
2-Butanone (MEK)	20.0	20.9	0.027	0.000	4	20	
cis-1,2-Dichloroethene	20.0	19.7	0.355	0.000	-1	20	
Bromochloromethane	20.0	19.4	0.184	0.000	-3	20	
Chloroform#	20.0	19.5	0.445	0.000	-2	20	
2,2-Dichloropropane	20.0	20.3	0.348	0.000	1	20	
1,2-Dichloroethane	20.0	19.7	0.311	0.000	-1	20	
1,1,1-Trichloroethane	20.0	20.1	0.386	0.000	0.3	20	
1,1-Dichloropropene	20.0	19.8	0.345	0.000	-0.9	20	
Carbon tetrachloride	20.0	20.3	0.286	0.000	1	20	
Benzene	20.0	19.7	1.087	0.000	-2	20	
Dibromomethane	20.0	19.4	0.155	0.000	-3	20	
1,2-Dichloropropane#	20.0	19.9	0.257	0.000	-0.4	20	
Trichloroethene (TCE)	20.0	20.0	0.284	0.000	0.2	20	
Bromodichloromethane	20.0	19.7	0.292	0.000	-1	20	
cis-1,3-Dichloropropene	20.0	21.5	0.382	0.000	7	20	
4-Methyl-2-pentanone (MIBK)	20.0	19.4	0.205	0.000	-3	20	
trans-1,3-Dichloropropene	20.0	20.2	0.304	0.000	1	20	
1,1,2-Trichloroethane	20.0	20.0	0.190	0.000	-0.2	20	
Toluene#	20.0	19.9	1.118	0.000	-0.3	20	
1,3-Dichloropropane	20.0	20.2	0.387	0.000	1	20	
Dibromochloromethane	20.0	20.4	0.207	0.000	2	20	
1,2-Dibromoethane (EDB)	20.0	20.1	0.236	0.000	0.6	20	
Tetrachloroethene (PCE)	20.0	19.4	0.296	0.000	-3	20	

* SPCC # CCC

VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 07/31/13 1318

Instrument ID: MSP Init. Calib. Date(s): 07/31/13 07/31/13

2nd Source ICVW0731 Init. Calib. Time(s): 0913 1224

Lab File ID: ICVW0731.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
1-Chlorohexane	20.0	20.9	0.282	0.000	4	20	
1,1,1,2-Tetrachloroethane	20.0	21.0	0.234	0.000	5	20	
Chlorobenzene*	20.0	17.5	0.914	0.300	-12	20	
Ethylbenzene#	20.0	19.4	1.594	0.000	-3	20	
m,p-Xylene	40.0	38.0	1.202	0.000	-5	20	
Bromoform*	20.0	20.9	0.178	0.100	4	20	
Styrene	20.0	20.4	1.033	0.000	2	20	
1,1,2,2-Tetrachloroethane*	20.0	19.6	0.407	0.300	-2	20	
o-Xylene	20.0	18.1	1.236	0.000	-10	20	
1,2,3-Trichloropropane	20.0	18.5	0.308	0.000	-7	20	
Isopropylbenzene	20.0	18.2	1.416	0.000	-9	20	
Bromobenzene	20.0	18.8	0.630	0.000	-6	20	
n-Propylbenzene	20.0	18.2	1.518	0.000	-9	20	
2-Chlorotoluene	20.0	18.1	1.044	0.000	-10	20	
4-Chlorotoluene	20.0	17.6	1.073	0.000	-12	20	
1,3,5-Trimethylbenzene	20.0	20.6	1.319	0.000	3	20	
tert-Butylbenzene	20.0	18.4	0.949	0.000	-8	20	
1,2,4-Trimethylbenzene	20.0	20.4	1.356	0.000	2	20	
sec-Butylbenzene	20.0	18.3	1.321	0.000	-9	20	
1,3-Dichlorobenzene	20.0	17.4	0.791	0.000	-13	20	
1,4-Dichlorobenzene	20.0	19.0	1.520	0.000	-5	20	
p-Isopropyltoluene	20.0	19.4	2.015	0.000	-3	20	
1,2-Dichlorobenzene	20.0	18.0	1.392	0.000	-10	20	
n-Butylbenzene	20.0	20.4	1.826	0.000	2	20	
1,2-Dibromo-3-chloropropane	20.0	20.7	0.144	0.000	3	20	
1,2,4-Trichlorobenzene	20.0	19.6	1.046	0.000	-2	20	
Naphthalene	20.0	20.6	2.818	0.000	3	20	
Hexachlorobutadiene	20.0	19.7	0.467	0.000	-2	20	
1,2,3-Trichlorobenzene	20.0	19.9	1.002	0.000	-0.5	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 08/02/13 0911

Instrument ID: MSP Init. Calib. Date(s): 07/31/13 07/31/13

Cal Check ID: CV1-0802 Init. Calib. Time(s): 0913 1224

Lab File ID: CV1_0802.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dichlorodifluoromethane	20.0	17.8	0.263	0.000	-11	20	
Chloromethane*	20.0	18.2	0.280	0.100	-9	20	
Vinyl Chloride#	20.0	18.7	0.301	0.000	-6	30	
Bromomethane	20.0	19.4	0.198	0.000	-3	20	
Chloroethane	20.0	22.9	0.209	0.000	15	20	
Trichlorofluoromethane	20.0	19.5	0.429	0.000	-3	20	
Acetone	20.0	20.8	0.063	0.000	4	20	
1,1-Dichloroethene#	20.0	18.8	0.370	0.000	-6	30	
Methylene chloride	20.0	19.1	0.340	0.000	-5	20	
trans-1,2-Dichloroethene	20.0	18.7	0.354	0.000	-6	20	
Methyl tert-butyl ether (MTBE)	20.0	20.7	0.738	0.000	3	20	
1,1-Dichloroethane*	20.0	18.8	0.436	0.100	-6	20	
2-Butanone (MEK)	20.0	22.4	0.029	0.000	12	20	
cis-1,2-Dichloroethene	20.0	18.7	0.337	0.000	-7	20	
Bromochloromethane	20.0	19.0	0.181	0.000	-5	20	
Chloroform#	20.0	19.1	0.435	0.000	-4	30	
2,2-Dichloropropane	20.0	19.6	0.336	0.000	-2	20	
Dibromofluoromethane	10.0	10.0	0.247	0.000	0.1	20	
1,2-Dichloroethane-d4	10.0	10.0	0.266	0.000	0.1	20	
1,2-Dichloroethane	20.0	19.2	0.303	0.000	-4	20	
1,1,1-Trichloroethane	20.0	19.9	0.382	0.000	-0.6	20	
1,1-Dichloropropene	20.0	18.7	0.326	0.000	-6	20	
Carbon tetrachloride	20.0	20.2	0.286	0.000	1	20	
Benzene	20.0	18.9	1.044	0.000	-5	20	
Dibromomethane	20.0	19.1	0.153	0.000	-4	20	
1,2-Dichloropropane#	20.0	18.9	0.243	0.000	-6	30	
Trichloroethene (TCE)	20.0	18.9	0.268	0.000	-6	20	
Bromodichloromethane	20.0	19.9	0.295	0.000	-0.5	20	
cis-1,3-Dichloropropene	20.0	19.7	0.350	0.000	-2	20	
4-Methyl-2-pentanone (MIBK)	20.0	20.8	0.220	0.000	4	20	
trans-1,3-Dichloropropene	20.0	20.2	0.304	0.000	1	20	
1,1,2-Trichloroethane	20.0	19.1	0.182	0.000	-4	20	
Toluene-d8	10.0	10.1	0.936	0.000	0.6	20	
Toluene#	20.0	19.5	1.093	0.000	-3	30	
1,3-Dichloropropane	20.0	19.3	0.369	0.000	-3	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 08/02/13 0911

Instrument ID: MSP Init. Calib. Date(s): 07/31/13 07/31/13

Cal Check ID: CV1-0802 Init. Calib. Time(s): 0913 1224

Lab File ID: CV1_0802.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dibromochloromethane	20.0	21.4	0.218	0.000	7	20	
1,2-Dibromoethane (EDB)	20.0	19.7	0.231	0.000	-2	20	
Tetrachloroethene (PCE)	20.0	18.8	0.287	0.000	-6	20	
1-Chlorohexane	20.0	20.8	0.280	0.000	4	20	
1,1,1,2-Tetrachloroethane	20.0	20.7	0.231	0.000	4	20	
Chlorobenzene*	20.0	18.3	0.956	0.300	-8	20	
Ethylbenzene#	20.0	18.7	1.537	0.000	-7	30	
m,p-Xylene	40.0	38.1	1.204	0.000	-5	20	
Bromoform*	20.0	21.5	0.185	0.100	8	20	
Styrene	20.0	19.4	0.986	0.000	-3	20	
1,1,2,2-Tetrachloroethane*	20.0	19.6	0.408	0.300	-2	20	
o-Xylene	20.0	19.0	1.297	0.000	-5	20	
1,2,3-Trichloropropane	20.0	18.6	0.310	0.000	-7	20	
Isopropylbenzene	20.0	18.9	1.473	0.000	-5	20	
4-Bromofluorobenzene	10.0	9.98	0.465	0.000	-0.2	20	
Bromobenzene	20.0	18.5	0.619	0.000	-8	20	
n-Propylbenzene	20.0	18.8	1.563	0.000	-6	20	
2-Chlorotoluene	20.0	18.7	1.082	0.000	-6	20	
4-Chlorotoluene	20.0	18.9	1.148	0.000	-6	20	
1,3,5-Trimethylbenzene	20.0	19.2	1.232	0.000	-4	20	
tert-Butylbenzene	20.0	18.9	0.971	0.000	-6	20	
1,2,4-Trimethylbenzene	20.0	19.3	1.282	0.000	-4	20	
sec-Butylbenzene	20.0	19.0	1.369	0.000	-5	20	
1,3-Dichlorobenzene	20.0	18.4	0.837	0.000	-8	20	
1,4-Dichlorobenzene	20.0	18.7	1.494	0.000	-6	20	
p-Isopropyltoluene	20.0	19.3	2.003	0.000	-4	20	
1,2-Dichlorobenzene	20.0	18.9	1.460	0.000	-6	20	
n-Butylbenzene	20.0	19.2	1.715	0.000	-4	20	
1,2-Dibromo-3-chloropropane	20.0	21.5	0.150	0.000	7	20	
1,2,4-Trichlorobenzene	20.0	18.9	1.006	0.000	-6	20	
Naphthalene	20.0	20.3	2.786	0.000	2	20	
Hexachlorobutadiene	20.0	18.5	0.439	0.000	-8	20	
1,2,3-Trichlorobenzene	20.0	19.4	0.974	0.000	-3	20	

* SPCC # CCC

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8260B

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL_4

Date Analyzed: 07/31/13

Lab File ID: LEVEL_4.D

Time Analyzed: 1102

Instrument Name: MSP

Heat Purge: (Y/N) N

GC Column: DB-VRX ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		381897	11.99	288314	15.59	168628	18.57
Upper Limit		763794	12.49	576628	16.09	337256	19.07
Lower Limit		190949	11.49	144157	15.09	84314	18.07
Field Sample ID	Lab Sample ID						
ICVW0731	ICVW0731	384905	11.99	293946	15.59	171308	18.57

IS1: Fluorobenzene

IS2: Chlorobenzene-d5

IS3: 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8260B

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1_0802

Date Analyzed: 08/02/13

Lab File ID: CV1_0802.D

Time Analyzed: 0911

Instrument Name: MSP

Heat Purge: (Y/N) N

GC Column: DB-VRX ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		355057	11.99	272424	15.59	161063	18.57
Upper Limit		710114	12.49	544848	16.09	322126	19.07
Lower Limit		177529	11.49	136212	15.09	80532	18.07
Field Sample ID	Lab Sample ID						
BS1W0802	BS1W0802	357870	11.98	269675	15.58	162122	18.57
WB1-0802	WB1-0802	338513	11.98	257159	15.58	146985	18.56
SPLPBLK	SPLPBLK	331482	11.98	256419	15.59	148910	18.56
RECON ID 009-CH2M	M235701DL	333064	11.98	259305	15.58	148400	18.57
RECON ID 010-CH2M	M235702DL	335673	11.98	258148	15.58	145920	18.57
RECON ID 009-CH2M	M235701	329319	11.98	246351	15.59	153130	18.57
RECON ID 010-CH2M	M235702	331669	11.98	253149	15.58	157796	18.56

IS1: Fluorobenzene

IS2: Chlorobenzene-d5

IS3: 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

CH2MHILL
Applied Sciences Laboratory (ASL)

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Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8260B
Matrix: Water

Instrument ID: MSP
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Dichlorodifluoromethane	11/04/11	0.250	0.240	0.250	0.260	0.250	0.260	0.270	0.250		0.00976	0.200
Chloromethane	11/04/11	0.250	0.240	0.250	0.210	0.280	0.190	0.290	0.220		0.0365	0.200
Vinyl Chloride	11/04/11	0.250	0.250	0.270	0.270	0.300	0.250	0.290	0.240		0.0222	0.200
Bromomethane	11/04/11	0.250	0.250	0.320	0.370	0.360	0.310	0.380	0.310		0.0453	0.200
Chloroethane	11/04/11	0.250	0.300	0.260	0.260	0.270	0.290	0.270	0.290		0.0160	0.200
Trichlorofluoromethane	11/04/11	0.250	0.270	0.270	0.270	0.310	0.280	0.310	0.280		0.0181	0.200
Acetone	11/04/11	1.00	0.980	0.770	0.790	0.800	0.780	0.710	0.800		0.0834	0.500
1,1-Dichloroethene	11/04/11	0.250	0.260	0.270	0.290	0.300	0.280	0.310	0.260		0.0195	0.200
Methylene chloride	11/04/11	0.250	0.270	0.270	0.300	0.310	0.290	0.310	0.290		0.0168	0.200
trans-1,2-Dichloroethene	11/04/11	0.250	0.280	0.290	0.290	0.300	0.270	0.310	0.260		0.0172	0.200
Methyl tert-butyl ether (MTBE)	11/04/11	0.250	0.270	0.290	0.300	0.300	0.270	0.310	0.280		0.0157	0.200
1,1-Dichloroethane	11/04/11	0.250	0.280	0.290	0.300	0.300	0.270	0.310	0.270		0.0157	0.200
2-Butanone (MEK)	11/04/11	1.00	0.990	0.820	0.820	0.880	0.950	0.840	0.900		0.0658	0.500
cis-1,2-Dichloroethene	11/04/11	0.250	0.270	0.270	0.300	0.300	0.280	0.300	0.270		0.0151	0.200
Bromochloromethane	11/04/11	0.250	0.270	0.270	0.300	0.290	0.270	0.290	0.260		0.0146	0.200
Chloroform	11/04/11	0.250	0.270	0.290	0.300	0.310	0.280	0.320	0.270		0.0195	0.150
2,2-Dichloropropane	11/04/11	0.250	0.300	0.290	0.320	0.320	0.290	0.330	0.280		0.0190	0.200
1,2-Dichloroethane	11/04/11	0.250	0.280	0.300	0.310	0.300	0.290	0.330	0.270		0.0198	0.200
1,1,1-Trichloroethane	11/04/11	0.250	0.280	0.280	0.290	0.300	0.290	0.300	0.260		0.0140	0.200
1,1-Dichloropropene	11/04/11	0.250	0.260	0.290	0.310	0.300	0.290	0.300	0.260		0.0198	0.200
Carbon tetrachloride	11/04/11	0.250	0.290	0.270	0.280	0.310	0.280	0.290	0.260		0.0160	0.200
Benzene	11/04/11	0.250	0.290	0.300	0.310	0.310	0.290	0.310	0.280		0.0122	0.200
Dibromomethane	11/04/11	0.250	0.320	0.330	0.320	0.350	0.330	0.350	0.300		0.0177	0.200
1,2-Dichloropropane	11/04/11	0.250	0.270	0.290	0.290	0.300	0.270	0.300	0.270		0.0140	0.200
Trichloroethene (TCE)	11/04/11	0.250	0.270	0.300	0.290	0.310	0.290	0.310	0.280		0.0150	0.200
Bromodichloromethane	11/04/11	0.250	0.270	0.280	0.280	0.280	0.260	0.280	0.250		0.0122	0.200
cis-1,3-Dichloropropene	11/04/11	0.250	0.280	0.280	0.280	0.300	0.270	0.290	0.260		0.0129	0.200
4-Methyl-2-pentanone (MIBK)	11/04/11	0.500	0.500	0.550	0.600	0.500	0.480	0.540	0.540		0.0404	0.500
trans-1,3-Dichloropropene	11/04/11	0.250	0.260	0.270	0.290	0.300	0.260	0.270	0.250		0.0177	0.200
1,1,2-Trichloroethane	11/04/11	0.250	0.280	0.290	0.310	0.330	0.280	0.310	0.270		0.0215	0.200
Toluene	11/04/11	0.250	0.270	0.310	0.320	0.320	0.300	0.320	0.280		0.0206	0.200
1,3-Dichloropropane	11/04/11	0.250	0.270	0.280	0.300	0.300	0.290	0.300	0.270		0.0138	0.200
Dibromochloromethane	11/04/11	0.250	0.250	0.260	0.270	0.270	0.250	0.270	0.220		0.0181	0.200
1,2-Dibromoethane (EDB)	11/04/11	0.250	0.280	0.280	0.290	0.300	0.300	0.310	0.250		0.0198	0.200
Tetrachloroethene (PCE)	11/04/11	0.250	0.280	0.290	0.300	0.320	0.290	0.320	0.260		0.0215	0.200
1-Chlorohexane	11/04/11	0.250	0.320	0.270	0.350	0.330	0.290	0.330	0.280		0.0300	0.200
1,1,1,2-Tetrachloroethane	11/04/11	0.250	0.280	0.290	0.290	0.280	0.260	0.280	0.230		0.0214	0.200
Chlorobenzene	11/04/11	0.250	0.270	0.280	0.290	0.300	0.270	0.300	0.270		0.0138	0.200
Ethylbenzene	11/04/11	0.250	0.270	0.280	0.300	0.310	0.280	0.310	0.270		0.0177	0.200
m,p-Xylene	11/04/11	0.500	0.570	0.560	0.600	0.610	0.560	0.610	0.540		0.0280	0.400
Bromoform	11/04/11	0.250	0.240	0.220	0.250	0.260	0.210	0.230	0.200		0.0216	0.200

MDL FORM

CH2MHILL
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Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8260B
Matrix: Water

Instrument ID: MSP
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Styrene	11/04/11	0.250	0.270	0.280	0.280	0.290	0.260	0.290	0.250		0.0151	0.200
1,1,2,2-Tetrachloroethane	11/04/11	0.250	0.290	0.290	0.300	0.310	0.270	0.290	0.260		0.0170	0.200
o-Xylene	11/04/11	0.250	0.280	0.290	0.310	0.330	0.290	0.320	0.270		0.0219	0.200
1,2,3-Trichloropropane	11/04/11	0.250	0.270	0.290	0.290	0.300	0.270	0.320	0.230		0.0285	0.200
Isopropylbenzene	11/04/11	0.250	0.270	0.280	0.300	0.300	0.270	0.310	0.260		0.0190	0.200
Bromobenzene	11/04/11	0.250	0.300	0.300	0.310	0.320	0.280	0.320	0.270		0.0192	0.200
n-Propylbenzene	11/04/11	0.250	0.270	0.290	0.290	0.320	0.270	0.310	0.270		0.0204	0.200
2-Chlorotoluene	11/04/11	0.250	0.290	0.290	0.290	0.320	0.280	0.310	0.280		0.0151	0.200
4-Chlorotoluene	11/04/11	0.250	0.290	0.290	0.290	0.310	0.270	0.300	0.280		0.0129	0.200
1,3,5-Trimethylbenzene	11/04/11	0.250	0.270	0.260	0.280	0.290	0.270	0.300	0.260		0.0151	0.200
tert-Butylbenzene	11/04/11	0.250	0.300	0.290	0.300	0.320	0.310	0.300	0.250		0.0223	0.200
1,2,4-Trimethylbenzene	11/04/11	0.250	0.270	0.280	0.290	0.300	0.270	0.300	0.260		0.0157	0.200
sec-Butylbenzene	11/04/11	0.250	0.270	0.290	0.290	0.310	0.270	0.300	0.260		0.0181	0.200
1,3-Dichlorobenzene	11/04/11	0.250	0.270	0.270	0.290	0.300	0.270	0.300	0.260		0.0163	0.200
1,4-Dichlorobenzene	11/04/11	0.250	0.290	0.290	0.310	0.320	0.290	0.330	0.280		0.0186	0.200
p-Isopropyltoluene	11/04/11	0.250	0.330	0.290	0.310	0.310	0.300	0.310	0.270		0.0189	0.200
1,2-Dichlorobenzene	11/04/11	0.250	0.290	0.290	0.300	0.310	0.280	0.310	0.270		0.0150	0.200
n-Butylbenzene	11/04/11	0.250	0.280	0.290	0.300	0.280	0.290	0.310	0.260		0.0160	0.200
1,2-Dibromo-3-chloropropane	11/04/11	0.250	0.250	0.260	0.300	0.280	0.250	0.260	0.230		0.0227	0.200
1,2,4-Trichlorobenzene	11/04/11	0.250	0.300	0.310	0.320	0.320	0.300	0.310	0.270		0.0172	0.200
Naphthalene	11/04/11	0.250	0.310	0.310	0.320	0.300	0.280	0.310	0.270		0.0183	0.200
Hexachlorobutadiene	11/04/11	0.250	0.320	0.340	0.320	0.320	0.290	0.350	0.270		0.0276	0.200
1,2,3-Trichlorobenzene	11/04/11	0.250	0.320	0.330	0.300	0.340	0.290	0.320	0.280		0.0219	0.200

MDL FORM

ANALYSIS METHOD

SW8270C

CH2MHILL
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Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GC/MS SEMI-VOLATILES ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2357

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW8270C: SW1312, SW3510

Surrogate Standard(s):
Surrogates in RECON ID 009-CH2M Run 004DL were diluted out.
Surrogates in RECON ID 010-CH2M Run 005DL were diluted out.

SAMPLE DATA SUMMARY

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 835.44 ML Lab Sample ID: M235701

Percent Moisture: 100 Decanted: N Lab File ID: M235701SPLP.D

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/09/13

Injection Volume: (UL)1 Dilution Factor: 1

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	2.39	5.98	2.39	U
110-86-1	Pyridine	2.39	5.98	1060	E
62-53-3	Aniline	2.39	5.98	2.39	U
108-95-2	Phenol	2.39	5.98	345	E
111-44-4	bis(2-Chloroethyl)ether	2.39	5.98	2.39	U
95-57-8	2-Chlorophenol	2.39	5.98	2.39	U
541-73-1	1,3-Dichlorobenzene	2.39	5.98	2.39	U
106-46-7	1,4-Dichlorobenzene	2.39	5.98	34.1	
100-51-6	Benzyl alcohol	2.39	5.98	32.2	
95-50-1	1,2-Dichlorobenzene	2.39	5.98	435	E
95-48-7	2-Methylphenol	2.39	5.98	2.39	U
108-60-1	bis(2-Chloroisopropyl)ether	2.39	5.98	2.39	U
108-39-4/106	3-,4-Methylphenol	2.39	5.98	578	E
621-64-7	N-Nitroso-di-n-propylamine	2.39	5.98	2.39	U
67-72-1	Hexachloroethane	2.39	5.98	2.39	U
65-85-0	Benzoic Acid	2.39	5.98	5470	E
98-95-3	Nitrobenzene	2.39	5.98	2.39	U
78-59-1	Isophorone	2.39	5.98	10.3	
88-75-5	2-Nitrophenol	2.39	5.98	2.39	U
105-67-9	2,4-Dimethylphenol	2.39	5.98	47.6	
111-91-1	bis(2-Chloroethoxy)methane	2.39	5.98	2.39	U
120-83-2	2,4-Dichlorophenol	2.39	5.98	2.39	U
120-82-1	1,2,4-Trichlorobenzene	2.39	5.98	2.39	U
91-20-3	Naphthalene	2.39	5.98	758	E
106-47-8	4-Chloroaniline	2.39	5.98	2.39	U
87-68-3	Hexachlorobutadiene	2.39	5.98	2.39	U
59-50-7	4-Chloro-3-methyl phenol	2.39	5.98	2.39	U
91-57-6	2-Methylnaphthalene	2.39	5.98	66.3	
77-47-4	Hexachlorocyclopentadiene	2.39	5.98	2.39	U
88-06-2	2,4,6-Trichlorophenol	2.39	5.98	2.39	U
95-95-4	2,4,5-Trichlorophenol	2.39	5.98	2.39	U
91-58-7	2-Chloronaphthalene	2.39	5.98	2.39	U
88-74-4	2-Nitroaniline	2.39	5.98	2.39	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 835.44 ML Lab Sample ID: M235701

Percent Moisture: 100 Decanted: N Lab File ID: M235701SPLP.D

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/09/13

Injection Volume: (UL)1 Dilution Factor: 1

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	2.39	5.98	2.39	U
208-96-8	Acenaphthylene	2.39	5.98	2.39	U
606-20-2	2,6-Dinitrotoluene	2.39	5.98	2.39	U
83-32-9	Acenaphthene	2.39	5.98	4.17	J
51-28-5	2,4-Dinitrophenol	2.39	5.98	2.39	U
100-02-7	4-Nitrophenol	2.39	5.98	2.39	U
121-14-2	2,4-Dinitrotoluene	2.39	5.98	2.39	U
132-64-9	Dibenzofuran	2.39	5.98	2.39	U
84-66-2	Diethylphthalate	2.39	5.98	2.39	U
99-09-2	3-Nitroaniline	2.39	5.98	2.39	U
86-73-7	Fluorene	2.39	5.98	2.39	U
7005-72-3	4-Chlorophenyl phenyl ether	2.39	5.98	2.39	U
100-01-6	4-Nitroaniline	2.39	5.98	2.39	U
534-52-1	4,6-Dinitro-2-methyl phenol	2.39	5.98	2.39	U
86-30-6	N-Nitrosodiphenylamine	2.39	5.98	2.44	J
122-66-7	1,2-Diphenylhydrazine	2.39	5.98	5.33	J
101-55-3	4-Bromophenyl phenyl ether	2.39	5.98	2.39	U
118-74-1	Hexachlorobenzene	2.39	5.98	2.39	U
87-86-5	Pentachlorophenol	2.39	5.98	2.39	U
85-01-8	Phenanthrene	2.39	5.98	2.39	U
120-12-7	Anthracene	2.39	5.98	2.39	U
86-74-8	Carbazole	2.39	5.98	6.87	
84-74-2	Di-n-butylphthalate	2.39	5.98	2.39	U
206-44-0	Fluoranthene	2.39	5.98	2.39	U
129-00-0	Pyrene	2.39	5.98	2.39	U
85-68-7	Butylbenzylphthalate	2.39	5.98	2.39	U
56-55-3	Benzo(a)anthracene	2.39	5.98	2.39	U
91-94-1	3,3'-Dichlorobenzidine	2.39	5.98	2.39	U
218-01-9	Chrysene	2.39	5.98	2.39	U
117-81-7	bis(2-Ethylhexyl)phthalate	2.39	5.98	2.39	U
117-84-0	Di-n-octylphthalate	2.39	5.98	2.39	U
205-99-2	Benzo(b)fluoroanthene	2.39	5.98	2.39	U
207-08-9	Benzo(k)fluoranthene	2.39	5.98	2.39	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 835.44 ML Lab Sample ID: M235701

Percent Moisture: 100 Decanted: N Lab File ID: M235701SPLP.D

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/09/13

Injection Volume: (UL)1 Dilution Factor: 1

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	2.39	5.98	2.39	U
193-39-5	Indeno(1,2,3-c,d)pyrene	2.39	5.98	2.39	U
53-70-3	Dibenzo(a,h)anthracene	2.39	5.98	2.39	U
191-24-2	Benzo(g,h,i)perylene	2.39	5.98	2.39	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004DL

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 835.44 ML Lab Sample ID: M235701DL

Percent Moisture: 100 Decanted: N Lab File ID: M235701SPLPDL

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/15/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	120	299	120	U
110-86-1	Pyridine	120	299	1190	
62-53-3	Aniline	120	299	120	U
108-95-2	Phenol	120	299	393	
111-44-4	bis(2-Chloroethyl)ether	120	299	120	U
95-57-8	2-Chlorophenol	120	299	120	U
541-73-1	1,3-Dichlorobenzene	120	299	120	U
106-46-7	1,4-Dichlorobenzene	120	299	120	U
100-51-6	Benzyl alcohol	120	299	120	U
95-50-1	1,2-Dichlorobenzene	120	299	521	
95-48-7	2-Methylphenol	120	299	120	U
108-60-1	bis(2-Chloroisopropyl)ether	120	299	120	U
108-39-4/106	3-,4-Methylphenol	120	299	820	
621-64-7	N-Nitroso-di-n-propylamine	120	299	120	U
67-72-1	Hexachloroethane	120	299	120	U
65-85-0	Benzoic Acid	120	299	5440	
98-95-3	Nitrobenzene	120	299	120	U
78-59-1	Isophorone	120	299	120	U
88-75-5	2-Nitrophenol	120	299	120	U
105-67-9	2,4-Dimethylphenol	120	299	120	U
111-91-1	bis(2-Chloroethoxy)methane	120	299	120	U
120-83-2	2,4-Dichlorophenol	120	299	120	U
120-82-1	1,2,4-Trichlorobenzene	120	299	120	U
91-20-3	Naphthalene	120	299	1930	
106-47-8	4-Chloroaniline	120	299	120	U
87-68-3	Hexachlorobutadiene	120	299	120	U
59-50-7	4-Chloro-3-methyl phenol	120	299	120	U
91-57-6	2-Methylnaphthalene	120	299	120	U
77-47-4	Hexachlorocyclopentadiene	120	299	120	U
88-06-2	2,4,6-Trichlorophenol	120	299	120	U
95-95-4	2,4,5-Trichlorophenol	120	299	120	U
91-58-7	2-Chloronaphthalene	120	299	120	U
88-74-4	2-Nitroaniline	120	299	120	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004DL

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 835.44 ML Lab Sample ID: M235701DL

Percent Moisture: 100 Decanted: N Lab File ID: M235701SPLPDL

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/15/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	120	299	120	U
208-96-8	Acenaphthylene	120	299	120	U
606-20-2	2,6-Dinitrotoluene	120	299	120	U
83-32-9	Acenaphthene	120	299	120	U
51-28-5	2,4-Dinitrophenol	120	299	120	U
100-02-7	4-Nitrophenol	120	299	120	U
121-14-2	2,4-Dinitrotoluene	120	299	120	U
132-64-9	Dibenzofuran	120	299	120	U
84-66-2	Diethylphthalate	120	299	120	U
99-09-2	3-Nitroaniline	120	299	120	U
86-73-7	Fluorene	120	299	120	U
7005-72-3	4-Chlorophenyl phenyl ether	120	299	120	U
100-01-6	4-Nitroaniline	120	299	120	U
534-52-1	4,6-Dinitro-2-methyl phenol	120	299	120	U
86-30-6	N-Nitrosodiphenylamine	120	299	120	U
122-66-7	1,2-Diphenylhydrazine	120	299	120	U
101-55-3	4-Bromophenyl phenyl ether	120	299	120	U
118-74-1	Hexachlorobenzene	120	299	120	U
87-86-5	Pentachlorophenol	120	299	120	U
85-01-8	Phenanthrene	120	299	120	U
120-12-7	Anthracene	120	299	120	U
86-74-8	Carbazole	120	299	120	U
84-74-2	Di-n-butylphthalate	120	299	120	U
206-44-0	Fluoranthene	120	299	120	U
129-00-0	Pyrene	120	299	120	U
85-68-7	Butylbenzylphthalate	120	299	120	U
56-55-3	Benzo(a)anthracene	120	299	120	U
91-94-1	3,3'-Dichlorobenzidine	120	299	120	U
218-01-9	Chrysene	120	299	120	U
117-81-7	bis(2-Ethylhexyl)phthalate	120	299	120	U
117-84-0	Di-n-octylphthalate	120	299	120	U
205-99-2	Benzo(b)fluoroanthene	120	299	120	U
207-08-9	Benzo(k)fluoranthene	120	299	120	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004DL

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP

Sample wt/vol: (G/ML) 835.44 ML

Percent Moisture: 100 Decanted: N

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M235701DL

Lab File ID: M235701SPLPDL

Date Received: 07/30/13

Date Extracted: 08/01/13

Date Analyzed: 08/15/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	120	299	120	U
193-39-5	Indeno(1,2,3-c,d)pyrene	120	299	120	U
53-70-3	Dibenzo(a,h)anthracene	120	299	120	U
191-24-2	Benzo(g,h,i)perylene	120	299	120	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 818.29 ML Lab Sample ID: M235702

Percent Moisture: 100 Decanted: N Lab File ID: M235702SPLP.D

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/09/13

Injection Volume: (UL)1 Dilution Factor: 1

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	2.44	6.11	2.44	U
110-86-1	Pyridine	2.44	6.11	1150	E
62-53-3	Aniline	2.44	6.11	41.1	
108-95-2	Phenol	2.44	6.11	349	E
111-44-4	bis(2-Chloroethyl)ether	2.44	6.11	2.44	U
95-57-8	2-Chlorophenol	2.44	6.11	2.44	U
541-73-1	1,3-Dichlorobenzene	2.44	6.11	5.27	J
106-46-7	1,4-Dichlorobenzene	2.44	6.11	33.6	
100-51-6	Benzyl alcohol	2.44	6.11	36.2	
95-50-1	1,2-Dichlorobenzene	2.44	6.11	443	E
95-48-7	2-Methylphenol	2.44	6.11	2.44	U
108-60-1	bis(2-Chloroisopropyl)ether	2.44	6.11	2.44	U
108-39-4/106	3-,4-Methylphenol	2.44	6.11	586	E
621-64-7	N-Nitroso-di-n-propylamine	2.44	6.11	2.44	U
67-72-1	Hexachloroethane	2.44	6.11	2.44	U
65-85-0	Benzoic Acid	2.44	6.11	5200	E
98-95-3	Nitrobenzene	2.44	6.11	2.44	U
78-59-1	Isophorone	2.44	6.11	2.44	U
88-75-5	2-Nitrophenol	2.44	6.11	2.44	U
105-67-9	2,4-Dimethylphenol	2.44	6.11	57.1	
111-91-1	bis(2-Chloroethoxy)methane	2.44	6.11	2.44	U
120-83-2	2,4-Dichlorophenol	2.44	6.11	2.44	U
120-82-1	1,2,4-Trichlorobenzene	2.44	6.11	2.44	U
91-20-3	Naphthalene	2.44	6.11	738	E
106-47-8	4-Chloroaniline	2.44	6.11	2.44	U
87-68-3	Hexachlorobutadiene	2.44	6.11	2.44	U
59-50-7	4-Chloro-3-methyl phenol	2.44	6.11	2.44	U
91-57-6	2-Methylnaphthalene	2.44	6.11	68.8	
77-47-4	Hexachlorocyclopentadiene	2.44	6.11	2.44	U
88-06-2	2,4,6-Trichlorophenol	2.44	6.11	2.44	U
95-95-4	2,4,5-Trichlorophenol	2.44	6.11	2.44	U
91-58-7	2-Chloronaphthalene	2.44	6.11	2.44	U
88-74-4	2-Nitroaniline	2.44	6.11	2.44	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 818.29 ML Lab Sample ID: M235702

Percent Moisture: 100 Decanted: N Lab File ID: M235702SPLP.D

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/09/13

Injection Volume: (UL)1 Dilution Factor: 1

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	2.44	6.11	2.44	U
208-96-8	Acenaphthylene	2.44	6.11	2.44	U
606-20-2	2,6-Dinitrotoluene	2.44	6.11	4.66	J
83-32-9	Acenaphthene	2.44	6.11	4.50	J
51-28-5	2,4-Dinitrophenol	2.44	6.11	2.44	U
100-02-7	4-Nitrophenol	2.44	6.11	2.44	U
121-14-2	2,4-Dinitrotoluene	2.44	6.11	2.44	U
132-64-9	Dibenzofuran	2.44	6.11	2.44	U
84-66-2	Diethylphthalate	2.44	6.11	2.44	U
99-09-2	3-Nitroaniline	2.44	6.11	2.44	U
86-73-7	Fluorene	2.44	6.11	2.44	U
7005-72-3	4-Chlorophenyl phenyl ether	2.44	6.11	2.44	U
100-01-6	4-Nitroaniline	2.44	6.11	2.44	U
534-52-1	4,6-Dinitro-2-methyl phenol	2.44	6.11	2.44	U
86-30-6	N-Nitrosodiphenylamine	2.44	6.11	2.44	U
122-66-7	1,2-Diphenylhydrazine	2.44	6.11	2.44	U
101-55-3	4-Bromophenyl phenyl ether	2.44	6.11	2.44	U
118-74-1	Hexachlorobenzene	2.44	6.11	2.44	U
87-86-5	Pentachlorophenol	2.44	6.11	2.44	U
85-01-8	Phenanthrene	2.44	6.11	2.44	U
120-12-7	Anthracene	2.44	6.11	2.44	U
86-74-8	Carbazole	2.44	6.11	2.44	U
84-74-2	Di-n-butylphthalate	2.44	6.11	2.44	U
206-44-0	Fluoranthene	2.44	6.11	2.44	U
129-00-0	Pyrene	2.44	6.11	2.44	U
85-68-7	Butylbenzylphthalate	2.44	6.11	2.44	U
56-55-3	Benzo(a)anthracene	2.44	6.11	2.44	U
91-94-1	3,3'-Dichlorobenzidine	2.44	6.11	2.44	U
218-01-9	Chrysene	2.44	6.11	2.44	U
117-81-7	bis(2-Ethylhexyl)phthalate	2.44	6.11	2.44	U
117-84-0	Di-n-octylphthalate	2.44	6.11	2.44	U
205-99-2	Benzo(b)fluoroanthene	2.44	6.11	2.44	U
207-08-9	Benzo(k)fluoranthene	2.44	6.11	2.44	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 818.29 ML Lab Sample ID: M235702

Percent Moisture: 100 Decanted: N Lab File ID: M235702SPLP.D

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/09/13

Injection Volume: (UL)1 Dilution Factor: 1

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	2.44	6.11	2.44	U
193-39-5	Indeno(1,2,3-c,d)pyrene	2.44	6.11	2.44	U
53-70-3	Dibenzo(a,h)anthracene	2.44	6.11	2.44	U
191-24-2	Benzo(g,h,i)perylene	2.44	6.11	2.44	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005DL

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 818.29 ML Lab Sample ID: M235702DL

Percent Moisture: 100 Decanted: N Lab File ID: M235702SPLPDL

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/15/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	122	306	122	U
110-86-1	Pyridine	122	306	1470	
62-53-3	Aniline	122	306	122	U
108-95-2	Phenol	122	306	406	
111-44-4	bis(2-Chloroethyl)ether	122	306	122	U
95-57-8	2-Chlorophenol	122	306	122	U
541-73-1	1,3-Dichlorobenzene	122	306	122	U
106-46-7	1,4-Dichlorobenzene	122	306	122	U
100-51-6	Benzyl alcohol	122	306	122	U
95-50-1	1,2-Dichlorobenzene	122	306	541	
95-48-7	2-Methylphenol	122	306	122	U
108-60-1	bis(2-Chloroisopropyl)ether	122	306	122	U
108-39-4/106	3-,4-Methylphenol	122	306	820	
621-64-7	N-Nitroso-di-n-propylamine	122	306	122	U
67-72-1	Hexachloroethane	122	306	122	U
65-85-0	Benzoic Acid	122	306	5500	
98-95-3	Nitrobenzene	122	306	122	U
78-59-1	Isophorone	122	306	122	U
88-75-5	2-Nitrophenol	122	306	122	U
105-67-9	2,4-Dimethylphenol	122	306	122	U
111-91-1	bis(2-Chloroethoxy)methane	122	306	122	U
120-83-2	2,4-Dichlorophenol	122	306	122	U
120-82-1	1,2,4-Trichlorobenzene	122	306	122	U
91-20-3	Naphthalene	122	306	2150	
106-47-8	4-Chloroaniline	122	306	122	U
87-68-3	Hexachlorobutadiene	122	306	122	U
59-50-7	4-Chloro-3-methyl phenol	122	306	122	U
91-57-6	2-Methylnaphthalene	122	306	122	U
77-47-4	Hexachlorocyclopentadiene	122	306	122	U
88-06-2	2,4,6-Trichlorophenol	122	306	122	U
95-95-4	2,4,5-Trichlorophenol	122	306	122	U
91-58-7	2-Chloronaphthalene	122	306	122	U
88-74-4	2-Nitroaniline	122	306	122	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005DL

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 818.29 ML Lab Sample ID: M235702DL

Percent Moisture: 100 Decanted: N Lab File ID: M235702SPLPDL

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/15/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	122	306	122	U
208-96-8	Acenaphthylene	122	306	122	U
606-20-2	2,6-Dinitrotoluene	122	306	122	U
83-32-9	Acenaphthene	122	306	122	U
51-28-5	2,4-Dinitrophenol	122	306	122	U
100-02-7	4-Nitrophenol	122	306	122	U
121-14-2	2,4-Dinitrotoluene	122	306	122	U
132-64-9	Dibenzofuran	122	306	122	U
84-66-2	Diethylphthalate	122	306	122	U
99-09-2	3-Nitroaniline	122	306	122	U
86-73-7	Fluorene	122	306	122	U
7005-72-3	4-Chlorophenyl phenyl ether	122	306	122	U
100-01-6	4-Nitroaniline	122	306	122	U
534-52-1	4,6-Dinitro-2-methyl phenol	122	306	122	U
86-30-6	N-Nitrosodiphenylamine	122	306	122	U
122-66-7	1,2-Diphenylhydrazine	122	306	122	U
101-55-3	4-Bromophenyl phenyl ether	122	306	122	U
118-74-1	Hexachlorobenzene	122	306	122	U
87-86-5	Pentachlorophenol	122	306	122	U
85-01-8	Phenanthrene	122	306	122	U
120-12-7	Anthracene	122	306	122	U
86-74-8	Carbazole	122	306	122	U
84-74-2	Di-n-butylphthalate	122	306	122	U
206-44-0	Fluoranthene	122	306	122	U
129-00-0	Pyrene	122	306	122	U
85-68-7	Butylbenzylphthalate	122	306	122	U
56-55-3	Benzo(a)anthracene	122	306	122	U
91-94-1	3,3'-Dichlorobenzidine	122	306	122	U
218-01-9	Chrysene	122	306	122	U
117-81-7	bis(2-Ethylhexyl)phthalate	122	306	122	U
117-84-0	Di-n-octylphthalate	122	306	122	U
205-99-2	Benzo(b)fluoroanthene	122	306	122	U
207-08-9	Benzo(k)fluoranthene	122	306	122	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005DL

SDG No.: M2357

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 818.29 ML Lab Sample ID: M235702DL

Percent Moisture: 100 Decanted: N Lab File ID: M235702SPLPDL

Extraction Method: SW3510 Date Received: 07/30/13

Cleanup - GPC: N Sulfur: N Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 08/15/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	122	306	122	U
193-39-5	Indeno(1,2,3-c,d)pyrene	122	306	122	U
53-70-3	Dibenzo(a,h)anthracene	122	306	122	U
191-24-2	Benzo(g,h,i)perylene	122	306	122	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0801**

SDG No.: M2357

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0801

Lab File ID: WB1-0801.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 08/09/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	2.00	5.00	2.00	U
110-86-1	Pyridine	2.00	5.00	2.00	U
62-53-3	Aniline	2.00	5.00	2.00	U
108-95-2	Phenol	2.00	5.00	2.00	U
111-44-4	bis(2-Chloroethyl)ether	2.00	5.00	2.00	U
95-57-8	2-Chlorophenol	2.00	5.00	2.00	U
541-73-1	1,3-Dichlorobenzene	2.00	5.00	2.00	U
106-46-7	1,4-Dichlorobenzene	2.00	5.00	2.00	U
100-51-6	Benzyl alcohol	2.00	5.00	2.00	U
95-50-1	1,2-Dichlorobenzene	2.00	5.00	2.00	U
95-48-7	2-Methylphenol	2.00	5.00	2.00	U
108-60-1	bis(2-Chloroisopropyl)ether	2.00	5.00	2.00	U
108-39-4/106	3-,4-Methylphenol	2.00	5.00	2.00	U
621-64-7	N-Nitroso-di-n-propylamine	2.00	5.00	2.00	U
67-72-1	Hexachloroethane	2.00	5.00	2.00	U
65-85-0	Benzoic Acid	2.00	5.00	2.00	U
98-95-3	Nitrobenzene	2.00	5.00	2.00	U
78-59-1	Isophorone	2.00	5.00	2.00	U
88-75-5	2-Nitrophenol	2.00	5.00	2.00	U
105-67-9	2,4-Dimethylphenol	2.00	5.00	2.00	U
111-91-1	bis(2-Chloroethoxy)methane	2.00	5.00	2.00	U
120-83-2	2,4-Dichlorophenol	2.00	5.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene	2.00	5.00	2.00	U
91-20-3	Naphthalene	2.00	5.00	2.00	U
106-47-8	4-Chloroaniline	2.00	5.00	2.00	U
87-68-3	Hexachlorobutadiene	2.00	5.00	2.00	U
59-50-7	4-Chloro-3-methyl phenol	2.00	5.00	2.00	U
91-57-6	2-Methylnaphthalene	2.00	5.00	2.00	U
77-47-4	Hexachlorocyclopentadiene	2.00	5.00	2.00	U
88-06-2	2,4,6-Trichlorophenol	2.00	5.00	2.00	U
95-95-4	2,4,5-Trichlorophenol	2.00	5.00	2.00	U
91-58-7	2-Chloronaphthalene	2.00	5.00	2.00	U
88-74-4	2-Nitroaniline	2.00	5.00	2.00	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-0801

SDG No.: M2357

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0801

Lab File ID: WB1-0801.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 08/09/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	2.00	5.00	2.00	U
208-96-8	Acenaphthylene	2.00	5.00	2.00	U
606-20-2	2,6-Dinitrotoluene	2.00	5.00	2.00	U
83-32-9	Acenaphthene	2.00	5.00	2.00	U
51-28-5	2,4-Dinitrophenol	2.00	5.00	2.00	U
100-02-7	4-Nitrophenol	2.00	5.00	2.00	U
121-14-2	2,4-Dinitrotoluene	2.00	5.00	2.00	U
132-64-9	Dibenzofuran	2.00	5.00	2.00	U
84-66-2	Diethylphthalate	2.00	5.00	2.00	U
99-09-2	3-Nitroaniline	2.00	5.00	2.00	U
86-73-7	Fluorene	2.00	5.00	2.00	U
7005-72-3	4-Chlorophenyl phenyl ether	2.00	5.00	2.00	U
100-01-6	4-Nitroaniline	2.00	5.00	2.00	U
534-52-1	4,6-Dinitro-2-methyl phenol	2.00	5.00	2.00	U
86-30-6	N-Nitrosodiphenylamine	2.00	5.00	2.00	U
122-66-7	1,2-Diphenylhydrazine	2.00	5.00	2.00	U
101-55-3	4-Bromophenyl phenyl ether	2.00	5.00	2.00	U
118-74-1	Hexachlorobenzene	2.00	5.00	2.00	U
87-86-5	Pentachlorophenol	2.00	5.00	2.00	U
85-01-8	Phenanthrene	2.00	5.00	2.00	U
120-12-7	Anthracene	2.00	5.00	2.00	U
86-74-8	Carbazole	2.00	5.00	2.00	U
84-74-2	Di-n-butylphthalate	2.00	5.00	2.00	U
206-44-0	Fluoranthene	2.00	5.00	2.00	U
129-00-0	Pyrene	2.00	5.00	2.00	U
85-68-7	Butylbenzylphthalate	2.00	5.00	2.00	U
56-55-3	Benzo(a)anthracene	2.00	5.00	2.00	U
91-94-1	3,3'-Dichlorobenzidine	2.00	5.00	2.00	U
218-01-9	Chrysene	2.00	5.00	2.00	U
117-81-7	bis(2-Ethylhexyl)phthalate	2.00	5.00	2.00	U
117-84-0	Di-n-octylphthalate	2.00	5.00	2.00	U
205-99-2	Benzo(b)fluoroanthene	2.00	5.00	2.00	U
207-08-9	Benzo(k)fluoranthene	2.00	5.00	2.00	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0801**

SDG No.: M2357

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0801

Lab File ID: WB1-0801.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 08/01/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 08/09/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	2.00	5.00	2.00	U
193-39-5	Indeno(1,2,3-c,d)pyrene	2.00	5.00	2.00	U
53-70-3	Dibenzo(a,h)anthracene	2.00	5.00	2.00	U
191-24-2	Benzo(g,h,i)perylene	2.00	5.00	2.00	U

QC SUMMARY

SOIL SEMI-VOLATILE SURROGATE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	RECON ID 009-CH2M Run 004	54	38	87	69	84	76							
2	RECON ID 010-CH2M Run 005	60	41	89	72	87	80							
3	RECON ID 009-CH2M Run	0 *	0 *	0 *	0 *	0 *	0 *							D
4	RECON ID 010-CH2M Run	0 *	0 *	0 *	0 *	0 *	0 *							D

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	2-Fluorophenol	(25-121)
S2:	Phenol-d5	(24-113)
S3:	Nitrobenzene-d5	(23-120)
S4:	2-Fluorobiphenyl	(30-115)
S5:	2,4,6-Tribromophenol	(19-122)
S6:	Terphenyl-d14	(18-137)

WATER SEMI-VOLATILE SURROGATE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	WB1-0801	48	35	56	45	66	65							
2	BS1W0801	45	35	69	54	82	80							

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	2-Fluorophenol	(21-115)
S2:	Phenol-d5	(5-115)
S3:	Nitrobenzene-d5	(35-114)
S4:	2-Fluorobiphenyl	(43-116)
S5:	2,4,6-Tribromophenol	(5-123)
S6:	Terphenyl-d14	(33-141)

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0801

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
N-Nitrosodimethylamine	80.0	35.9	45	30-110	
Pyridine	80.0	27.8	35	30-110	
Aniline	80.0	37.3	47	30-110	
Phenol	80.0	27.3	34	20-120	
bis(2-Chloroethyl)ether	80.0	55.7	70	30-110	
2-Chlorophenol	80.0	49.2	62	20-120	
1,3-Dichlorobenzene	80.0	35.7	45	30-110	
1,4-Dichlorobenzene	80.0	37.1	46	30-110	
Benzyl alcohol	80.0	52.9	66	30-110	
1,2-Dichlorobenzene	80.0	40.8	51	30-110	
2-Methylphenol	80.0	46.7	58	30-110	
bis(2-Chloroisopropyl)ether	80.0	52.1	65	30-110	
3-,4-Methylphenol	80.0	45.6	57	20-120	
N-Nitroso-di-n-propylamine	80.0	58.0	72	30-110	
Hexachloroethane	80.0	29.5	37	30-110	
Benzoic Acid	80.0	33.5	42	30-110	
Nitrobenzene	80.0	53.8	67	30-110	
Isophorone	80.0	58.9	74	30-110	
2-Nitrophenol	80.0	57.0	71	20-120	
2,4-Dimethylphenol	80.0	19.4	24	20-120	
bis(2-Chloroethoxy)methane	80.0	56.5	71	30-110	
2,4-Dichlorophenol	80.0	54.5	68	20-120	
1,2,4-Trichlorobenzene	80.0	43.7	55	30-110	
Naphthalene	80.0	52.1	65	30-110	
4-Chloroaniline	80.0	53.5	67	30-110	
Hexachlorobutadiene	80.0	33.2	41	30-110	
4-Chloro-3-methyl phenol	80.0	57.4	72	20-120	
2-Methylnaphthalene	80.0	53.8	67	30-110	
Hexachlorocyclopentadiene	80.0	25.0	31	30-110	
2,4,6-Trichlorophenol	80.0	58.6	73	20-120	
2,4,5-Trichlorophenol	80.0	59.8	75	20-120	
2-Chloronaphthalene	80.0	55.1	69	30-110	
2-Nitroaniline	80.0	62.9	79	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0801

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Dimethylphthalate	80.0	62.1	78	30-110	
Acenaphthylene	80.0	58.1	73	30-110	
2,6-Dinitrotoluene	80.0	64.2	80	30-110	
Acenaphthene	80.0	59.2	74	30-110	
2,4-Dinitrophenol	80.0	63.4	79	20-120	
4-Nitrophenol	80.0	32.5	41	20-120	
2,4-Dinitrotoluene	80.0	66.2	83	30-110	
Dibenzofuran	80.0	60.3	75	30-110	
Diethylphthalate	80.0	64.7	81	30-110	
3-Nitroaniline	80.0	62.7	78	30-110	
Fluorene	80.0	62.2	78	30-110	
4-Chlorophenyl phenyl ether	80.0	60.8	76	30-110	
4-Nitroaniline	80.0	60.3	75	30-110	
4,6-Dinitro-2-methyl phenol	80.0	63.7	80	20-120	
N-Nitrosodiphenylamine	80.0	61.3	77	30-110	
1,2-Diphenylhydrazine	80.0	61.7	77	30-110	
4-Bromophenyl phenyl ether	80.0	61.5	77	30-110	
Hexachlorobenzene	80.0	62.1	78	30-110	
Pentachlorophenol	80.0	65.6	82	20-120	
Phenanthrene	80.0	62.9	79	30-110	
Anthracene	80.0	61.4	77	30-110	
Carbazole	80.0	62.9	79	30-110	
Di-n-butylphthalate	80.0	66.9	84	30-110	
Fluoranthene	80.0	64.1	80	30-110	
Pyrene	80.0	63.4	79	30-110	
Butylbenzylphthalate	80.0	64.5	81	30-110	
Benzo(a)anthracene	80.0	62.3	78	30-110	
3,3'-Dichlorobenzidine	80.0	54.9	69	30-110	
Chrysene	80.0	61.9	77	30-110	
bis(2-Ethylhexyl)phthalate	80.0	68.3	85	30-110	
Di-n-octylphthalate	80.0	63.5	79	30-110	
Benzo(b)fluoroanthene	80.0	62.6	78	30-110	
Benzo(k)fluoranthene	80.0	67.7	85	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0801

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Benzo(a)pyrene	80.0	61.7	77	30-110	
Indeno(1,2,3-c,d)pyrene	80.0	64.8	81	30-110	
Dibenzo(a,h)anthracene	80.0	65.1	81	30-110	
Benzo(g,h,i)perylene	80.0	64.6	81	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE METHOD BLANK SUMMARY

Field Sample ID: WB1-0801

SDG No.: M2357
Lab Name: CH2M HILL ASL

Analysis Method: SW8270C
Lab Sample ID: WB1-0801

Lab File ID: WB1-0801.D
Date Extracted: 08/01/13

GC Column: ZB-5MS ID: 0.25 (mm)
Date Analyzed: 08/09/13

Instrument: MSW
Time Analyzed: 1744

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	BS1W0801	BS1W0801	BS1W0801.D	08/09/13	1821
2	RECON ID 009-CH2M Run 004	M235701	M235701SPLP.D	08/09/13	1935
3	RECON ID 010-CH2M Run 005	M235702	M235702SPLP.D	08/09/13	2012
4	RECON ID 009-CH2M Run 004DL	M235701DL	M235701SPLPDL.D	08/15/13	1402
5	RECON ID 010-CH2M Run 005DL	M235702DL	M235702SPLPDL.D	08/15/13	1439

Comments:

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2357

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 08/09/13

Lab File ID: T1-0809.D

DFTPP Injection Time: 1214

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	22542	(38.6)	
68	less than 2% of mass 69	383	(1.6)	
69	mass 69 relative abundance	23764	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	28087	(48.1)	
197	less than 1% of mass 198	144	(0.2)	
198	base peak, 100% relative abundance	58352	(100.0)	
199	5% to 9% of mass 198	3855	(6.6)	
275	10% to 30% of mass 198	16343	(28.0)	
365	greater than 1% of mass 198	1993	(3.4)	
441	present, but less than mass 443	7887	(76.2)	
442	greater than 40% of mass 198	55013	(94.3)	
443	17% to 23% of mass 442	10356	(18.8)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0809	CV1-0809	CV1-0809.D	08/09/13	1707
2	WB1-0801	WB1-0801	WB1-0801.D	08/09/13	1744
3	BS1W0801	BS1W0801	BS1W0801.D	08/09/13	1821
4	RECON ID 009-CH2M Run	M235701	M235701SPLP	08/09/13	1935
5	RECON ID 010-CH2M Run	M235702	M235702SPLP	08/09/13	2012

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2357

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 08/03/13

Lab File ID: T1-0803.D

DFTPP Injection Time: 1557

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	26297	(39.7)	
68	less than 2% of mass 69	420	(1.6)	
69	mass 69 relative abundance	27034	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	31863	(48.1)	
197	less than 1% of mass 198	177	(0.3)	
198	base peak, 100% relative abundance	66200	(100.0)	
199	5% to 9% of mass 198	4352	(6.6)	
275	10% to 30% of mass 198	17536	(26.5)	
365	greater than 1% of mass 198	2035	(3.1)	
441	present, but less than mass 443	8109	(75.2)	
442	greater than 40% of mass 198	56312	(85.1)	
443	17% to 23% of mass 442	10780	(19.1)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	LEVEL1	LEVEL1	LEVEL1.D	08/03/13	1631
2	LEVEL2	LEVEL2	LEVEL2.D	08/03/13	1707
3	LEVEL3	LEVEL3	LEVEL3.D	08/03/13	1744
4	LEVEL4	LEVEL4	LEVEL4.D	08/03/13	1822
5	LEVEL5	LEVEL5	LEVEL5.D	08/03/13	1859
6	LEVEL6	LEVEL6	LEVEL6.D	08/03/13	1936
7	ICV-0803	ICV-0803	ICV-0803R.D	08/05/13	1116

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2357

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 08/15/13

Lab File ID: T1-0815.D

DFTPP Injection Time: 1214

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative	Q
51	30% to 60% of mass 198	29744 (43.9)	
68	less than 2% of mass 69	552 (1.8)	
69	mass 69 relative abundance	30232 (100.0)	
70	less than 2% of mass 69	0 (0.0)	
127	40% to 60% of mass 198	33845 (49.9)	
197	less than 1% of mass 198	420 (0.6)	
198	base peak, 100% relative abundance	67808 (100.0)	
199	5% to 9% of mass 198	4627 (6.8)	
275	10% to 30% of mass 198	17935 (26.4)	
365	greater than 1% of mass 198	1930 (2.8)	
441	present, but less than mass 443	7987 (75.4)	
442	greater than 40% of mass 198	55109 (81.3)	
443	17% to 23% of mass 442	10588 (19.2)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0815	CV1-0815	CV1-0815.D	08/15/13	1248
2	RECON ID 009-CH2M Run	M235701DL	M235701SPLP	08/15/13	1402
3	RECON ID 010-CH2M Run	M235702DL	M235702SPLP	08/15/13	1439

6C

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 08/03/13 08/03/13

Instrument Name: MSW Calibration Times: 1631 1936

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs:	LEVEL1	LEVEL2	LEVEL3	LEVEL4	LEVEL5	LEVEL6
ICAL File IDs:	LEVEL1.D	LEVEL2.D	LEVEL3.D	LEVEL4.D	LEVEL5.D	LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
N-Nitrosodimethylamine	5	0.754	20	0.826	50	0.839	80	0.809	120	0.808	160	0.798
Pyridine	5	1.389	20	1.453	50	1.419	80	1.322	120	1.301	160	1.313
2-Fluorophenol	5	1.245	20	1.299	50	1.320	80	1.263	120	1.241	160	1.214
Aniline	5	2.308	20	2.265	50	2.066	80	1.744	120	1.858		
Phenol-d5	5	1.504	20	1.603	50	1.594	80	1.517	120	1.497	160	1.433
Phenol#	5	1.669	20	1.699	50	1.700	80	1.598	120	1.578	160	1.516
bis(2-Chloroethyl)ether	5	0.882	20	1.029	50	1.201	80	1.312	120	1.119		
2-Chlorophenol	5	1.298	20	1.374	50	1.384	80	1.332	120	1.303	160	1.268
1,3-Dichlorobenzene	5	1.469	20	1.489	50	1.467	80	1.394	120	1.356	160	1.289
1,4-Dichlorobenzene#	5	1.510	20	1.523	50	1.511	80	1.419	120	1.383	160	1.309
Benzyl alcohol	5	0.775	20	0.871	50	0.898	80	0.863	120	0.863	160	0.862
1,2-Dichlorobenzene	5	1.417	20	1.422	50	1.400	80	1.307	120	1.244	160	1.142
2-Methylphenol	5	1.050	20	1.113	50	1.108	80	1.044	120	1.017	160	0.936
bis(2-Chloroisopropyl)ether	5	2.280	20	2.285	50	2.257	80	2.133	120	2.060	160	1.938
3-,4-Methylphenol	5	1.350	20	1.446	50	1.448	80	1.390	120	1.382	160	1.369
N-Nitroso-di-n-propylamine*	5	0.898	20	0.969	50	0.991	80	0.954	120	0.948	160	0.912
Hexachloroethane	5	0.498	20	0.521	50	0.535	80	0.511	120	0.509	160	0.502
Benzoic Acid	5	0.558	20	0.899	50	1.047	80	1.016	120	1.101	160	1.102
Nitrobenzene-d5	5	0.297	20	0.330	50	0.338	80	0.324	120	0.322	160	0.318
Nitrobenzene	5	0.307	20	0.327	50	0.329	80	0.313	120	0.311	160	0.302
Isophorone	5	0.506	20	0.555	50	0.564	80	0.536	120	0.532	160	0.526
2-Nitrophenol#	5	0.150	20	0.169	50	0.173	80	0.166	120	0.164	160	0.155
2,4-Dimethylphenol	5	0.291	20	0.312	50	0.319	80	0.305	120	0.300	160	0.288
bis(2-Chloroethoxy)methane	5	0.365	20	0.370	50	0.370	80	0.351	120	0.336	160	0.320
2,4-Dichlorophenol#	5	0.230	20	0.243	50	0.249	80	0.237	120	0.235	160	0.229
1,2,4-Trichlorobenzene	5	0.258	20	0.259	50	0.257	80	0.244	120	0.238	160	0.232
Naphthalene	5	1.106	20	1.100	50	1.074	80	0.982	120	0.921	160	0.800
4-Chloroaniline	5	0.330	20	0.360	50	0.377	80	0.320	120	0.346	160	0.317
Hexachlorobutadiene#	5	0.151	20	0.155	50	0.155	80	0.148	120	0.147	160	0.144
4-Chloro-3-methyl phenol#	5	0.238	20	0.265	50	0.270	80	0.257	120	0.256	160	0.252

* SPCC # CCC

6C

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 08/03/13 08/03/13

Instrument Name: MSW Calibration Times: 1631 1936

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs:	LEVEL1	LEVEL2	LEVEL3	LEVEL4	LEVEL5	LEVEL6
ICAL File IDs:	LEVEL1.D	LEVEL2.D	LEVEL3.D	LEVEL4.D	LEVEL5.D	LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
2-Methylnaphthalene	5	0.622	20	0.629	50	0.619	80	0.581	120	0.557	160	0.518
Hexachlorocyclopentadiene*	5	0.216	20	0.254	50	0.265	80	0.255	120	0.255	160	0.250
2,4,6-Trichlorophenol#	5	0.280	20	0.305	50	0.315	80	0.306	120	0.306	160	0.300
2,4,5-Trichlorophenol	5	0.301	20	0.326	50	0.333	80	0.324	120	0.323	160	0.319
2-Fluorobiphenyl	5	1.110	20	1.101	50	1.092	80	1.039	120	1.008	160	0.941
2-Chloronaphthalene	5	0.987	20	0.981	50	0.976	80	0.932	120	0.904	160	0.869
2-Nitroaniline	5	0.227	20	0.319	50	0.349	80	0.348	120	0.354	160	0.356
Dimethylphthalate	5	1.028	20	1.063	50	1.054	80	1.025	120	1.007	160	0.995
Acenaphthylene	5	1.689	20	1.739	50	1.721	80	1.639	120	1.580	160	1.469
2,6-Dinitrotoluene	5	0.233	20	0.266	50	0.276	80	0.266	120	0.269	160	0.263
Acenaphthene#	5	1.071	20	1.063	50	1.039	80	0.986	120	0.955	160	0.895
2,4-Dinitrophenol*	5	0.109	20	0.175	50	0.200	80	0.200	120	0.208	160	0.210
4-Nitrophenol*	5	0.201	20	0.249	50	0.262	80	0.255	120	0.259	160	0.258
2,4-Dinitrotoluene	5	0.270	20	0.336	50	0.357	80	0.348	120	0.352	160	0.345
Dibenzofuran	5	1.464	20	1.452	50	1.428	80	1.365	120	1.330	160	1.251
Diethylphthalate	5	1.011	20	1.068	50	1.085	80	1.045	120	1.020	160	0.973
3-Nitroaniline	5	0.243	20	0.292	50	0.306	80	0.301	120	0.305	160	0.302
Fluorene	5	1.201	20	1.218	50	1.202	80	1.136	120	1.101	160	1.023
4-Chlorophenyl phenyl ether	5	0.540	20	0.545	50	0.539	80	0.520	120	0.506	160	0.478
4-Nitroaniline	5	0.230	20	0.299	50	0.321	80	0.315	120	0.323	160	0.322
4,6-Dinitro-2-methyl phenol	5	0.091	20	0.131	50	0.146	80	0.146	120	0.149	160	0.149
N-Nitrosodiphenylamine#	5	0.573	20	0.596	50	0.595	80	0.563	120	0.552	160	0.524
1,2-Diphenylhydrazine	5	0.668	20	0.697	50	0.705	80	0.673	120	0.664	160	0.627
2,4,6-Tribromophenol	5	0.072	20	0.084	50	0.090	80	0.090	120	0.094	160	0.096
4-Bromophenyl phenyl ether	5	0.180	20	0.184	50	0.190	80	0.184	120	0.184	160	0.182
Hexachlorobenzene	5	0.193	20	0.197	50	0.202	80	0.193	120	0.194	160	0.190
Pentachlorophenol#	5	0.114	20	0.149	50	0.159	80	0.160	120	0.165	160	0.165
Phenanthrene	5	1.036	20	1.023	50	1.010	80	0.948	120	0.914	160	0.840
Anthracene	5	0.975	20	1.001	50	1.002	80	0.950	120	0.916	160	0.840
Carbazole	5	0.889	20	0.931	50	0.938	80	0.894	120	0.872	160	0.815

* SPCC # CCC

6C

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 08/03/13 08/03/13

Instrument Name: MSW Calibration Times: 1631 1936

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs:	LEVEL1	LEVEL2	LEVEL3	LEVEL4	LEVEL5	LEVEL6
ICAL File IDs:	LEVEL1.D	LEVEL2.D	LEVEL3.D	LEVEL4.D	LEVEL5.D	LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
Di-n-butylphthalate	5	0.809	20	0.989	50	1.028	80	0.981	120	0.944	160	0.865
Fluoranthene#	5	0.981	20	1.027	50	1.032	80	0.973	120	0.940	160	0.867
Pyrene	5	1.085	20	1.126	50	1.100	80	1.047	120	1.027	160	1.009
Terphenyl-d14	5	0.691	20	0.718	50	0.711	80	0.679	120	0.671	160	0.671
Butylbenzylphthalate	5	0.281	20	0.418	50	0.468	80	0.467	120	0.477	160	0.491
Benzo(a)anthracene	5	1.013	20	1.038	50	1.033	80	0.998	120	0.978	160	0.972
3,3'-Dichlorobenzidine	5	0.234	20	0.315	50	0.354	80	0.352	120	0.351	160	0.362
Chrysene	5	1.002	20	1.007	50	0.991	80	0.904	120	0.904	160	0.891
bis(2-Ethylhexyl)phthalate	5	0.454	20	0.629	50	0.688	80	0.672	120	0.664	160	0.657
Di-n-octylphthalate#	5	0.667	20	0.970	50	1.121	80	1.110	120	1.079	160	0.988
Benzo(b)fluoroanthene	5	0.930	20	0.954	50	0.984	80	0.943	120	0.929	160	1.018
Benzo(k)fluoranthene	5	0.938	20	1.017	50	1.018	80	0.949	120	0.884	160	0.752
Benzo(a)pyrene#	5	0.831	20	0.891	50	0.918	80	0.889	120	0.886	160	0.841
Indeno(1,2,3-c,d)pyrene	5	0.934	20	1.037	50	1.081	80	1.062	120	1.071	160	1.065
Dibenzo(a,h)anthracene	5	0.795	20	0.873	50	0.907	80	0.884	120	0.884	160	0.862
Benzo(g,h,i)perylene	5	0.811	20	0.859	50	0.901	80	0.881	120	0.899	160	0.890

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 08/03/13 08/03/13

Instrument Name: MSW Calibration Times: 1631 1936

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
N-Nitrosodimethylamine	AVG	0.805	3.63	7.14			
Pyridine	AVG	1.366	4.61	7.14			
2-Fluorophenol	AVG	1.264	3.11	7.14			
Aniline	AVG	2.048	12.1	7.14			
Phenol-d5	AVG	1.525	4.20	7.14			
Phenol#	AVG	1.627	4.58	7.14			
bis(2-Chloroethyl)ether	AVG	1.109	14.8	7.14			
2-Chlorophenol	AVG	1.326	3.43	7.14			
1,3-Dichlorobenzene	AVG	1.411	5.55	7.14			
1,4-Dichlorobenzene#	AVG	1.443	6.01	7.14			
Benzyl alcohol	AVG	0.855	4.86	7.14			
1,2-Dichlorobenzene	AVG	1.322	8.57	7.14			
2-Methylphenol	AVG	1.045	6.25	7.14			
bis(2-Chloroisopropyl)ether	AVG	2.159	6.54	7.14			
3-,4-Methylphenol	AVG	1.397	2.91	7.14			
N-Nitroso-di-n-propylamine*	AVG	0.945	3.70	7.14			
Hexachloroethane	AVG	0.512	2.66	7.14			
Benzoic Acid	LINR	0.954			0.999		
Nitrobenzene-d5	AVG	0.321	4.37	7.14			
Nitrobenzene	AVG	0.315	3.47	7.14			
Isophorone	AVG	0.537	3.89	7.14			
2-Nitrophenol#	AVG	0.163	5.36	7.14			
2,4-Dimethylphenol	AVG	0.302	3.95	7.14			
bis(2-Chloroethoxy)methane	AVG	0.352	5.76	7.14			
2,4-Dichlorophenol#	AVG	0.237	3.29	7.14			
1,2,4-Trichlorobenzene	AVG	0.248	4.65	7.14			
Naphthalene	AVG	0.997	12.1	7.14			
4-Chloroaniline	AVG	0.342	6.92	7.14			
Hexachlorobutadiene#	AVG	0.150	3.02	7.14			
4-Chloro-3-methyl phenol#	AVG	0.257	4.29	7.14			

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 08/03/13 08/03/13

Instrument Name: MSW Calibration Times: 1631 1936

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
2-Methylnaphthalene	AVG	0.587	7.53	7.14			
Hexachlorocyclopentadiene*	AVG	0.249	6.83	7.14			
2,4,6-Trichlorophenol#	AVG	0.302	3.96	7.14			
2,4,5-Trichlorophenol	AVG	0.321	3.42	7.14			
2-Fluorobiphenyl	AVG	1.048	6.29	7.14			
2-Chloronaphthalene	AVG	0.941	5.10	7.14			
2-Nitroaniline	LINR	0.325			1.000		
Dimethylphthalate	AVG	1.029	2.54	7.14			
Acenaphthylene	AVG	1.640	6.19	7.14			
2,6-Dinitrotoluene	AVG	0.262	5.62	7.14			
Acenaphthene#	AVG	1.002	6.88	7.14			
2,4-Dinitrophenol*	LINR	0.184			1.000		
4-Nitrophenol*	AVG	0.247	9.43	7.14			
2,4-Dinitrotoluene	AVG	0.335	9.68	7.14			
Dibenzofuran	AVG	1.381	5.96	7.14			
Diethylphthalate	AVG	1.033	3.97	7.14			
3-Nitroaniline	AVG	0.292	8.31	7.14			
Fluorene	AVG	1.147	6.59	7.14			
4-Chlorophenyl phenyl ether	AVG	0.521	4.95	7.14			
4-Nitroaniline	AVG	0.301	12.1	7.14			
4,6-Dinitro-2-methyl phenol	LINR	0.135			1.000		
N-Nitrosodiphenylamine#	AVG	0.567	4.80	7.14			
1,2-Diphenylhydrazine	AVG	0.672	4.15	7.14			
2,4,6-Tribromophenol	AVG	0.088	10.0	7.14			
4-Bromophenyl phenyl ether	AVG	0.184	1.84	7.14			
Hexachlorobenzene	AVG	0.195	2.15	7.14			
Pentachlorophenol#	AVG	0.152	12.7	7.14			
Phenanthrene	AVG	0.961	7.91	7.14			
Anthracene	AVG	0.947	6.52	7.14			
Carbazole	AVG	0.890	5.02	7.14			

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 08/03/13 08/03/13

Instrument Name: MSW Calibration Times: 1631 1936

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
Di-n-butylphthalate	AVG	0.936	8.89	7.14			
Fluoranthene#	AVG	0.970	6.33	7.14			
Pyrene	AVG	1.066	4.25	7.14			
Terphenyl-d14	AVG	0.690	2.95	7.14			
Butylbenzylphthalate	LINR	0.433			1.000		
Benzo(a)anthracene	AVG	1.005	2.75	7.14			
3,3'-Dichlorobenzidine	AVG	0.328	14.9	7.14			
Chrysene	AVG	0.950	5.83	7.14			
bis(2-Ethylhexyl)phthalate	AVG	0.627	13.9	7.14			
Di-n-octylphthalate#	QUAD	0.989				0.999	
Benzo(b)fluoroanthene	AVG	0.960	3.66	7.14			
Benzo(k)fluoranthene	AVG	0.926	10.7	7.14			
Benzo(a)pyrene#	AVG	0.876	3.79	7.14			
Indeno(1,2,3-c,d)pyrene	AVG	1.042	5.25	7.14			
Dibenzo(a,h)anthracene	AVG	0.868	4.43	7.14			
Benzo(g,h,i)perylene	AVG	0.873	3.91	7.14			

* SPCC # CCC

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/05/13 1116

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

2nd Source ICV-0803 Init. Calib. Time(s): 1631 1936

Lab File ID: ICV-0803R.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	48.3	0.779	0.500	-3	30	
Pyridine	50.0	49.2	1.343	0.500	-2	30	
Aniline	50.0	50.2	2.057	0.500	0.4	30	
Phenol#	50.0	47.0	1.528	0.050	-6	30	
bis(2-Chloroethyl)ether	50.0	44.8	0.993	0.050	-10	30	
2-Chlorophenol	50.0	46.8	1.242	0.050	-6	30	
1,3-Dichlorobenzene	50.0	46.9	1.322	0.050	-6	30	
1,4-Dichlorobenzene#	50.0	46.7	1.347	0.050	-7	30	
Benzyl alcohol	50.0	48.1	0.823	0.050	-4	30	
1,2-Dichlorobenzene	50.0	47.1	1.245	0.050	-6	30	
2-Methylphenol	50.0	47.9	1.001	0.050	-4	30	
bis(2-Chloroisopropyl)ether	50.0	49.7	2.147	0.050	-0.6	30	
3-,4-Methylphenol	50.0	47.0	1.312	0.050	-6	30	
N-Nitroso-di-n-propylamine*	50.0	48.9	0.923	0.050	-2	30	
Hexachloroethane	50.0	46.9	0.480	0.050	-6	30	
Benzoic Acid	50.0	48.5	1.002	0.050	-3	30	
Nitrobenzene	50.0	48.3	0.304	0.050	-3	30	
Isophorone	50.0	48.6	0.522	0.050	-3	30	
2-Nitrophenol#	50.0	47.6	0.155	0.050	-5	30	
2,4-Dimethylphenol	50.0	45.9	0.277	0.050	-8	30	
bis(2-Chloroethoxy)methane	50.0	47.7	0.336	0.050	-5	30	
2,4-Dichlorophenol#	50.0	47.0	0.223	0.050	-6	30	
1,2,4-Trichlorobenzene	50.0	47.8	0.237	0.050	-4	30	
Naphthalene	50.0	44.1	0.881	0.050	-12	30	
4-Chloroaniline	50.0	49.8	0.340	0.050	-0.5	30	
Hexachlorobutadiene#	50.0	42.8	0.128	0.050	-14	30	
4-Chloro-3-methyl phenol#	50.0	47.7	0.245	0.050	-5	30	
2-Methylnaphthalene	50.0	49.8	0.585	0.050	-0.5	30	
Hexachlorocyclopentadiene*	50.0	51.0	0.254	0.050	2	30	
2,4,6-Trichlorophenol#	50.0	48.1	0.291	0.050	-4	30	
2,4,5-Trichlorophenol	50.0	46.1	0.296	0.050	-8	30	
2-Chloronaphthalene	50.0	48.5	0.914	0.050	-3	30	
2-Nitroaniline	50.0	46.5	0.320	0.050	-7	30	
Dimethylphthalate	50.0	50.4	1.036	0.050	0.8	30	
Acenaphthylene	50.0	45.0	1.476	0.050	-10	30	

* SPCC # CCC

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/05/13 1116

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

2nd Source ICV-0803 Init. Calib. Time(s): 1631 1936

Lab File ID: ICV-0803R.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2,6-Dinitrotoluene	50.0	48.0	0.252	0.050	-4	30	
Acenaphthene#	50.0	48.9	0.979	0.050	-2	30	
2,4-Dinitrophenol*	50.0	43.2	0.170	0.050	-14	30	
4-Nitrophenol*	50.0	49.0	0.242	0.050	-2	30	
2,4-Dinitrotoluene	50.0	49.3	0.330	0.050	-1	30	
Dibenzofuran	50.0	48.3	1.335	0.050	-3	30	
Diethylphthalate	50.0	50.1	1.035	0.050	0.1	30	
3-Nitroaniline	50.0	50.5	0.294	0.050	0.9	30	
Fluorene	50.0	48.9	1.122	0.050	-2	30	
4-Chlorophenyl phenyl ether	50.0	48.8	0.509	0.050	-2	30	
4-Nitroaniline	50.0	48.8	0.294	0.050	-2	30	
4,6-Dinitro-2-methyl phenol	50.0	43.7	0.126	0.050	-13	30	
N-Nitrosodiphenylamine#	50.0	49.4	0.561	0.050	-1	30	
1,2-Diphenylhydrazine	50.0	50.3	0.676	0.500	0.5	30	
4-Bromophenyl phenyl ether	50.0	48.4	0.178	0.050	-3	30	
Hexachlorobenzene	50.0	47.4	0.185	0.050	-5	30	
Pentachlorophenol#	50.0	42.9	0.130	0.050	-14	30	
Phenanthrene	50.0	48.1	0.924	0.050	-4	30	
Anthracene	50.0	50.0	0.947	0.050	0.0	30	
Carbazole	50.0	49.8	0.886	0.050	-0.5	30	
Di-n-butylphthalate	50.0	54.2	1.015	0.050	8	30	
Fluoranthene#	50.0	49.9	0.968	0.050	-0.3	30	
Pyrene	50.0	48.8	1.041	0.050	-2	30	
Butylbenzylphthalate	50.0	47.5	0.440	0.050	-5	30	
Benzo(a)anthracene	50.0	47.1	0.947	0.050	-6	30	
3,3'-Dichlorobenzidine	50.0	53.1	0.348	0.050	6	30	
Chrysene	50.0	45.9	0.871	0.050	-8	30	
bis(2-Ethylhexyl)phthalate	50.0	51.4	0.645	0.050	3	30	
Di-n-octylphthalate#	50.0	46.6	1.059	0.050	-7	30	
Benzo(b)fluoroanthene	50.0	48.0	0.922	0.050	-4	30	
Benzo(k)fluoranthene	50.0	50.3	0.932	0.050	0.6	30	
Benzo(a)pyrene#	50.0	50.4	0.882	0.050	0.7	30	
Indeno(1,2,3-c,d)pyrene	50.0	48.1	1.001	0.050	-4	30	
Dibenzo(a,h)anthracene	50.0	48.5	0.841	0.050	-3	30	
Benzo(g,h,i)perylene	50.0	47.6	0.831	0.050	-5	30	

* SPCC # CCC

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/05/13 1116

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 / /

2nd Source ICV-0803 Init. Calib. Time(s): 1631

Lab File ID: ICV-0803R.D GC Column: ID: (mm)

Heat Purge:(Y/N) N Concentration Units:

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/09/13 1707

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

Cal Check ID: CV1-0809 Init. Calib. Time(s): 1631 1936

Lab File ID: CV1-0809.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	52.1	0.839	0.500	4	20	
Pyridine	50.0	50.0	1.366	0.500	0.0	20	
2-Fluorophenol	50.0	51.5	1.301	0.050	3	20	
Aniline	50.0	46.6	1.911	0.500	-7	20	
Phenol-d5	50.0	53.3	1.625	0.050	7	20	
Phenol#	50.0	52.6	1.712	0.050	5	20	
bis(2-Chloroethyl)ether	50.0	58.0	1.287	0.050	16	20	
2-Chlorophenol	50.0	52.2	1.384	0.050	4	20	
1,3-Dichlorobenzene	50.0	51.9	1.464	0.050	4	20	
1,4-Dichlorobenzene#	50.0	51.7	1.490	0.050	3	20	
Benzyl alcohol	50.0	53.3	0.912	0.050	7	20	
1,2-Dichlorobenzene	50.0	52.3	1.384	0.050	5	20	
2-Methylphenol	50.0	53.4	1.115	0.050	7	20	
bis(2-Chloroisopropyl)ether	50.0	52.0	2.245	0.050	4	20	
3-,4-Methylphenol	50.0	52.1	1.455	0.050	4	20	
N-Nitroso-di-n-propylamine*	50.0	53.1	1.004	0.050	6	20	
Hexachloroethane	50.0	51.3	0.526	0.050	3	20	
Benzoic Acid	50.0	55.5	1.161	0.050	11	20	
Nitrobenzene-d5	50.0	52.7	0.339	0.050	5	20	
Nitrobenzene	50.0	52.2	0.329	0.050	4	20	
Isophorone	50.0	52.8	0.567	0.050	6	20	
2-Nitrophenol#	50.0	54.2	0.177	0.050	8	20	
2,4-Dimethylphenol	50.0	52.2	0.316	0.050	4	20	
bis(2-Chloroethoxy)methane	50.0	52.5	0.369	0.050	5	20	
2,4-Dichlorophenol#	50.0	52.7	0.250	0.050	5	20	
1,2,4-Trichlorobenzene	50.0	51.7	0.257	0.050	3	20	
Naphthalene	50.0	53.6	1.068	0.050	7	20	
4-Chloroaniline	50.0	52.7	0.360	0.050	5	20	
Hexachlorobutadiene#	50.0	52.4	0.157	0.050	5	20	
4-Chloro-3-methyl phenol#	50.0	52.7	0.271	0.050	5	20	
2-Methylnaphthalene	50.0	53.3	0.627	0.050	7	20	
Hexachlorocyclopentadiene*	50.0	48.1	0.240	0.050	-4	20	
2,4,6-Trichlorophenol#	50.0	51.5	0.311	0.050	3	20	
2,4,5-Trichlorophenol	50.0	52.2	0.335	0.050	4	20	
2-Fluorobiphenyl	50.0	52.1	1.093	0.050	4	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/09/13 1707

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

Cal Check ID: CV1-0809 Init. Calib. Time(s): 1631 1936

Lab File ID: CV1-0809.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2-Chloronaphthalene	50.0	51.6	0.971	0.050	3	20	
2-Nitroaniline	50.0	51.5	0.356	0.050	3	20	
Dimethylphthalate	50.0	51.4	1.058	0.050	3	20	
Acenaphthylene	50.0	52.1	1.708	0.050	4	20	
2,6-Dinitrotoluene	50.0	52.5	0.275	0.050	5	20	
Acenaphthene#	50.0	52.0	1.042	0.050	4	20	
2,4-Dinitrophenol*	50.0	51.3	0.205	0.050	3	20	
4-Nitrophenol*	50.0	53.1	0.263	0.050	6	20	
2,4-Dinitrotoluene	50.0	53.7	0.359	0.050	7	20	
Dibenzofuran	50.0	51.7	1.428	0.050	3	20	
Diethylphthalate	50.0	52.2	1.078	0.050	4	20	
3-Nitroaniline	50.0	52.9	0.309	0.050	6	20	
Fluorene	50.0	52.5	1.205	0.050	5	20	
4-Chlorophenyl phenyl ether	50.0	51.7	0.539	0.050	3	20	
4-Nitroaniline	50.0	53.9	0.325	0.050	8	20	
4,6-Dinitro-2-methyl phenol	50.0	51.5	0.149	0.050	3	20	
N-Nitrosodiphenylamine#	50.0	52.4	0.595	0.050	5	20	
1,2-Diphenylhydrazine	50.0	51.9	0.698	0.500	4	20	
2,4,6-Tribromophenol	50.0	52.9	0.093	0.050	6	20	
4-Bromophenyl phenyl ether	50.0	52.1	0.192	0.050	4	20	
Hexachlorobenzene	50.0	51.5	0.201	0.050	3	20	
Pentachlorophenol#	50.0	53.5	0.163	0.050	7	20	
Phenanthrene	50.0	52.8	1.016	0.050	6	20	
Anthracene	50.0	52.9	1.003	0.050	6	20	
Carbazole	50.0	52.6	0.936	0.050	5	20	
Di-n-butylphthalate	50.0	54.8	1.025	0.050	10	20	
Fluoranthene#	50.0	53.0	1.028	0.050	6	20	
Pyrene	50.0	51.8	1.104	0.050	4	20	
Terphenyl-d14	50.0	51.7	0.714	0.050	3	20	
Butylbenzylphthalate	50.0	51.6	0.481	0.050	3	20	
Benzo(a)anthracene	50.0	51.0	1.026	0.050	2	20	
3,3'-Dichlorobenzidine	50.0	53.7	0.353	0.050	7	20	
Chrysene	50.0	51.0	0.969	0.050	2	20	
bis(2-Ethylhexyl)phthalate	50.0	55.2	0.693	0.050	10	20	
Di-n-octylphthalate#	50.0	50.8	1.156	0.050	2	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/09/13 1707

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

Cal Check ID: CV1-0809 Init. Calib. Time(s): 1631 1936

Lab File ID: CV1-0809.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Benzo(b)fluoroanthene	50.0	51.8	0.995	0.050	4	20	
Benzo(k)fluoranthene	50.0	54.5	1.010	0.050	9	20	
Benzo(a)pyrene#	50.0	53.1	0.930	0.050	6	20	
Indeno(1,2,3-c,d)pyrene	50.0	52.5	1.094	0.050	5	20	
Dibenzo(a,h)anthracene	50.0	53.2	0.923	0.050	6	20	
Benzo(g,h,i)perylene	50.0	52.4	0.915	0.050	5	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/15/13 1248

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

Cal Check ID: CV1-0815 Init. Calib. Time(s): 1631 1936

Lab File ID: CV1-0815.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	53.2	0.856	0.500	6	20	
Pyridine	50.0	53.5	1.463	0.500	7	20	
2-Fluorophenol	50.0	52.8	1.334	0.050	6	20	
Aniline	50.0	48.8	2.001	0.500	-2	20	
Phenol-d5	50.0	53.2	1.621	0.050	6	20	
Phenol#	50.0	53.2	1.729	0.050	6	20	
bis(2-Chloroethyl)ether	50.0	46.6	1.032	0.050	-7	20	
2-Chlorophenol	50.0	52.6	1.395	0.050	5	20	
1,3-Dichlorobenzene	50.0	52.0	1.467	0.050	4	20	
1,4-Dichlorobenzene#	50.0	51.6	1.488	0.050	3	20	
Benzyl alcohol	50.0	52.6	0.900	0.050	5	20	
1,2-Dichlorobenzene	50.0	53.0	1.402	0.050	6	20	
2-Methylphenol	50.0	54.3	1.134	0.050	9	20	
bis(2-Chloroisopropyl)ether	50.0	53.6	2.312	0.050	7	20	
3-,4-Methylphenol	50.0	52.7	1.474	0.050	5	20	
N-Nitroso-di-n-propylamine*	50.0	54.4	1.029	0.050	9	20	
Hexachloroethane	50.0	51.3	0.526	0.050	3	20	
Benzoic Acid	50.0	53.3	1.111	0.050	7	20	
Nitrobenzene-d5	50.0	53.1	0.342	0.050	6	20	
Nitrobenzene	50.0	53.0	0.334	0.050	6	20	
Isophorone	50.0	53.8	0.578	0.050	8	20	
2-Nitrophenol#	50.0	54.5	0.178	0.050	9	20	
2,4-Dimethylphenol	50.0	53.4	0.323	0.050	7	20	
bis(2-Chloroethoxy)methane	50.0	53.0	0.373	0.050	6	20	
2,4-Dichlorophenol#	50.0	52.9	0.251	0.050	6	20	
1,2,4-Trichlorobenzene	50.0	51.4	0.255	0.050	3	20	
Naphthalene	50.0	53.4	1.066	0.050	7	20	
4-Chloroaniline	50.0	51.7	0.353	0.050	3	20	
Hexachlorobutadiene#	50.0	51.3	0.154	0.050	3	20	
4-Chloro-3-methyl phenol#	50.0	53.1	0.272	0.050	6	20	
2-Methylnaphthalene	50.0	53.0	0.623	0.050	6	20	
Hexachlorocyclopentadiene*	50.0	47.5	0.237	0.050	-5	20	
2,4,6-Trichlorophenol#	50.0	52.0	0.314	0.050	4	20	
2,4,5-Trichlorophenol	50.0	52.5	0.337	0.050	5	20	
2-Fluorobiphenyl	50.0	52.2	1.095	0.050	4	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/15/13 1248

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

Cal Check ID: CV1-0815 Init. Calib. Time(s): 1631 1936

Lab File ID: CV1-0815.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2-Chloronaphthalene	50.0	51.9	0.977	0.050	4	20	
2-Nitroaniline	50.0	53.7	0.372	0.050	7	20	
Dimethylphthalate	50.0	52.1	1.071	0.050	4	20	
Acenaphthylene	50.0	53.3	1.749	0.050	7	20	
2,6-Dinitrotoluene	50.0	52.6	0.276	0.050	5	20	
Acenaphthene#	50.0	53.0	1.062	0.050	6	20	
2,4-Dinitrophenol*	50.0	51.9	0.207	0.050	4	20	
4-Nitrophenol*	50.0	54.5	0.269	0.050	9	20	
2,4-Dinitrotoluene	50.0	54.8	0.367	0.050	10	20	
Dibenzofuran	50.0	52.3	1.445	0.050	5	20	
Diethylphthalate	50.0	53.3	1.102	0.050	7	20	
3-Nitroaniline	50.0	54.5	0.318	0.050	9	20	
Fluorene	50.0	53.2	1.219	0.050	6	20	
4-Chlorophenyl phenyl ether	50.0	52.0	0.542	0.050	4	20	
4-Nitroaniline	50.0	55.8	0.336	0.050	12	20	
4,6-Dinitro-2-methyl phenol	50.0	51.3	0.149	0.050	3	20	
N-Nitrosodiphenylamine#	50.0	52.7	0.598	0.050	5	20	
1,2-Diphenylhydrazine	50.0	53.2	0.715	0.500	6	20	
2,4,6-Tribromophenol	50.0	53.2	0.093	0.050	6	20	
4-Bromophenyl phenyl ether	50.0	51.8	0.191	0.050	4	20	
Hexachlorobenzene	50.0	51.1	0.199	0.050	2	20	
Pentachlorophenol#	50.0	50.4	0.153	0.050	0.8	20	
Phenanthrene	50.0	53.1	1.021	0.050	6	20	
Anthracene	50.0	53.4	1.012	0.050	7	20	
Carbazole	50.0	53.7	0.956	0.050	7	20	
Di-n-butylphthalate	50.0	57.0	1.068	0.050	14	20	
Fluoranthene#	50.0	53.9	1.046	0.050	8	20	
Pyrene	50.0	51.2	1.091	0.050	2	20	
Terphenyl-d14	50.0	51.3	0.709	0.050	3	20	
Butylbenzylphthalate	50.0	55.1	0.515	0.050	10	20	
Benzo(a)anthracene	50.0	51.2	1.028	0.050	2	20	
3,3'-Dichlorobenzidine	50.0	56.4	0.370	0.050	13	20	
Chrysene	50.0	51.1	0.972	0.050	2	20	
bis(2-Ethylhexyl)phthalate	50.0	57.8	0.725	0.050	16	20	
Di-n-octylphthalate#	50.0	53.5	1.217	0.050	7	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2357 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 08/15/13 1248

Instrument ID: MSW Init. Calib. Date(s): 08/03/13 08/03/13

Cal Check ID: CV1-0815 Init. Calib. Time(s): 1631 1936

Lab File ID: CV1-0815.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Benzo(b)fluoroanthene	50.0	50.3	0.965	0.050	0.5	20	
Benzo(k)fluoranthene	50.0	54.2	1.004	0.050	8	20	
Benzo(a)pyrene#	50.0	52.4	0.918	0.050	5	20	
Indeno(1,2,3-c,d)pyrene	50.0	52.2	1.087	0.050	4	20	
Dibenzo(a,h)anthracene	50.0	52.8	0.917	0.050	6	20	
Benzo(g,h,i)perylene	50.0	51.7	0.903	0.050	3	20	

* SPCC # CCC

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0815

Date Analyzed: 08/15/13

Lab File ID: CV1-0815.D

Time Analyzed: 1248

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		548573	7.44	2429602	9.2	1397289	12.63
Upper Limit		1097146	7.94	4859204	9.7	2794578	13.13
Lower Limit		274287	6.94	1214801	8.7	698645	12.13
Field Sample ID	Lab Sample ID						
RECON ID 009-CH2M	M235701DL	586120	7.436	2581145	9.19	1453460	12.61
RECON ID 010-CH2M	M235702DL	590730	7.436	2606216	9.189	1448076	12.61

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0815

Date Analyzed: 08/15/13

Lab File ID: CV1-0815.D

Time Analyzed: 1248

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		2358149	16.09	2306678	22.55	2330306	25.85
Upper Limit		4716298	16.59	4613356	23.05	4660612	26.35
Lower Limit		1179075	15.59	1153339	22.05	1165153	25.35
Field Sample ID	Lab Sample ID						
RECON ID 009-CH2M	M235701DL	2432966	16.08	2375008	22.54	2415388	25.83
RECON ID 010-CH2M	M235702DL	2421616	16.08	2367442	22.54	2382615	25.83

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0809

Date Analyzed: 08/09/13

Lab File ID: CV1-0809.D

Time Analyzed: 1707

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	Reference Cal	570939	7.44	2520658	9.19	1472775	12.61
	Upper Limit	1141878	7.94	5041316	9.69	2945550	13.11
	Lower Limit	285470	6.94	1260329	8.69	736388	12.11
Field Sample ID	Lab Sample ID						
WB1-0801	WB1-0801	696492	7.436	3245130	9.189	1927349	12.61
BS1W0801	BS1W0801	634328	7.436	2847101	9.19	1647155	12.61
RECON ID 009-CH2M	M235701	619429	7.436	2260113	9.22	1650223	12.62
RECON ID 010-CH2M	M235702	658431	7.436	2431911	9.22	1758350	12.62

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0809

Date Analyzed: 08/09/13

Lab File ID: CV1-0809.D

Time Analyzed: 1707

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		2461790	16.08	2348057	22.54	2317128	25.83
Upper Limit		4923580	16.58	4696114	23.04	4634256	26.33
Lower Limit		1230895	15.58	1174029	22.04	1158564	25.33
Field Sample ID	Lab Sample ID						
WB1-0801	WB1-0801	3282661	16.08	3163527	22.54	3117191	25.82
BS1W0801	BS1W0801	2796593	16.08	2643714	22.54	2649874	25.82
RECON ID 009-CH2M	M235701	2787842	16.10	2703128	22.54	2411519	25.83
RECON ID 010-CH2M	M235702	2934114	16.10	2836444	22.54	2601032	25.83

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL3

Date Analyzed: 08/03/13

Lab File ID: LEVEL3.D

Time Analyzed: 1744

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		578987	7.46	2553357	9.22	1469326	12.65
Upper Limit		1157974	7.96	5106714	9.72	2938652	13.15
Lower Limit		289494	6.96	1276679	8.72	734663	12.15
Field Sample ID	Lab Sample ID						
ICV-0803	ICV-0803	568200	7.46	2485695	9.21	1391195	12.65

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8C

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2357

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL3

Date Analyzed: 08/03/13

Lab File ID: LEVEL3.D

Time Analyzed: 1744

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		2454967	16.11	2365130	22.57	2396172	25.87
Upper Limit		4909934	16.61	4730260	23.07	4792344	26.37
Lower Limit		1227484	15.61	1182565	22.07	1198086	25.37
Field Sample ID	Lab Sample ID						
ICV-0803	ICV-0803	2325859	16.11	2195617	22.57	2161930	25.86

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8270C
Matrix: Water

Instrument ID: MSW
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates								Std. Dev.	DL
			1	2	3	4	5	6	7	8		
N-Nitrosodimethylamine	10/01/11	3.00	1.07	0.910	1.10	0.990	0.520	0.770	0.700	0.610	0.216	2.00
Pyridine	10/01/11	3.00	0.800	0.760	0.870	0.630	0.230	0.530	0.640	0.470	0.206	2.00
Aniline	10/01/11	5.00	2.70	2.34	2.96	2.73	2.70	2.68	2.66	3.17	0.241	2.00
Phenol	10/01/11	9.00	2.83	2.70	3.25	2.59	2.23	2.22	2.71	2.45	0.338	2.00
bis(2-Chloroethyl)ether	10/01/11	3.00	2.27	2.01	2.07	2.10	1.92	1.94	2.35	2.13	0.151	2.00
2-Chlorophenol	10/01/11	9.00	5.77	4.95	5.62	5.40	4.89	4.93	5.99	5.28	0.417	2.00
1,3-Dichlorobenzene	10/01/11	3.00	1.87	1.65	1.58	1.64	1.51	1.50	1.73	1.53	0.126	2.00
1,4-Dichlorobenzene	10/01/11	3.00	1.81	1.59	1.62	1.63	1.51	1.52	1.78	1.56	0.112	2.00
Benzyl alcohol	10/01/11	3.00	1.85	1.46	1.74	1.56	1.50	1.57	1.79	1.67	0.142	2.00
1,2-Dichlorobenzene	10/01/11	3.00	1.86	1.60	1.60	1.60	1.57	1.58	1.77	1.57	0.109	2.00
2-Methylphenol	10/01/11	9.00	5.88	4.90	5.56	5.20	4.78	4.69	5.63	4.99	0.439	2.00
bis(2-Chloroisopropyl)ether	10/01/11	3.00	2.20	1.90	1.99	1.99	1.90	1.99	2.26	2.08	0.132	2.00
3-,4-Methylphenol	10/01/11	9.00	5.26	4.70	5.27	4.86	4.30	4.31	5.22	4.55	0.410	2.00
N-Nitroso-di-n-propylamine	10/01/11	3.00	1.91	1.71	1.86	1.76	1.68	1.69	2.01	1.76	0.118	2.00
Hexachloroethane	10/01/11	3.00	1.64	1.36	1.47	1.40	1.37	1.46	1.65	1.35	0.121	2.00
Benzoic Acid	10/01/11	3.00	6.46	6.48	6.73	6.34	6.47	6.43	6.31	6.39	0.128	2.00
Nitrobenzene	10/01/11	3.00	1.87	1.62	1.77	1.70	1.55	1.64	1.91	1.68	0.124	2.00
Isophorone	10/01/11	3.00	1.67	1.42	1.54	1.45	1.33	1.46	1.64	1.43	0.116	2.00
2-Nitrophenol	10/01/11	9.00	5.12	4.63	4.93	4.71	3.85	4.25	5.43	4.78	0.492	2.00
2,4-Dimethylphenol	10/01/11	9.00	6.19	5.41	6.01	5.67	4.99	5.34	6.34	5.47	0.465	2.00
bis(2-Chloroethoxy)methane	10/01/11	3.00	2.10	1.87	1.97	1.81	1.79	1.87	2.16	1.95	0.133	2.00
2,4-Dichlorophenol	10/01/11	9.00	5.26	4.61	5.27	4.98	4.19	4.51	5.60	4.82	0.464	2.00
1,2,4-Trichlorobenzene	10/01/11	3.00	1.79	1.57	1.64	1.56	1.46	1.53	1.75	1.60	0.111	2.00
Naphthalene	10/01/11	3.00	2.00	1.76	1.78	1.68	1.57	1.70	1.96	1.77	0.142	2.00
4-Chloroaniline	10/01/11	3.00	1.90	1.66	1.81	1.67	1.63	1.67	1.99	1.77	0.130	2.00
Hexachlorobutadiene	10/01/11	3.00	1.98	1.70	1.79	1.69	1.57	1.63	1.83	1.64	0.132	2.00
4-Chloro-3-methyl phenol	10/01/11	9.00	5.63	4.92	5.57	5.12	4.58	5.03	5.72	5.12	0.396	2.00
2-Methylnaphthalene	10/01/11	3.00	1.91	1.62	1.70	1.62	1.54	1.66	1.86	1.69	0.125	2.00
Hexachlorocyclopentadiene	10/01/11	5.00	7.07	6.91	7.18	7.29	7.23	7.29	7.22	7.50	0.172	2.00
2,4,6-Trichlorophenol	10/01/11	9.00	5.08	4.48	4.86	4.59	3.70	4.27	5.24	4.36	0.492	2.00
2,4,5-Trichlorophenol	10/01/11	9.00	5.41	4.97	5.47	4.80	3.89	4.48	5.36	4.68	0.542	2.00
2-Chloronaphthalene	10/01/11	3.00	1.86	1.59	1.68	1.52	1.46	1.59	1.75	1.59	0.129	2.00
2-Nitroaniline	10/01/11	3.00	3.56	3.41	3.50	3.35	3.32	3.42	3.61	3.34	0.107	2.00
Dimethylphthalate	10/01/11	3.00	2.23	1.87	1.99	1.88	1.79	2.04	2.14	2.02	0.146	2.00
Acenaphthylene	10/01/11	3.00	1.88	1.65	1.70	1.61	1.50	1.66	1.83	1.71	0.120	2.00
2,6-Dinitrotoluene	10/01/11	3.00	4.69	4.52	4.58	4.56	4.44	4.59	4.77	4.47	0.110	2.00
Acenaphthene	10/01/11	3.00	1.92	1.76	1.80	1.69	1.59	1.78	1.96	1.81	0.118	2.00
2,4-Dinitrophenol	10/01/11	9.00	10.0	9.58	10.2	9.91	8.92	9.78	9.95	9.60	0.391	2.00
4-Nitrophenol	10/01/11	9.00	5.48	5.45	5.87	5.50	4.83	5.11	5.10	5.00	0.339	2.00
2,4-Dinitrotoluene	10/01/11	3.00	3.93	3.64	3.78	3.76	3.54	3.77	3.81	3.62	0.124	2.00
Dibenzofuran	10/01/11	3.00	2.02	1.81	1.84	1.73	1.71	1.86	2.05	1.82	0.123	2.00

MDL FORM

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8270C
Matrix: Water

Instrument ID: MSW
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates								Std. Dev.	DL
			1	2	3	4	5	6	7	8		
Diethylphthalate	10/01/11	3.00	2.47	2.04	2.15	2.09	1.94	2.20	2.34	2.12	0.169	2.00
3-Nitroaniline	10/01/11	3.00	3.79	3.43	3.47	3.60	3.40	3.61	3.53	3.41	0.133	2.00
Fluorene	10/01/11	3.00	1.86	1.63	1.76	1.66	1.52	1.76	1.90	1.80	0.126	2.00
4-Chlorophenyl phenyl ether	10/01/11	3.00	1.86	1.68	1.63	1.58	1.51	1.84	1.88	1.76	0.139	2.00
4-Nitroaniline	10/01/11	3.00	4.08	3.83	3.91	3.93	3.73	3.92	3.99	3.86	0.105	2.00
4,6-Dinitro-2-methyl phenol	10/01/11	9.00	9.08	8.45	8.96	8.97	7.71	8.43	8.87	8.34	0.460	2.00
N-Nitrosodiphenylamine	10/01/11	3.00	2.49	2.19	2.39	2.24	2.06	2.33	2.44	2.24	0.142	2.00
1,2-Diphenylhydrazine	10/01/11	3.00	1.93	1.70	1.79	1.68	1.53	1.78	1.89	1.66	0.130	2.00
4-Bromophenyl phenyl ether	10/01/11	3.00	1.97	1.68	1.77	1.70	1.50	1.71	1.78	1.74	0.130	2.00
Hexachlorobenzene	10/01/11	3.00	2.06	1.77	1.89	1.73	1.72	1.93	2.09	1.81	0.143	2.00
Pentachlorophenol	10/01/11	9.00	7.87	6.74	7.46	7.39	5.78	6.73	7.34	6.80	0.644	2.00
Phenanthrene	10/01/11	3.00	2.33	2.02	2.06	2.00	1.98	2.10	2.25	2.09	0.124	2.00
Anthracene	10/01/11	3.00	2.07	1.80	1.89	1.80	1.75	1.94	2.00	1.84	0.110	2.00
Carbazole	10/01/11	3.00	2.16	1.86	1.93	1.89	1.70	2.00	2.13	1.96	0.148	2.00
Di-n-butylphthalate	10/01/11	3.00	5.46	5.20	5.32	5.26	5.10	5.31	5.38	5.20	0.114	2.00
Fluoranthene	10/01/11	3.00	2.20	1.86	1.99	1.88	1.80	1.97	2.15	1.87	0.144	2.00
Pyrene	10/01/11	3.00	2.33	2.04	2.10	2.04	1.95	2.08	2.35	2.17	0.142	2.00
Butylbenzylphthalate	10/01/11	5.00	5.44	5.22	5.50	6.03	5.61	5.52	5.44	5.55	0.230	2.00
Benzo(a)anthracene	10/01/11	3.00	2.38	2.07	2.18	2.09	1.90	2.18	2.29	2.13	0.145	2.00
3,3'-Dichlorobenzidine	10/01/11	3.00	5.56	5.25	5.30	5.24	5.15	5.28	5.34	5.22	0.122	2.00
Chrysene	10/01/11	3.00	2.24	2.03	2.10	1.98	1.87	2.05	2.17	2.15	0.117	2.00
bis(2-Ethylhexyl)phthalate	10/01/11	3.00	7.59	7.28	7.33	7.33	7.28	7.30	7.41	7.26	0.109	2.00
Di-n-octylphthalate	10/01/11	5.00	8.14	7.90	8.19	8.69	8.25	8.26	8.11	8.32	0.225	2.00
Benzo(b)fluoroanthene	10/01/11	3.00	2.45	2.23	2.36	2.18	2.09	2.30	2.47	2.30	0.130	2.00
Benzo(k)fluoranthene	10/01/11	3.00	2.38	2.17	2.30	2.11	2.11	2.24	2.41	2.36	0.121	2.00
Benzo(a)pyrene	10/01/11	3.00	2.20	1.96	2.05	1.90	1.85	2.02	2.08	1.98	0.109	2.00
Indeno(1,2,3-c,d)pyrene	10/01/11	3.00	2.95	2.42	2.67	2.43	2.38	2.54	2.73	2.62	0.192	2.00
Dibenzo(a,h)anthracene	10/01/11	3.00	2.81	2.38	2.49	2.35	2.35	2.47	2.67	2.62	0.168	2.00
Benzo(g,h,i)perylene	10/01/11	3.00	3.16	2.61	2.77	2.45	2.54	2.52	2.78	2.69	0.224	2.00

MDL FORM

ANALYSIS METHOD

SW9045C

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2357

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW9045C

Holding Time(s):
SW9045C: Sample "RECON ID 009-CH2M Run 004" and "RECON ID 010-CH2M Run 010" were analyzed outside of holding time.

SAMPLE DATA SUMMARY

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 009-CH2M Run 004

SDG No.: M2357

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M235701

Percent Moisture: 100

Date Received: 07/30/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	11.9		pH	1	10.6 G	SW9045C	07/30/13

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 010-CH2M Run 005

SDG No.: M2357

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M235702

Percent Moisture: 100

Date Received: 07/30/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	11.8		pH	1	13.6 G	SW9045C	07/30/13

QC SUMMARY

2A-WC

GENERAL CHEMISTRY CALIBRATION VERIFICATION DATA

SDG No.: M2357

Lab Name: CH2M HILL ASL

Analysis Method: SW9045C

Analytical Lot ID: 073013PH

Instrument Name: PH6

Concentration Units: pH Units

Initial Calibration ID: NONE

CCV #1 ID: CV4-0730 CCV #2 ID: CCV #3 ID:

Analyte	Expected	Found	%D	Q	Expected	Found	%D	Q	Expected	Found	%D	Q
pH	7.00	6.97	-0.4									

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M2357

Lab Name: CH2M HILL ASL

Analysis Method: SW9045C

LCS ID: BS1S0730

Initial Calibration ID: NONE

Date Analyzed: 07/30/13

Matrix: (Soil/Water) SOIL

Time Analyzed: 1735

Instrument: PH6

Concentration Units: pH Units

Analyte	Expected	Found	%R	QC Limits %R	Q
pH	4.00	4.01	100	80-120	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY ANALYTICAL SEQUENCE

SDG No.: M2357

Lab Name: CH2M HILL ASL

Analysis Method: SW9045C

Lab Code: CVO

Instrument: PH6

Analytical Lot ID: 073013PH

	Field Sample ID	Lab Sample ID	Date Analyzed	Time Analyzed
1	BS1S0730	BS1S0730	07/30/13	1735
2	RECON ID 009-CH2M Run 004	M235701	07/30/13	1735
3	RECON ID 010-CH2M Run 005	M235702	07/30/13	1736
4	CV4-0730	CV4-0730	07/30/13	1736

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW9045C
Matrix: Soil

Instrument ID: PH6
Concentration Units: pH Units

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
pH	01/01/00											N/A

MDL FORM

CHAIN OF CUSTODY/SHIPPING DOCUMENTS

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Email:
www.ch2mlab.com

CHAIN OF CUSTODY RECORD

M2341 5.7°C Ice

Project # or Purchase Order #
Pfizer Tier IV S/S Treatability Study

Company Name
For American Cyanamid Superfund site Bridgewater, NJ

Project manager or Contact & Phone #
Richard Traver @ 215-640-9105

Report Copy to:
Richard.Traver@CH2M.com

Turnaround Time
☐24 hours ☐48 hours ☐72 hours
☒7 days ☐14 days ☐21 days

Drinking Water? Yes ☐ No ☒

Sample Disposal: Dispose ☐ Return ☒

Requested Analytical Method #: 9045 – same day TAT please; 1312 – 8270C/820B 6010B/7470A; 1311– 8270C/8260B; 6010B/7470A

THIS AREA FOR LAB USE ONLY

EPA Tier QC Level: 1 (Screening) 2 3 4

Date	Time	COMP	GRAB	WATER	SOIL	AIR	CLIENT SAMPLE ID	TOTAL # OF CONTAINERS	UNPRES	H_2SO_4	HNO_3	HCl	NaOH	ZnAcNaOH	Ammonium chloride	Alternate Description
7-29-13	1700				x		RECON ID 009 – CH2M Run 004	3	3 2x4			3 SO. each				1
7-29-13	1700				x		RECON ID 010 – CH2M Run 005	3	3 2x4							2

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒ Volatile Contaminants/Odorous ☐ Biohazard ☐ Other

Sampled By and Title Glenn Knieriem – RECON ~~Treatability Center Manager~~	**Date/Time** 7-29-13 @ 1700	**Relinquished By** (Please sign and print name) FEDEX 8026 3627 7157	**Date/Time** 7-29-13 @ 1700
Received By (Please sign and print name) [signature]	**Date/Time** 7/30/13 09:45	**Relinquished By** (Please sign and print name)	**Date/Time**
Received By (Please sign and print name)	**Date/Time**	**Shipped Via** UPS (Fed-Ex) Other____	**Tracking #** **8026 3627 7157**

Special Instructions
Custody Seal # : 955 882
PLEASE PERFORM pH testing on 07-30-13 – Thank You. If possible, please start 1311 and 1312 leaching on 07-30-13. 07-30-13 is Day 28 for curing.

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M2357 Date Received: 7/30/13

Client/Project: Pfizer Checked By: RF

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- (On File) COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID__TH173__ Exp. 9/13 5.7°C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	

Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER	✓		
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: M2357 **Client/Project RECON/PFIZER**

The following exceptions were noted:		
		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
x	11. Other.	Metals requested on COC. Per SOW and confirmation (see attached email), metals not to be performed.

ACTION TAKEN:

Originator: Kathy McKinley Date: 7/31/2013

Client was notified on: (Date/Time) Client Contact:

Client Services:

ANALYTICAL REPORT

For:

RECON/Pfizer - American Cyanamid Superfund

ASL Report #: M2781

Project ID: 473604.01.TS

Attn: Richard Traver/PHL

cc:
Stephen Maxwell/PHL
Emil Filc/DAY
Glenn Knieriem/glenn.knieriem@reconservices.com

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
October 08, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Accredited in accordance with NELAP:
Oregon (100022)
Arizona (0771)
Louisiana (05031)

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M278101	RECON ID 019-CH2M Run 006	09/17/13 17:00	09/18/13
M278102	RECON ID 020-CH2M Run 007	09/17/13 17:00	09/18/13
M278103	RECON ID 021-CH2M Run 008	09/17/13 17:00	09/18/13
M278104	RECON ID 022-CH2M Run 009	09/17/13 17:00	09/18/13

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CH2M HILL
Applied Sciences Laboratory (ASL)
1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Fax 541.752.0276

Organic CLP-Like Data Qualifiers

U	The analyte was analyzed for, but not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
P	The primary and confirmation analyte result recoveries do not match.
E	The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Inorganic CLP-Like Data Qualifiers

U	The analyte was analyzed for, but not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
E	The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.
N	The matrix spike/matrix spike duplicate recovery for the analyte is outside of acceptance criteria—qualifier is applied to the native sample only.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ANALYSIS METHOD

SW8260B

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GC/MS VOLATILES ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2781

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW8260B: SW5030, E1312

Calibration Verification(s):
The %D for Trichlorofluoromethane (28%) in CV1-0923 exceeded acceptance criteria of 20%.

Laboratory Control Sample(s):
Recovery of Trichlorofluoromethane (133%) in BS1W0923 did not meet acceptance criteria of 75-125%.
Recovery of Hexachlorobutadiene (128%) in BS1W0923 did not meet acceptance criteria of 75-125%.

SAMPLE DATA SUMMARY

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278101

Percent Moisture: 100 Lab File ID: 278101DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML)1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	8030	
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	6070	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278101

Percent Moisture: 100 Lab File ID: 278101DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	93.7	
108-38-3/1	m,p-Xylene	40.0	100	1060	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	387	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	155	
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	76.0	
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	128	
135-98-8	sec-Butylbenzene	20.0	50.0	42.5	J
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	88.1	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	1240	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3490	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278102

Percent Moisture: 100 Lab File ID: 278102DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	13900	E
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	8160	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278102

Percent Moisture: 100 Lab File ID: 278102DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	116	
108-38-3/1	m,p-Xylene	40.0	100	1330	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	474	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	185	
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	87.3	
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	150	
135-98-8	sec-Butylbenzene	20.0	50.0	46.7	J
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	99.1	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	1390	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3610	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007DL

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278102DL

Percent Moisture: 100 Lab File ID: 278102R2.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 1000

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	200	500	200	U
74-87-3	Chloromethane	200	500	200	U
75-01-4	Vinyl Chloride	200	500	200	U
74-83-9	Bromomethane	200	500	200	U
75-00-3	Chloroethane	200	500	200	U
75-69-4	Trichlorofluoromethane	200	500	200	U
67-64-1	Acetone	500	1000	500	U
75-35-4	1,1-Dichloroethene	200	500	200	U
75-09-2	Methylene chloride	200	500	200	U
156-60-5	trans-1,2-Dichloroethene	200	500	200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	200	500	200	U
75-34-3	1,1-Dichloroethane	200	500	200	U
78-93-3	2-Butanone (MEK)	500	1000	500	U
156-59-2	cis-1,2-Dichloroethene	200	500	200	U
74-97-5	Bromochloromethane	200	500	200	U
67-66-3	Chloroform	150	500	150	U
594-20-7	2,2-Dichloropropane	200	500	200	U
107-06-2	1,2-Dichloroethane	200	500	200	U
71-55-6	1,1,1-Trichloroethane	200	500	200	U
563-58-6	1,1-Dichloropropene	200	500	200	U
56-23-5	Carbon tetrachloride	200	500	200	U
71-43-2	Benzene	200	500	14000	
74-95-3	Dibromomethane	200	500	200	U
78-87-5	1,2-Dichloropropane	200	500	200	U
79-01-6	Trichloroethene (TCE)	200	500	200	U
75-27-4	Bromodichloromethane	200	500	200	U
10061-01-5	cis-1,3-Dichloropropene	200	500	200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	500	1000	500	U
10061-02-6	trans-1,3-Dichloropropene	200	500	200	U
79-00-5	1,1,2-Trichloroethane	200	500	200	U
108-88-3	Toluene	200	500	7930	
142-28-9	1,3-Dichloropropane	200	500	200	U
124-48-1	Dibromochloromethane	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007DL

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278102DL

Percent Moisture: 100 Lab File ID: 278102R2.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 1000

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	200	500	200	U
127-18-4	Tetrachloroethene (PCE)	200	500	200	U
544-10-5	1-Chlorohexane	200	500	200	U
630-20-6	1,1,1,2-Tetrachloroethane	200	500	200	U
108-90-7	Chlorobenzene	200	500	200	U
100-41-4	Ethylbenzene	200	500	200	U
108-38-3/1	m,p-Xylene	400	1000	952	J
75-25-2	Bromoform	200	500	200	U
100-42-5	Styrene	200	500	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	500	200	U
95-47-6	o-Xylene	200	500	364	J
96-18-4	1,2,3-Trichloropropane	200	500	200	U
98-82-8	Isopropylbenzene	200	500	200	U
108-86-1	Bromobenzene	200	500	200	U
103-65-1	n-Propylbenzene	200	500	200	U
95-49-8	2-Chlorotoluene	200	500	200	U
106-43-4	4-Chlorotoluene	200	500	200	U
108-67-8	1,3,5-Trimethylbenzene	200	500	200	U
98-06-6	tert-Butylbenzene	200	500	200	U
95-63-6	1,2,4-Trimethylbenzene	200	500	200	U
135-98-8	sec-Butylbenzene	200	500	200	U
541-73-1	1,3-Dichlorobenzene	200	500	200	U
106-46-7	1,4-Dichlorobenzene	200	500	200	U
99-87-6	p-Isopropyltoluene	200	500	200	U
95-50-1	1,2-Dichlorobenzene	200	500	1270	
104-51-8	n-Butylbenzene	200	500	200	U
96-12-8	1,2-Dibromo-3-chloropropane	200	500	200	U
120-82-1	1,2,4-Trichlorobenzene	200	500	200	U
91-20-3	Naphthalene	200	500	3110	
87-68-3	Hexachlorobutadiene	200	500	200	U
87-61-6	1,2,3-Trichlorobenzene	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278103

Percent Moisture: 100 Lab File ID: 278103DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	15600	E
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	8430	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278103

Percent Moisture: 100 Lab File ID: 278103DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	112	
108-38-3/1	m,p-Xylene	40.0	100	1260	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	468	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	168	
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	75.7	
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	126	
135-98-8	sec-Butylbenzene	20.0	50.0	41.4	J
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	81.9	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	1180	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3220	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008DL

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278103DL

Percent Moisture: 100 Lab File ID: 278103R2.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 1000

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	200	500	200	U
74-87-3	Chloromethane	200	500	200	U
75-01-4	Vinyl Chloride	200	500	200	U
74-83-9	Bromomethane	200	500	200	U
75-00-3	Chloroethane	200	500	200	U
75-69-4	Trichlorofluoromethane	200	500	200	U
67-64-1	Acetone	500	1000	500	U
75-35-4	1,1-Dichloroethene	200	500	200	U
75-09-2	Methylene chloride	200	500	200	U
156-60-5	trans-1,2-Dichloroethene	200	500	200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	200	500	200	U
75-34-3	1,1-Dichloroethane	200	500	200	U
78-93-3	2-Butanone (MEK)	500	1000	500	U
156-59-2	cis-1,2-Dichloroethene	200	500	200	U
74-97-5	Bromochloromethane	200	500	200	U
67-66-3	Chloroform	150	500	150	U
594-20-7	2,2-Dichloropropane	200	500	200	U
107-06-2	1,2-Dichloroethane	200	500	200	U
71-55-6	1,1,1-Trichloroethane	200	500	200	U
563-58-6	1,1-Dichloropropene	200	500	200	U
56-23-5	Carbon tetrachloride	200	500	200	U
71-43-2	Benzene	200	500	15800	
74-95-3	Dibromomethane	200	500	200	U
78-87-5	1,2-Dichloropropane	200	500	200	U
79-01-6	Trichloroethene (TCE)	200	500	200	U
75-27-4	Bromodichloromethane	200	500	200	U
10061-01-5	cis-1,3-Dichloropropene	200	500	200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	500	1000	500	U
10061-02-6	trans-1,3-Dichloropropene	200	500	200	U
79-00-5	1,1,2-Trichloroethane	200	500	200	U
108-88-3	Toluene	200	500	9060	
142-28-9	1,3-Dichloropropane	200	500	200	U
124-48-1	Dibromochloromethane	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008DL

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278103DL

Percent Moisture: 100 Lab File ID: 278103R2.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 1000

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	200	500	200	U
127-18-4	Tetrachloroethene (PCE)	200	500	200	U
544-10-5	1-Chlorohexane	200	500	200	U
630-20-6	1,1,1,2-Tetrachloroethane	200	500	200	U
108-90-7	Chlorobenzene	200	500	200	U
100-41-4	Ethylbenzene	200	500	200	U
108-38-3/1	m,p-Xylene	400	1000	843	J
75-25-2	Bromoform	200	500	200	U
100-42-5	Styrene	200	500	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	500	200	U
95-47-6	o-Xylene	200	500	338	J
96-18-4	1,2,3-Trichloropropane	200	500	200	U
98-82-8	Isopropylbenzene	200	500	200	U
108-86-1	Bromobenzene	200	500	200	U
103-65-1	n-Propylbenzene	200	500	200	U
95-49-8	2-Chlorotoluene	200	500	200	U
106-43-4	4-Chlorotoluene	200	500	200	U
108-67-8	1,3,5-Trimethylbenzene	200	500	200	U
98-06-6	tert-Butylbenzene	200	500	200	U
95-63-6	1,2,4-Trimethylbenzene	200	500	200	U
135-98-8	sec-Butylbenzene	200	500	200	U
541-73-1	1,3-Dichlorobenzene	200	500	200	U
106-46-7	1,4-Dichlorobenzene	200	500	200	U
99-87-6	p-Isopropyltoluene	200	500	200	U
95-50-1	1,2-Dichlorobenzene	200	500	1110	
104-51-8	n-Butylbenzene	200	500	200	U
96-12-8	1,2-Dibromo-3-chloropropane	200	500	200	U
120-82-1	1,2,4-Trichlorobenzene	200	500	200	U
91-20-3	Naphthalene	200	500	2580	
87-68-3	Hexachlorobutadiene	200	500	200	U
87-61-6	1,2,3-Trichlorobenzene	200	500	200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278104

Percent Moisture: 100 Lab File ID: 278104DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML)1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	8280	
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	7180	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009

SDG No.: M2781

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M278104

Percent Moisture: 100 Lab File ID: 278104DL.D

Level: (LOW/MED) LOW Date Received: 09/18/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	114	
108-38-3/1	m,p-Xylene	40.0	100	1290	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	480	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	185	
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	93.9	
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	153	
135-98-8	sec-Butylbenzene	20.0	50.0	50.8	
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	89.8	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	1360	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3270	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **SPLPBLK**

SDG No.: M2781

Analysis Method: SW8260B

Matrix: WATER Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: SPLPBLK

Lab File ID: SPLPBLK.D

Level: (LOW/MED) LOW Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	0.200	0.500	0.200	U
74-87-3	Chloromethane	0.200	0.500	0.200	U
75-01-4	Vinyl Chloride	0.200	0.500	0.200	U
74-83-9	Bromomethane	0.200	0.500	0.200	U
75-00-3	Chloroethane	0.200	0.500	0.200	U
75-69-4	Trichlorofluoromethane	0.200	0.500	0.200	U
67-64-1	Acetone	0.500	1.00	0.500	U
75-35-4	1,1-Dichloroethene	0.200	0.500	0.200	U
75-09-2	Methylene chloride	0.200	0.500	0.200	U
156-60-5	trans-1,2-Dichloroethene	0.200	0.500	0.200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	0.200	0.500	0.200	U
75-34-3	1,1-Dichloroethane	0.200	0.500	0.200	U
78-93-3	2-Butanone (MEK)	0.500	1.00	0.500	U
156-59-2	cis-1,2-Dichloroethene	0.200	0.500	0.200	U
74-97-5	Bromochloromethane	0.200	0.500	0.200	U
67-66-3	Chloroform	0.150	0.500	0.150	U
594-20-7	2,2-Dichloropropane	0.200	0.500	0.200	U
107-06-2	1,2-Dichloroethane	0.200	0.500	0.200	U
71-55-6	1,1,1-Trichloroethane	0.200	0.500	0.200	U
563-58-6	1,1-Dichloropropene	0.200	0.500	0.200	U
56-23-5	Carbon tetrachloride	0.200	0.500	0.200	U
71-43-2	Benzene	0.200	0.500	0.890	
74-95-3	Dibromomethane	0.200	0.500	0.200	U
78-87-5	1,2-Dichloropropane	0.200	0.500	0.200	U
79-01-6	Trichloroethene (TCE)	0.200	0.500	0.200	U
75-27-4	Bromodichloromethane	0.200	0.500	0.200	U
10061-01-5	cis-1,3-Dichloropropene	0.200	0.500	0.200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.500	1.00	0.500	U
10061-02-6	trans-1,3-Dichloropropene	0.200	0.500	0.200	U
79-00-5	1,1,2-Trichloroethane	0.200	0.500	0.200	U
108-88-3	Toluene	0.200	0.500	1.74	
142-28-9	1,3-Dichloropropane	0.200	0.500	0.200	U
124-48-1	Dibromochloromethane	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **SPLPBLK**

SDG No.: M2781

Analysis Method: SW8260B

Matrix: WATER Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: SPLPBLK

Lab File ID: SPLPBLK.D

Level: (LOW/MED) LOW Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	0.200	0.500	0.200	U
127-18-4	Tetrachloroethene (PCE)	0.200	0.500	0.200	U
544-10-5	1-Chlorohexane	0.200	0.500	0.200	U
630-20-6	1,1,1,2-Tetrachloroethane	0.200	0.500	0.200	U
108-90-7	Chlorobenzene	0.200	0.500	0.200	U
100-41-4	Ethylbenzene	0.200	0.500	0.200	U
108-38-3/1	m,p-Xylene	0.400	1.00	0.610	J
75-25-2	Bromoform	0.200	0.500	0.200	U
100-42-5	Styrene	0.200	0.500	0.200	U
79-34-5	1,1,2,2-Tetrachloroethane	0.200	0.500	0.200	U
95-47-6	o-Xylene	0.200	0.500	0.200	U
96-18-4	1,2,3-Trichloropropane	0.200	0.500	0.200	U
98-82-8	Isopropylbenzene	0.200	0.500	0.200	U
108-86-1	Bromobenzene	0.200	0.500	0.200	U
103-65-1	n-Propylbenzene	0.200	0.500	0.200	U
95-49-8	2-Chlorotoluene	0.200	0.500	0.200	U
106-43-4	4-Chlorotoluene	0.200	0.500	0.200	U
108-67-8	1,3,5-Trimethylbenzene	0.200	0.500	0.200	U
98-06-6	tert-Butylbenzene	0.200	0.500	0.200	U
95-63-6	1,2,4-Trimethylbenzene	0.200	0.500	0.200	U
135-98-8	sec-Butylbenzene	0.200	0.500	0.200	U
541-73-1	1,3-Dichlorobenzene	0.200	0.500	0.200	U
106-46-7	1,4-Dichlorobenzene	0.200	0.500	0.200	U
99-87-6	p-Isopropyltoluene	0.200	0.500	0.200	U
95-50-1	1,2-Dichlorobenzene	0.200	0.500	0.950	
104-51-8	n-Butylbenzene	0.200	0.500	0.200	U
96-12-8	1,2-Dibromo-3-chloropropane	0.200	0.500	0.200	U
120-82-1	1,2,4-Trichlorobenzene	0.200	0.500	0.200	U
91-20-3	Naphthalene	0.200	0.500	1.63	
87-68-3	Hexachlorobutadiene	0.200	0.500	0.200	U
87-61-6	1,2,3-Trichlorobenzene	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0923**

SDG No.: M2781

Analysis Method: SW8260B

Matrix: WATER

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-0923

Lab File ID: WB1_0923.D

Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	0.200	0.500	0.200	U
74-87-3	Chloromethane	0.200	0.500	0.200	U
75-01-4	Vinyl Chloride	0.200	0.500	0.200	U
74-83-9	Bromomethane	0.200	0.500	0.200	U
75-00-3	Chloroethane	0.200	0.500	0.200	U
75-69-4	Trichlorofluoromethane	0.200	0.500	0.200	U
67-64-1	Acetone	0.500	1.00	0.500	U
75-35-4	1,1-Dichloroethene	0.200	0.500	0.200	U
75-09-2	Methylene chloride	0.200	0.500	0.200	U
156-60-5	trans-1,2-Dichloroethene	0.200	0.500	0.200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	0.200	0.500	0.200	U
75-34-3	1,1-Dichloroethane	0.200	0.500	0.200	U
78-93-3	2-Butanone (MEK)	0.500	1.00	0.500	U
156-59-2	cis-1,2-Dichloroethene	0.200	0.500	0.200	U
74-97-5	Bromochloromethane	0.200	0.500	0.200	U
67-66-3	Chloroform	0.150	0.500	0.150	U
594-20-7	2,2-Dichloropropane	0.200	0.500	0.200	U
107-06-2	1,2-Dichloroethane	0.200	0.500	0.200	U
71-55-6	1,1,1-Trichloroethane	0.200	0.500	0.200	U
563-58-6	1,1-Dichloropropene	0.200	0.500	0.200	U
56-23-5	Carbon tetrachloride	0.200	0.500	0.200	U
71-43-2	Benzene	0.200	0.500	0.200	U
74-95-3	Dibromomethane	0.200	0.500	0.200	U
78-87-5	1,2-Dichloropropane	0.200	0.500	0.200	U
79-01-6	Trichloroethene (TCE)	0.200	0.500	0.200	U
75-27-4	Bromodichloromethane	0.200	0.500	0.200	U
10061-01-5	cis-1,3-Dichloropropene	0.200	0.500	0.200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.500	1.00	0.500	U
10061-02-6	trans-1,3-Dichloropropene	0.200	0.500	0.200	U
79-00-5	1,1,2-Trichloroethane	0.200	0.500	0.200	U
108-88-3	Toluene	0.200	0.500	0.200	U
142-28-9	1,3-Dichloropropane	0.200	0.500	0.200	U
124-48-1	Dibromochloromethane	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0923**

SDG No.: M2781

Analysis Method: SW8260B

Matrix: WATER

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-0923

Lab File ID: WB1_0923.D

Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	0.200	0.500	0.200	U
127-18-4	Tetrachloroethene (PCE)	0.200	0.500	0.200	U
544-10-5	1-Chlorohexane	0.200	0.500	0.200	U
630-20-6	1,1,1,2-Tetrachloroethane	0.200	0.500	0.200	U
108-90-7	Chlorobenzene	0.200	0.500	0.200	U
100-41-4	Ethylbenzene	0.200	0.500	0.200	U
108-38-3/1	m,p-Xylene	0.400	1.00	0.400	U
75-25-2	Bromoform	0.200	0.500	0.200	U
100-42-5	Styrene	0.200	0.500	0.200	U
79-34-5	1,1,2,2-Tetrachloroethane	0.200	0.500	0.200	U
95-47-6	o-Xylene	0.200	0.500	0.200	U
96-18-4	1,2,3-Trichloropropane	0.200	0.500	0.200	U
98-82-8	Isopropylbenzene	0.200	0.500	0.200	U
108-86-1	Bromobenzene	0.200	0.500	0.200	U
103-65-1	n-Propylbenzene	0.200	0.500	0.200	U
95-49-8	2-Chlorotoluene	0.200	0.500	0.200	U
106-43-4	4-Chlorotoluene	0.200	0.500	0.200	U
108-67-8	1,3,5-Trimethylbenzene	0.200	0.500	0.200	U
98-06-6	tert-Butylbenzene	0.200	0.500	0.200	U
95-63-6	1,2,4-Trimethylbenzene	0.200	0.500	0.200	U
135-98-8	sec-Butylbenzene	0.200	0.500	0.200	U
541-73-1	1,3-Dichlorobenzene	0.200	0.500	0.200	U
106-46-7	1,4-Dichlorobenzene	0.200	0.500	0.200	U
99-87-6	p-Isopropyltoluene	0.200	0.500	0.200	U
95-50-1	1,2-Dichlorobenzene	0.200	0.500	0.200	U
104-51-8	n-Butylbenzene	0.200	0.500	0.200	U
96-12-8	1,2-Dibromo-3-chloropropane	0.200	0.500	0.200	U
120-82-1	1,2,4-Trichlorobenzene	0.200	0.500	0.200	U
91-20-3	Naphthalene	0.200	0.500	0.200	U
87-68-3	Hexachlorobutadiene	0.200	0.500	0.200	U
87-61-6	1,2,3-Trichlorobenzene	0.200	0.500	0.200	U

QC SUMMARY

SOIL VOLATILE SURROGATE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	RECON ID 019-CH2M Run 006	99	111	87	99									
2	RECON ID 020-CH2M Run 007	102	115	90	103									
3	RECON ID 021-CH2M Run 008	99	113	90	100									
4	RECON ID 022-CH2M Run 009	97	109	86	97									
5	RECON ID 020-CH2M Run	103	114	91	93									
6	RECON ID 021-CH2M Run	101	114	99	93									

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	Dibromofluoromethane	(65-135)
S2:	1,2-Dichloroethane-d4	(65-135)
S3:	Toluene-d8	(65-135)
S4:	4-Bromofluorobenzene	(65-135)

WATER VOLATILE SURROGATE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	BS1W0923	103	109	98	105									
2	WB1-0923	105	114	94	95									
3	SPLPBLK	106	117	90	94									

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	Dibromofluoromethane	(75-125)
S2:	1,2-Dichloroethane-d4	(75-125)
S3:	Toluene-d8	(75-125)
S4:	4-Bromofluorobenzene	(75-125)

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0923

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Dichlorodifluoromethane	20.0	20.1	100	75-125	
Chloromethane	20.0	16.3	82	75-125	
Vinyl Chloride	20.0	17.0	85	75-125	
Bromomethane	20.0	20.8	104	75-125	
Chloroethane	20.0	17.1	86	75-125	
Trichlorofluoromethane	20.0	26.6	133	75-125	*
Acetone	20.0	18.5	92	75-125	
1,1-Dichloroethene	20.0	18.1	90	75-125	
Methylene chloride	20.0	17.4	87	75-125	
trans-1,2-Dichloroethene	20.0	18.1	90	75-125	
Methyl tert-butyl ether (MTBE)	20.0	21.0	105	75-125	
1,1-Dichloroethane	20.0	18.2	91	75-125	
2-Butanone (MEK)	20.0	19.7	99	75-125	
cis-1,2-Dichloroethene	20.0	18.6	93	75-125	
Bromochloromethane	20.0	18.8	94	75-125	
Chloroform	20.0	19.9	100	75-125	
2,2-Dichloropropane	20.0	19.5	97	75-125	
1,2-Dichloroethane	20.0	21.6	108	75-125	
1,1,1-Trichloroethane	20.0	21.4	107	75-125	
1,1-Dichloropropene	20.0	19.9	99	75-125	
Carbon tetrachloride	20.0	21.8	109	75-125	
Benzene	20.0	18.1	91	75-125	
Dibromomethane	20.0	18.2	91	75-125	
1,2-Dichloropropane	20.0	17.7	89	75-125	
Trichloroethene (TCE)	20.0	19.3	97	75-125	
Bromodichloromethane	20.0	21.2	106	75-125	
cis-1,3-Dichloropropene	20.0	21.1	105	75-125	
4-Methyl-2-pentanone (MIBK)	20.0	18.0	90	75-125	
trans-1,3-Dichloropropene	20.0	20.1	100	75-125	
1,1,2-Trichloroethane	20.0	18.3	91	75-125	
Toluene	20.0	18.9	95	75-125	
1,3-Dichloropropane	20.0	19.1	95	75-125	
Dibromochloromethane	20.0	21.0	105	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0923

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
1,2-Dibromoethane (EDB)	20.0	18.5	92	75-125	
Tetrachloroethene (PCE)	20.0	18.9	94	75-125	
1-Chlorohexane	20.0	20.6	103	75-125	
1,1,1,2-Tetrachloroethane	20.0	21.9	110	75-125	
Chlorobenzene	20.0	17.0	85	75-125	
Ethylbenzene	20.0	18.8	94	75-125	
m,p-Xylene	40.0	37.7	94	75-125	
Bromoform	20.0	22.2	111	75-125	
Styrene	20.0	20.1	100	75-125	
1,1,2,2-Tetrachloroethane	20.0	17.1	86	75-125	
o-Xylene	20.0	18.3	91	75-125	
1,2,3-Trichloropropane	20.0	18.4	92	75-125	
Isopropylbenzene	20.0	19.0	95	75-125	
Bromobenzene	20.0	18.7	94	75-125	
n-Propylbenzene	20.0	18.3	92	75-125	
2-Chlorotoluene	20.0	18.6	93	75-125	
4-Chlorotoluene	20.0	17.9	90	75-125	
1,3,5-Trimethylbenzene	20.0	21.8	109	75-125	
tert-Butylbenzene	20.0	19.9	100	75-125	
1,2,4-Trimethylbenzene	20.0	21.4	107	75-125	
sec-Butylbenzene	20.0	19.2	96	75-125	
1,3-Dichlorobenzene	20.0	16.8	84	75-125	
1,4-Dichlorobenzene	20.0	18.2	91	75-125	
p-Isopropyltoluene	20.0	20.0	100	75-125	
1,2-Dichlorobenzene	20.0	17.4	87	75-125	
n-Butylbenzene	20.0	20.5	102	75-125	
1,2-Dibromo-3-chloropropane	20.0	19.8	99	75-125	
1,2,4-Trichlorobenzene	20.0	20.4	102	75-125	
Naphthalene	20.0	20.3	101	75-125	
Hexachlorobutadiene	20.0	25.6	128	75-125	*
1,2,3-Trichlorobenzene	20.0	21.0	105	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE METHOD BLANK SUMMARY

Field Sample ID: WB1-0923

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Lab Sample ID: WB1-0923

Lab File ID: WB1_0923.D Date Analyzed: 09/23/13

GC Column: DB-VRX ID: 0.25 (mm) Time Analyzed: 1053

Instrument Name: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	BS1W0923	BS1W0923	BS1W0923.D	09/23/13	0946
2	SPLPBLK	SPLPBLK	SPLPBLK.D	09/23/13	1339
3	RECON ID 019-CH2M Run 006	M278101	278101DL.D	09/23/13	1406
4	RECON ID 020-CH2M Run 007	M278102	278102DL.D	09/23/13	1434
5	RECON ID 021-CH2M Run 008	M278103	278103DL.D	09/23/13	1501
6	RECON ID 022-CH2M Run 009	M278104	278104DL.D	09/23/13	1528
7	RECON ID 020-CH2M Run 007DL	M278102DL	278102R2.D	09/23/13	1905
8	RECON ID 021-CH2M Run 008DL	M278103DL	278103R2.D	09/23/13	1932

Comments:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B BFB Injection Date: 08/13/13

Lab File ID: T1_0813.D BFB Injection Time: 0851

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm)

Mass	Ion Abundance Criteria	% Relative	Q
50	15% to 40% of mass 95	3336 (17.6)	
75	30% to 60% of mass 95	8416 (44.4)	
95	base peak, 100% relative abundance	18943 (100.0)	
96	5% to 9% of mass 95	1386 (7.3)	
173	0% to less than 2% of mass 174	100 (0.6)	
174	greater than 50% of mass 95	17532 (92.6)	
175	5% to 9% of mass 174	1370 (7.8)	
176	>95%, but <101% of mass 174	17185 (98.0)	
177	5% to 9% of mass 176	1189 (6.9)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	LEVEL-0.3	LEVEL-0.3	LEVEL_1.D	08/13/13	1014
2	LEVEL-1.0	LEVEL-1.0	LEVEL_2.D	08/13/13	1109
3	LEVEL-5.0	LEVEL-5.0	LEVEL_3.D	08/13/13	1136
4	LEVEL-10.0	LEVEL-10.0	LEVEL_4.D	08/13/13	1204
5	LEVEL-20.0	LEVEL-20.0	LEVEL_5.D	08/13/13	1231
6	LEVEL-50.0	LEVEL-50.0	LEVEL_6.D	08/13/13	1258
7	LEVEL-100.0	LEVEL-100.0	LEVEL_7.D	08/13/13	1325
8	ICVW0813	ICVW0813	ICVW0813.D	08/13/13	1539

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B BFB Injection Date: 09/23/13

Lab File ID: T1_0923.D BFB Injection Time: 0827

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm)

Mass	Ion Abundance Criteria	% Relative	Q
50	15% to 40% of mass 95	4623 (17.8)	
75	30% to 60% of mass 95	12701 (49.0)	
95	base peak, 100% relative abundance	25922 (100.0)	
96	5% to 9% of mass 95	1590 (6.1)	
173	0% to less than 2% of mass 174	64 (0.3)	
174	greater than 50% of mass 95	25255 (97.4)	
175	5% to 9% of mass 174	1856 (7.3)	
176	>95%, but <101% of mass 174	24864 (98.5)	
177	5% to 9% of mass 176	1628 (6.5)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0923	CV1-0923	CV1_0923.D	09/23/13	0827
2	BS1W0923	BS1W0923	BS1W0923.D	09/23/13	0946
3	WB1-0923	WB1-0923	WB1_0923.D	09/23/13	1053
4	SPLPBLK	SPLPBLK	SPLPBLK.D	09/23/13	1339
5	RECON ID 019-CH2M Run 006	M278101	278101DL.D	09/23/13	1406
6	RECON ID 020-CH2M Run 007	M278102	278102DL.D	09/23/13	1434
7	RECON ID 021-CH2M Run 008	M278103	278103DL.D	09/23/13	1501
8	RECON ID 022-CH2M Run 009	M278104	278104DL.D	09/23/13	1528
9	RECON ID 020-CH2M Run 007DL	M278102DL	278102R2.D	09/23/13	1905
10	RECON ID 021-CH2M Run 008DL	M278103DL	278103R2.D	09/23/13	1932

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
Fluorobenzene	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
Dichlorodifluoromethane	.3	0.381	1	0.287	5	0.401	10	0.435	20	0.428	50	0.471
Chloromethane*	.3	0.381	1	0.325	5	0.337	10	0.331	20	0.340	50	0.381
Vinyl Chloride#	.3	0.403	1	0.358	5	0.373	10	0.377	20	0.378	50	0.375
Bromomethane	.3	0.250	1	0.210	5	0.227	10	0.214	20	0.224	50	0.239
Chloroethane	.3	0.222	1	0.180	5	0.178	10	0.180	20	0.190	50	0.205
Trichlorofluoromethane	.3	0.610	1	0.528	5	0.512	10	0.543	20	0.550	50	0.578
Acetone	1	0.079	5	0.073	10	0.073	20	0.065	50	0.068	100	0.064
1,1-Dichloroethene#	.3	0.500	1	0.436	5	0.474	10	0.467	20	0.473	50	0.476
Methylene chloride	.3	0.568	1	0.469	5	0.468	10	0.426	20	0.423	50	0.428
trans-1,2-Dichloroethene	.3	0.502	1	0.445	5	0.443	10	0.409	20	0.425	50	0.431
Methyl tert-butyl ether	.3	0.780	1	0.665	5	0.715	10	0.715	20	0.704	50	0.768
1,1-Dichloroethane*	.3	0.549	1	0.514	5	0.543	10	0.505	20	0.508	50	0.519
2-Butanone (MEK)	1	0.019	5	0.024	10	0.026	20	0.026	50	0.027	100	0.026
cis-1,2-Dichloroethene	.3	0.451	1	0.406	5	0.419	10	0.388	20	0.395	50	0.416
Bromochloromethane	.3	0.234	1	0.213	5	0.227	10	0.212	20	0.213	50	0.218
Chloroform#	.3	0.559	1	0.524	5	0.536	10	0.502	20	0.504	50	0.517
2,2-Dichloropropane	.3	0.421	1	0.361	5	0.415	10	0.388	20	0.405	50	0.436
Dibromofluoromethane	1	0.312	5	0.301	10	0.297	20	0.300	50	0.295		
1,2-Dichloroethane-d4	1	0.340	5	0.307	10	0.310	20	0.310	50	0.296		
1,2-Dichloroethane	.3	0.384	1	0.367	5	0.379	10	0.368	20	0.369	50	0.378
1,1,1-Trichloroethane	.3	0.469	1	0.441	5	0.462	10	0.442	20	0.453	50	0.479
1,1-Dichloropropene	.3	0.357	1	0.335	5	0.340	10	0.344	20	0.351	50	0.371
Carbon tetrachloride	.3	0.369	1	0.317	5	0.344	10	0.346	20	0.367	50	0.410
Benzene	.3	1.157	1	1.044	5	1.081	10	1.037	20	1.043	50	1.065
Dibromomethane	.3	0.212	1	0.184	5	0.178	10	0.175	20	0.173	50	0.178
1,2-Dichloropropane#	.3	0.306	1	0.264	5	0.273	10	0.258	20	0.258	50	0.268
Trichloroethene (TCE)	.3	0.360	1	0.318	5	0.323	10	0.310	20	0.315	50	0.332
Bromodichloromethane	.3	0.319	1	0.327	5	0.328	10	0.330	20	0.340	50	0.368
cis-1,3-Dichloropropene	.3	0.351	1	0.325	5	0.357	10	0.359	20	0.378	50	0.415

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
4-Methyl-2-pentanone (MIBK)	1	0.175	5	0.203	10	0.210	20	0.213	50	0.225	100	0.213
trans-1,3-Dichloropropene	.3	0.287	1	0.281	5	0.313	10	0.326	20	0.338	50	0.379
1,1,2-Trichloroethane	.3	0.214	1	0.194	5	0.197	10	0.195	20	0.193	50	0.200
Toluene-d8	1	0.907	5	0.877	10	0.916	20	0.927	50	0.918		
Toluene#	.3	1.056	1	1.038	5	1.109	10	1.103	20	1.109	50	1.146
1,3-Dichloropropane	.3	0.516	1	0.478	5	0.483	10	0.485	20	0.482	50	0.517
Dibromochloromethane	.3	0.292	1	0.278	5	0.292	10	0.301	20	0.329	50	0.380
1,2-Dibromoethane (EDB)	.3	0.360	1	0.318	5	0.314	10	0.321	20	0.333	50	0.361
Tetrachloroethene (PCE)	.3	0.421	1	0.366	5	0.372	10	0.364	20	0.377	50	0.400
1-Chlorohexane	.3	0.291	1	0.239	5	0.274	10	0.290	20	0.300	50	0.341
1,1,1,2-Tetrachloroethane	.3	0.285	1	0.271	5	0.307	10	0.315	20	0.344	50	0.387
Chlorobenzene-d5	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
Chlorobenzene*	.3	1.093	1	1.021	5	1.024	10	0.997	20	1.009	50	1.077
Ethylbenzene#	.3	1.474	1	1.321	5	1.419	10	1.405	20	1.485	50	1.584
m,p-Xylene	.6	1.065	2	0.997	10	1.142	20	1.126	40	1.158	100	1.230
Bromoform*	.3	0.175	1	0.159	5	0.171	10	0.186	20	0.208	50	0.255
Styrene	.3	0.786	1	0.777	5	0.917	10	0.935	20	1.019	50	1.136
1,1,2,2-Tetrachloroethane*	.3	0.419	1	0.386	5	0.398	10	0.388	20	0.400	50	0.421
o-Xylene	.3	1.114	1	1.094	5	1.247	10	1.213	20	1.260	50	1.346
1,2,3-Trichloropropane	.3	0.653	1	0.587	5	0.573	10	0.582	20	0.579	50	0.585
Isopropylbenzene	.3	2.411	1	2.132	5	2.376	10	2.440	20	2.532	50	2.600
4-Bromofluorobenzene	1	0.805	5	0.788	10	0.820	20	0.838	50	0.795		
Bromobenzene	.3	1.297	1	1.108	5	1.146	10	1.121	20	1.147	50	1.164
n-Propylbenzene	.3	2.406	1	2.157	5	2.425	10	2.455	20	2.597	50	2.673
2-Chlorotoluene	.3	1.780	1	1.744	5	1.859	10	1.835	20	1.875	50	1.900
4-Chlorotoluene	.3	1.866	1	1.804	5	1.977	10	1.961	20	2.023	50	2.045
1,3,5-Trimethylbenzene	.3	1.877	1	1.732	5	1.955	10	2.022	20	2.067	50	2.125
tert-Butylbenzene	.3	1.508	1	1.375	5	1.452	10	1.510	20	1.583	50	1.676
1,2,4-Trimethylbenzene	.3	1.897	1	1.762	5	2.038	10	2.084	20	2.162	50	2.251
sec-Butylbenzene	.3	2.145	1	1.962	5	2.155	10	2.183	20	2.229	50	2.322

* SPCC # CCC

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VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
1,3-Dichlorobenzene	.3	1.841	1	1.579	5	1.553	10	1.507	20	1.529	50	1.534
1,4-Dichlorobenzene-d4	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
1,4-Dichlorobenzene	.3	1.961	1	1.651	5	1.653	10	1.587	20	1.617	50	1.606
p-Isopropyltoluene	.3	1.989	1	1.736	5	1.884	10	1.868	20	1.953	50	2.000
1,2-Dichlorobenzene	.3	1.785	1	1.508	5	1.568	10	1.525	20	1.558	50	1.602
n-Butylbenzene	.3	1.534	1	1.344	5	1.489	10	1.494	20	1.593	50	1.699
1,2-Dibromo-3-chloropropane	.3	0.179	1	0.141	5	0.149	10	0.158	20	0.175	50	0.193
1,2,4-Trichlorobenzene	.3	1.178	1	0.969	5	0.919	10	0.883	20	0.941	50	0.934
Naphthalene	.3	2.822	1	2.378	5	2.636	10	2.732	20	2.899	50	2.769
Hexachlorobutadiene	.3	0.561	1	0.427	5	0.382	10	0.381	20	0.385	50	0.377
1,2,3-Trichlorobenzene	.3	1.146	1	0.955	5	0.922	10	0.908	20	0.945	50	0.838

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
Fluorobenzene	10	1.000										
Dichlorodifluoromethane	100	0.441										
Chloromethane*	100	0.366										
Vinyl Chloride#	100	0.355										
Bromomethane	100	0.225										
Chloroethane	100	0.178										
Trichlorofluoromethane	100	0.539										
Acetone												
1,1-Dichloroethene#	100	0.436										
Methylene chloride	100	0.387										
trans-1,2-Dichloroethene	100	0.395										
Methyl tert-butyl ether	100	0.720										
1,1-Dichloroethane*	100	0.476										
2-Butanone (MEK)												
cis-1,2-Dichloroethene	100	0.384										
Bromochloromethane	100	0.201										
Chloroform#	100	0.479										
2,2-Dichloropropane	100	0.405										
Dibromofluoromethane												
1,2-Dichloroethane-d4												
1,2-Dichloroethane	100	0.349										
1,1,1-Trichloroethane	100	0.448										
1,1-Dichloropropene	100	0.345										
Carbon tetrachloride	100	0.393										
Benzene	100	0.983										
Dibromomethane	100	0.166										
1,2-Dichloropropane#	100	0.248										
Trichloroethene (TCE)	100	0.307										
Bromodichloromethane	100	0.351										
cis-1,3-Dichloropropene	100	0.395										

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
4-Methyl-2-pentanone (MIBK)												
trans-1,3-Dichloropropene	100	0.361										
1,1,2-Trichloroethane	100	0.187										
Toluene-d8												
Toluene#	100	1.029										
1,3-Dichloropropane	100	0.496										
Dibromochloromethane	100	0.382										
1,2-Dibromoethane (EDB)	100	0.355										
Tetrachloroethene (PCE)	100	0.382										
1-Chlorohexane	100	0.342										
1,1,1,2-Tetrachloroethane	100	0.386										
Chlorobenzene-d5	10	1.000										
Chlorobenzene*	100	1.039										
Ethylbenzene#	100	1.527										
m,p-Xylene	200	1.161										
Bromoform*												
Styrene												
1,1,2,2-Tetrachloroethane*	100	0.403										
o-Xylene	100	1.277										
1,2,3-Trichloropropane	100	0.552										
Isopropylbenzene	100	2.414										
4-Bromofluorobenzene												
Bromobenzene	100	1.107										
n-Propylbenzene	100	2.528										
2-Chlorotoluene	100	1.800										
4-Chlorotoluene	100	1.939										
1,3,5-Trimethylbenzene	100	1.997										
tert-Butylbenzene	100	1.569										
1,2,4-Trimethylbenzene	100	2.115										
sec-Butylbenzene	100	2.146										

* SPCC # CCC

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VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
1,3-Dichlorobenzene	100	1.463										
1,4-Dichlorobenzene-d4	10	1.000										
1,4-Dichlorobenzene	100	1.503										
p-Isopropyltoluene	100	1.847										
1,2-Dichlorobenzene	100	1.490										
n-Butylbenzene	100	1.602										
1,2-Dibromo-3-chloropropane	100	0.167										
1,2,4-Trichlorobenzene	100	0.742										
Naphthalene	100	2.018										
Hexachlorobutadiene												
1,2,3-Trichlorobenzene												

* SPCC # CCC

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
Fluorobenzene	AVG	1.000	0.00	7.51			
Dichlorodifluoromethane	AVG	0.406	14.8	7.51			
Chloromethane*	AVG	0.352	6.77	7.51			
Vinyl Chloride#	AVG	0.374	4.24	7.51			
Bromomethane	AVG	0.227	6.01	7.51			
Chloroethane	AVG	0.190	8.94	7.51			
Trichlorofluoromethane	AVG	0.551	6.00	7.51			
Acetone	LINR	0.070			0.998		
1,1-Dichloroethene#	AVG	0.466	4.95	7.51			
Methylene chloride	LINR	0.453			0.998		
trans-1,2-Dichloroethene	AVG	0.436	7.84	7.51			
Methyl tert-butyl ether (MTBE)	AVG	0.724	5.39	7.51			
1,1-Dichloroethane*	AVG	0.516	4.77	7.51			
2-Butanone (MEK)	AVG	0.024	11.8	7.51			
cis-1,2-Dichloroethene	AVG	0.408	5.65	7.51			
Bromochloromethane	AVG	0.217	4.86	7.51			
Chloroform#	AVG	0.517	4.99	7.51			
2,2-Dichloropropane	AVG	0.404	5.99	7.51			
Dibromofluoromethane	AVG	0.301	2.13	7.51			
1,2-Dichloroethane-d4	AVG	0.312	5.24	7.51			
1,2-Dichloroethane	AVG	0.371	3.11	7.51			
1,1,1-Trichloroethane	AVG	0.456	3.14	7.51			
1,1-Dichloropropene	AVG	0.349	3.48	7.51			
Carbon tetrachloride	AVG	0.363	8.67	7.51			
Benzene	AVG	1.059	5.01	7.51			
Dibromomethane	AVG	0.181	8.08	7.51			
1,2-Dichloropropane#	AVG	0.268	6.90	7.51			
Trichloroethene (TCE)	AVG	0.323	5.62	7.51			
Bromodichloromethane	AVG	0.337	5.03	7.51			
cis-1,3-Dichloropropene	AVG	0.368	8.07	7.51			

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
4-Methyl-2-pentanone (MIBK)	AVG	0.206	8.19	7.51			
trans-1,3-Dichloropropene	AVG	0.326	11.2	7.51			
1,1,2-Trichloroethane	AVG	0.197	4.37	7.51			
Toluene-d8	AVG	0.909	2.12	7.51			
Toluene#	AVG	1.084	4.03	7.51			
1,3-Dichloropropane	AVG	0.494	3.31	7.51			
Dibromochloromethane	AVG	0.322	13.4	7.51			
1,2-Dibromoethane (EDB)	AVG	0.337	6.13	7.51			
Tetrachloroethene (PCE)	AVG	0.383	5.34	7.51			
1-Chlorohexane	AVG	0.297	12.3	7.51			
1,1,1,2-Tetrachloroethane	AVG	0.328	14.1	7.51			
Chlorobenzene-d5	AVG	1.000	0.00	7.51			
Chlorobenzene*	AVG	1.037	3.44	7.51			
Ethylbenzene#	AVG	1.459	5.93	7.51			
m,p-Xylene	AVG	1.125	6.65	7.51			
Bromoform*	QUAD	0.192				1.005	
Styrene	AVG	0.929	14.8	7.51			
1,1,2,2-Tetrachloroethane*	AVG	0.402	3.39	7.51			
o-Xylene	AVG	1.222	7.37	7.51			
1,2,3-Trichloropropane	AVG	0.587	5.30	7.51			
Isopropylbenzene	AVG	2.415	6.10	7.51			
4-Bromofluorobenzene	AVG	0.809	2.50	7.51			
Bromobenzene	AVG	1.155	5.71	7.51			
n-Propylbenzene	AVG	2.463	6.72	7.51			
2-Chlorotoluene	AVG	1.828	3.04	7.51			
4-Chlorotoluene	AVG	1.945	4.38	7.51			
1,3,5-Trimethylbenzene	AVG	1.968	6.63	7.51			
tert-Butylbenzene	AVG	1.525	6.36	7.51			
1,2,4-Trimethylbenzene	AVG	2.044	8.10	7.51			
sec-Butylbenzene	AVG	2.163	5.04	7.51			

* SPCC # CCC

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VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
1,3-Dichlorobenzene	AVG	1.572	7.88	7.51			
1,4-Dichlorobenzene-d4	AVG	1.000	0.00	7.51			
1,4-Dichlorobenzene	AVG	1.654	8.72	7.51			
p-Isopropyltoluene	AVG	1.897	4.89	7.51			
1,2-Dichlorobenzene	AVG	1.576	6.31	7.51			
n-Butylbenzene	AVG	1.537	7.27	7.51			
1,2-Dibromo-3-chloropropane	AVG	0.166	11.0	7.51			
1,2,4-Trichlorobenzene	AVG	0.938	13.8	7.51			
Naphthalene	AVG	2.608	11.9	7.51			
Hexachlorobutadiene	LINR	0.419			1.000		
1,2,3-Trichlorobenzene	AVG	0.952	10.9	7.51			

* SPCC # CCC

VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 08/13/13 1539

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

2nd Source ICVW0813 Init. Calib. Time(s): 1014 1325

Lab File ID: ICVW0813.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dichlorodifluoromethane	20.0	21.1	0.429	0.000	6	20	
Chloromethane*	20.0	20.4	0.359	0.100	2	20	
Vinyl Chloride#	20.0	18.9	0.354	0.000	-5	20	
Bromomethane	20.0	19.4	0.220	0.000	-3	20	
Chloroethane	20.0	22.8	0.217	0.000	14	20	
Trichlorofluoromethane	20.0	20.8	0.574	0.000	4	20	
Acetone	20.0	19.2	0.065	0.000	-4	20	
1,1-Dichloroethene#	20.0	18.6	0.433	0.000	-7	20	
Methylene chloride	20.0	19.3	0.411	0.000	-3	20	
trans-1,2-Dichloroethene	20.0	19.1	0.416	0.000	-5	20	
Methyl tert-butyl ether (MTBE)	20.0	18.0	0.651	0.000	-10	20	
1,1-Dichloroethane*	20.0	19.1	0.493	0.100	-5	20	
2-Butanone (MEK)	20.0	19.9	0.024	0.000	-0.7	20	
cis-1,2-Dichloroethene	20.0	18.9	0.385	0.000	-6	20	
Bromochloromethane	20.0	18.9	0.205	0.000	-6	20	
Chloroform#	20.0	18.9	0.489	0.000	-5	20	
2,2-Dichloropropane	20.0	19.7	0.398	0.000	-1	20	
1,2-Dichloroethane	20.0	19.2	0.355	0.000	-4	20	
1,1,1-Trichloroethane	20.0	19.4	0.443	0.000	-3	20	
1,1-Dichloropropene	20.0	19.9	0.347	0.000	-0.7	20	
Carbon tetrachloride	20.0	19.9	0.362	0.000	-0.4	20	
Benzene	20.0	19.4	1.026	0.000	-3	20	
Dibromomethane	20.0	18.4	0.167	0.000	-8	20	
1,2-Dichloropropane#	20.0	19.5	0.262	0.000	-2	20	
Trichloroethene (TCE)	20.0	19.5	0.315	0.000	-2	20	
Bromodichloromethane	20.0	19.7	0.332	0.000	-2	20	
cis-1,3-Dichloropropene	20.0	21.5	0.395	0.000	7	20	
4-Methyl-2-pentanone (MIBK)	20.0	19.7	0.203	0.000	-2	20	
trans-1,3-Dichloropropene	20.0	20.2	0.329	0.000	0.8	20	
1,1,2-Trichloroethane	20.0	19.8	0.195	0.000	-1.0	20	
Toluene#	20.0	20.1	1.091	0.000	0.6	20	
1,3-Dichloropropane	20.0	19.3	0.477	0.000	-3	20	
Dibromochloromethane	20.0	19.2	0.309	0.000	-4	20	
1,2-Dibromoethane (EDB)	20.0	19.0	0.320	0.000	-5	20	
Tetrachloroethene (PCE)	20.0	18.9	0.361	0.000	-6	20	

* SPCC # CCC

VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 08/13/13 1539

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

2nd Source ICVW0813 Init. Calib. Time(s): 1014 1325

Lab File ID: ICVW0813.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
1-Chlorohexane	20.0	20.1	0.298	0.000	0.3	20	
1,1,1,2-Tetrachloroethane	20.0	20.5	0.337	0.000	3	20	
Chlorobenzene*	20.0	17.7	0.917	0.300	-12	20	
Ethylbenzene#	20.0	19.9	1.451	0.000	-0.6	20	
m,p-Xylene	40.0	38.6	1.085	0.000	-4	20	
Bromoform*	20.0	20.1	0.202	0.100	0.6	20	
Styrene	20.0	21.4	0.992	0.000	7	20	
1,1,2,2-Tetrachloroethane*	20.0	18.6	0.374	0.300	-7	20	
o-Xylene	20.0	18.5	1.131	0.000	-7	20	
1,2,3-Trichloropropane	20.0	18.4	0.541	0.000	-8	20	
Isopropylbenzene	20.0	19.0	2.296	0.000	-5	20	
Bromobenzene	20.0	18.8	1.087	0.000	-6	20	
n-Propylbenzene	20.0	19.3	2.371	0.000	-4	20	
2-Chlorotoluene	20.0	18.8	1.722	0.000	-6	20	
4-Chlorotoluene	20.0	18.1	1.760	0.000	-10	20	
1,3,5-Trimethylbenzene	20.0	21.2	2.089	0.000	6	20	
tert-Butylbenzene	20.0	19.0	1.451	0.000	-5	20	
1,2,4-Trimethylbenzene	20.0	21.3	2.174	0.000	6	20	
sec-Butylbenzene	20.0	19.3	2.086	0.000	-4	20	
1,3-Dichlorobenzene	20.0	17.4	1.364	0.000	-13	20	
1,4-Dichlorobenzene	20.0	18.6	1.538	0.000	-7	20	
p-Isopropyltoluene	20.0	19.7	1.870	0.000	-1	20	
1,2-Dichlorobenzene	20.0	17.7	1.397	0.000	-11	20	
n-Butylbenzene	20.0	21.4	1.643	0.000	7	20	
1,2-Dibromo-3-chloropropane	20.0	19.4	0.161	0.000	-3	20	
1,2,4-Trichlorobenzene	20.0	19.6	0.919	0.000	-2	20	
Naphthalene	20.0	20.6	2.681	0.000	3	20	
Hexachlorobutadiene	20.0	21.8	0.412	0.000	9	20	
1,2,3-Trichlorobenzene	20.0	19.3	0.919	0.000	-3	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 09/23/13 0827

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1014 1325

Lab File ID: CV1_0923.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dichlorodifluoromethane	20.0	19.9	0.403	0.000	-0.7	20	
Chloromethane*	20.0	16.2	0.284	0.100	-19	20	
Vinyl Chloride#	20.0	18.6	0.347	0.000	-7	30	
Bromomethane	20.0	21.5	0.244	0.000	7	20	
Chloroethane	20.0	17.9	0.170	0.000	-11	20	
Trichlorofluoromethane	20.0	25.5	0.704	0.000	28	20	*
Acetone	20.0	19.5	0.066	0.000	-3	20	
1,1-Dichloroethene#	20.0	17.9	0.418	0.000	-10	30	
Methylene chloride	20.0	17.2	0.365	0.000	-14	20	
trans-1,2-Dichloroethene	20.0	17.5	0.382	0.000	-12	20	
Methyl tert-butyl ether (MTBE)	20.0	23.4	0.846	0.000	17	20	
1,1-Dichloroethane*	20.0	18.1	0.466	0.100	-10	20	
2-Butanone (MEK)	20.0	21.2	0.026	0.000	6	20	
cis-1,2-Dichloroethene	20.0	18.1	0.369	0.000	-10	20	
Bromochloromethane	20.0	18.6	0.202	0.000	-7	20	
Chloroform#	20.0	19.8	0.512	0.000	-1.0	30	
2,2-Dichloropropane	20.0	19.1	0.387	0.000	-4	20	
Dibromofluoromethane	10.0	10.8	0.323	0.000	7	20	
1,2-Dichloroethane-d4	10.0	11.4	0.355	0.000	14	20	
1,2-Dichloroethane	20.0	21.5	0.398	0.000	7	20	
1,1,1-Trichloroethane	20.0	20.7	0.471	0.000	3	20	
1,1-Dichloropropene	20.0	19.2	0.335	0.000	-4	20	
Carbon tetrachloride	20.0	20.2	0.367	0.000	1.0	20	
Benzene	20.0	17.6	0.932	0.000	-12	20	
Dibromomethane	20.0	18.7	0.169	0.000	-7	20	
1,2-Dichloropropane#	20.0	16.9	0.226	0.000	-16	30	
Trichloroethene (TCE)	20.0	18.5	0.300	0.000	-7	20	
Bromodichloromethane	20.0	21.1	0.355	0.000	5	20	
cis-1,3-Dichloropropene	20.0	19.7	0.364	0.000	-1	20	
4-Methyl-2-pentanone (MIBK)	20.0	20.9	0.216	0.000	5	20	
trans-1,3-Dichloropropene	20.0	20.1	0.329	0.000	0.6	20	
1,1,2-Trichloroethane	20.0	17.7	0.175	0.000	-11	20	
Toluene-d8	10.0	10.1	0.921	0.000	1	20	
Toluene#	20.0	18.7	1.014	0.000	-7	30	
1,3-Dichloropropane	20.0	18.3	0.452	0.000	-8	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 09/23/13 0827

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1014 1325

Lab File ID: CV1_0923.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dibromochloromethane	20.0	21.5	0.347	0.000	8	20	
1,2-Dibromoethane (EDB)	20.0	18.4	0.310	0.000	-8	20	
Tetrachloroethene (PCE)	20.0	18.7	0.357	0.000	-7	20	
1-Chlorohexane	20.0	20.8	0.308	0.000	4	20	
1,1,1,2-Tetrachloroethane	20.0	21.4	0.351	0.000	7	20	
Chlorobenzene*	20.0	18.2	0.942	0.300	-9	20	
Ethylbenzene#	20.0	18.4	1.346	0.000	-8	30	
m,p-Xylene	40.0	38.8	1.092	0.000	-3	20	
Bromoform*	20.0	21.5	0.219	0.100	7	20	
Styrene	20.0	19.7	0.915	0.000	-1	20	
1,1,2,2-Tetrachloroethane*	20.0	17.6	0.353	0.300	-12	20	
o-Xylene	20.0	19.6	1.197	0.000	-2	20	
1,2,3-Trichloropropane	20.0	17.8	0.524	0.000	-11	20	
Isopropylbenzene	20.0	19.6	2.361	0.000	-2	20	
4-Bromofluorobenzene	10.0	10.5	0.848	0.000	5	20	
Bromobenzene	20.0	18.3	1.057	0.000	-9	20	
n-Propylbenzene	20.0	18.7	2.298	0.000	-7	20	
2-Chlorotoluene	20.0	19.1	1.748	0.000	-4	20	
4-Chlorotoluene	20.0	19.0	1.843	0.000	-5	20	
1,3,5-Trimethylbenzene	20.0	20.3	1.992	0.000	1	20	
tert-Butylbenzene	20.0	20.4	1.553	0.000	2	20	
1,2,4-Trimethylbenzene	20.0	20.1	2.056	0.000	0.6	20	
sec-Butylbenzene	20.0	19.5	2.105	0.000	-3	20	
1,3-Dichlorobenzene	20.0	17.7	1.388	0.000	-12	20	
1,4-Dichlorobenzene	20.0	17.8	1.472	0.000	-11	20	
p-Isopropyltoluene	20.0	19.7	1.864	0.000	-2	20	
1,2-Dichlorobenzene	20.0	18.3	1.439	0.000	-9	20	
n-Butylbenzene	20.0	19.2	1.474	0.000	-4	20	
1,2-Dibromo-3-chloropropane	20.0	20.4	0.169	0.000	2	20	
1,2,4-Trichlorobenzene	20.0	19.9	0.931	0.000	-0.7	20	
Naphthalene	20.0	20.5	2.668	0.000	2	20	
Hexachlorobutadiene	20.0	23.0	0.435	0.000	15	20	
1,2,3-Trichlorobenzene	20.0	19.7	0.938	0.000	-1	20	

* SPCC # CCC

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2781

Analysis Method: SW8260B

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL_4

Date Analyzed: 08/13/13

Lab File ID: LEVEL_4.D

Time Analyzed: 1204

Instrument Name: MSE

Heat Purge: (Y/N) N

GC Column: DB-VRX ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	Reference Cal	381033	11.99	312712	15.59	165981	18.58
	Upper Limit	762066	12.49	625424	16.09	331962	19.08
	Lower Limit	190517	11.49	156356	15.09	82991	18.08
Field Sample ID	Lab Sample ID						
ICVW0813	ICVW0813	394660	11.98	324847	15.59	176681	18.57
CV1-0923	CV1-0923	232570	11.99	185707	15.59	101009	18.57
BS1W0923	BS1W0923	234582	11.98	187657	15.59	97918	18.57
WB1-0923	WB1-0923	226033	11.98	181663	15.58	93178	18.57
SPLPBLK	SPLPBLK	211873	11.99	168556	15.59	86703	18.57
RECON ID 019-CH2M	M278101	211143	11.99	161212	15.59	83112	18.57
RECON ID 020-CH2M	M278102	229214	11.98	176819	15.59	92415	18.57
RECON ID 021-CH2M	M278103	196488	11.98	159531	15.59	93489	18.57
RECON ID 022-CH2M	M278104	230008	11.98	179476	15.59	94750	18.57
RECON ID 020-CH2M	M278102DL	209187	11.99	167221	15.59	83345	18.57
RECON ID 021-CH2M	M278103DL	190568	11.99	168610	15.59	85695	18.57

IS1: Fluorobenzene

IS2: Chlorobenzene-d5

IS3: 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8260B
Matrix: Water

Instrument ID: MSE
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Dichlorodifluoromethane	11/04/11	0.250	0.210	0.270	0.210	0.260	0.190	0.250	0.250		0.0305	0.200
Chloromethane	11/04/11	0.250	0.230	0.270	0.220	0.260	0.270	0.330	0.220		0.0390	0.200
Vinyl Chloride	11/04/11	0.250	0.250	0.300	0.240	0.290	0.240	0.310	0.260		0.0294	0.200
Bromomethane	11/04/11	0.250	0.240	0.320	0.260	0.290	0.290	0.380	0.290		0.0450	0.200
Chloroethane	11/04/11	0.250	0.230	0.280	0.270	0.290	0.210	0.300	0.280		0.0331	0.200
Trichlorofluoromethane	11/04/11	0.250	0.260	0.280	0.260	0.280	0.230	0.300	0.250		0.0230	0.200
Acetone	11/04/11	0.750	0.640	0.730	0.910	0.870	0.900	0.730	0.820		0.102	0.500
1,1-Dichloroethene	11/04/11	0.250	0.250	0.290	0.250	0.280	0.250	0.290	0.290		0.0204	0.200
Methylene chloride	11/04/11	0.250	0.210	0.220	0.220	0.290	0.230	0.350	0.350		0.0624	0.200
trans-1,2-Dichloroethene	11/04/11	0.250	0.260	0.300	0.260	0.310	0.270	0.320	0.320		0.0273	0.200
Methyl tert-butyl ether (MTBE)	11/04/11	0.250	0.260	0.300	0.260	0.280	0.270	0.250	0.300		0.0199	0.200
1,1-Dichloroethane	11/04/11	0.250	0.240	0.300	0.250	0.280	0.250	0.300	0.300		0.0270	0.200
2-Butanone (MEK)	11/04/11	0.750	0.630	0.680	0.650	0.680	0.740	0.620	0.690		0.0408	0.500
cis-1,2-Dichloroethene	11/04/11	0.250	0.240	0.290	0.240	0.290	0.250	0.310	0.300		0.0299	0.200
Bromochloromethane	11/04/11	0.250	0.250	0.300	0.270	0.300	0.240	0.300	0.300		0.0265	0.200
Chloroform	11/04/11	0.250	0.250	0.290	0.250	0.280	0.250	0.290	0.290		0.0204	0.150
2,2-Dichloropropane	11/04/11	0.250	0.240	0.280	0.240	0.270	0.220	0.280	0.250		0.0230	0.200
1,2-Dichloroethane	11/04/11	0.250	0.250	0.300	0.270	0.280	0.250	0.320	0.330		0.0321	0.200
1,1,1-Trichloroethane	11/04/11	0.250	0.240	0.280	0.260	0.270	0.240	0.270	0.280		0.0170	0.200
1,1-Dichloropropene	11/04/11	0.250	0.250	0.290	0.250	0.300	0.250	0.310	0.300		0.0273	0.200
Carbon tetrachloride	11/04/11	0.250	0.230	0.260	0.220	0.250	0.230	0.270	0.260		0.0190	0.200
Benzene	11/04/11	0.250	0.250	0.290	0.260	0.280	0.240	0.300	0.300		0.0244	0.200
Dibromomethane	11/04/11	0.250	0.230	0.300	0.230	0.280	0.240	0.290	0.310		0.0344	0.200
1,2-Dichloropropane	11/04/11	0.250	0.270	0.300	0.250	0.270	0.250	0.300	0.320		0.0271	0.200
Trichloroethene (TCE)	11/04/11	0.250	0.250	0.290	0.250	0.290	0.250	0.300	0.310		0.0263	0.200
Bromodichloromethane	11/04/11	0.250	0.230	0.270	0.230	0.260	0.200	0.270	0.280		0.0291	0.200
cis-1,3-Dichloropropene	11/04/11	0.250	0.230	0.260	0.220	0.250	0.220	0.270	0.260		0.0207	0.200
4-Methyl-2-pentanone (MIBK)	11/04/11	0.750	0.750	0.750	0.790	0.760	0.690	0.720	0.810		0.0403	0.500
trans-1,3-Dichloropropene	11/04/11	0.250	0.220	0.250	0.220	0.240	0.210	0.250	0.260		0.0190	0.200
1,1,2-Trichloroethane	11/04/11	0.250	0.250	0.310	0.250	0.290	0.250	0.310	0.300		0.0289	0.200
Toluene	11/04/11	0.250	0.250	0.280	0.240	0.270	0.230	0.280	0.280		0.0212	0.200
1,3-Dichloropropane	11/04/11	0.250	0.260	0.280	0.250	0.290	0.240	0.280	0.280		0.0186	0.200
Dibromochloromethane	11/04/11	0.250	0.220	0.260	0.210	0.230	0.190	0.230	0.230		0.0215	0.200
1,2-Dibromoethane (EDB)	11/04/11	0.250	0.240	0.300	0.250	0.270	0.230	0.290	0.280		0.0264	0.200
Tetrachloroethene (PCE)	11/04/11	0.250	0.260	0.290	0.240	0.300	0.250	0.300	0.290		0.0251	0.200
1-Chlorohexane	11/04/11	0.250	0.260	0.290	0.250	0.270	0.220	0.220	0.290		0.0293	0.200
1,1,1,2-Tetrachloroethane	11/04/11	0.250	0.220	0.250	0.210	0.250	0.200	0.250	0.260		0.0237	0.200
Chlorobenzene	11/04/11	0.250	0.240	0.290	0.240	0.280	0.250	0.290	0.290		0.0241	0.200
Ethylbenzene	11/04/11	0.250	0.240	0.270	0.230	0.250	0.210	0.270	0.270		0.0234	0.200
m,p-Xylene	11/04/11	0.500	0.460	0.530	0.430	0.520	0.430	0.540	0.530		0.0495	0.400
Bromoform	11/04/11	0.250	0.280	0.300	0.250	0.270	0.270	0.290	0.270		0.0162	0.200

CH2MHILL
Applied Sciences Laboratory (ASL)

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DL Study Report

Analytical Method: SW8260B
Matrix: Water

Instrument ID: MSE
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Styrene	11/04/11	0.250	0.210	0.240	0.200	0.230	0.200	0.250	0.240		0.0207	0.200
1,1,2,2-Tetrachloroethane	11/04/11	0.250	0.220	0.250	0.220	0.250	0.220	0.260	0.260		0.0192	0.200
o-Xylene	11/04/11	0.250	0.250	0.280	0.220	0.280	0.240	0.270	0.280		0.0238	0.200
1,2,3-Trichloropropane	11/04/11	0.250	0.250	0.320	0.280	0.330	0.270	0.340	0.360		0.0407	0.200
Isopropylbenzene	11/04/11	0.250	0.230	0.270	0.240	0.270	0.230	0.280	0.260		0.0207	0.200
Bromobenzene	11/04/11	0.250	0.240	0.300	0.250	0.300	0.250	0.310	0.310		0.0316	0.200
n-Propylbenzene	11/04/11	0.250	0.230	0.270	0.220	0.260	0.230	0.270	0.260		0.0212	0.200
2-Chlorotoluene	11/04/11	0.250	0.240	0.290	0.240	0.280	0.240	0.290	0.280		0.0244	0.200
4-Chlorotoluene	11/04/11	0.250	0.240	0.280	0.230	0.280	0.240	0.280	0.280		0.0234	0.200
1,3,5-Trimethylbenzene	11/04/11	0.250	0.230	0.250	0.230	0.270	0.210	0.260	0.260		0.0215	0.200
tert-Butylbenzene	11/04/11	0.250	0.240	0.270	0.230	0.270	0.220	0.280	0.250		0.0227	0.200
1,2,4-Trimethylbenzene	11/04/11	0.250	0.220	0.260	0.210	0.250	0.210	0.260	0.260		0.0241	0.200
sec-Butylbenzene	11/04/11	0.250	0.230	0.270	0.230	0.270	0.210	0.270	0.260		0.0248	0.200
1,3-Dichlorobenzene	11/04/11	0.250	0.250	0.290	0.250	0.290	0.240	0.290	0.300		0.0250	0.200
1,4-Dichlorobenzene	11/04/11	0.250	0.240	0.300	0.270	0.290	0.250	0.300	0.290		0.0243	0.200
p-Isopropyltoluene	11/04/11	0.250	0.250	0.280	0.250	0.280	0.240	0.280	0.270		0.0172	0.200
1,2-Dichlorobenzene	11/04/11	0.250	0.250	0.290	0.240	0.280	0.240	0.300	0.300		0.0273	0.200
n-Butylbenzene	11/04/11	0.250	0.250	0.270	0.250	0.290	0.220	0.290	0.280		0.0257	0.200
1,2-Dibromo-3-chloropropane	11/04/11	0.250	0.220	0.280	0.250	0.230	0.230	0.270	0.230		0.0230	0.200
1,2,4-Trichlorobenzene	11/04/11	0.250	0.280	0.320	0.280	0.310	0.260	0.310	0.300		0.0215	0.200
Naphthalene	11/04/11	0.250	0.250	0.280	0.240	0.260	0.220	0.270	0.270		0.0207	0.200
Hexachlorobutadiene	11/04/11	0.250	0.310	0.310	0.280	0.320	0.270	0.310	0.320		0.0198	0.200
1,2,3-Trichlorobenzene	11/04/11	0.250	0.280	0.300	0.300	0.310	0.260	0.300	0.300		0.0170	0.200

MDL FORM

ANALYSIS METHOD

SW8270C

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GC/MS SEMI-VOLATILES ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2781

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW8270C: E1312, SW3510

Matrix Spike/Matrix Spike Duplicate(s):
BS recovery of Hexachlorocyclopentadiene(25%) in BS1W0920 did not meet acceptance criteria of 30-110%.

Surrogate Standard(s):
Surrogate recovery of 2,4,6-Tribromophenol(138%) in RECON ID 019-CH2M Run 006 and (139%) in RECON ID 020-CH2M Run 007 did not meet acceptance criteria of 19-122%. Surrogates diluted out of all samples run at 50X dilution.

SAMPLE DATA SUMMARY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 830.76 ML Lab Sample ID: M278101

Percent Moisture: 100 Decanted: N Lab File ID: M278101DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	24.1	60.2	24.1	U
110-86-1	Pyridine	24.1	60.2	603	
62-53-3	Aniline	24.1	60.2	57.7	J
108-95-2	Phenol	24.1	60.2	362	
111-44-4	bis(2-Chloroethyl)ether	24.1	60.2	24.1	U
95-57-8	2-Chlorophenol	24.1	60.2	24.1	U
541-73-1	1,3-Dichlorobenzene	24.1	60.2	24.1	U
106-46-7	1,4-Dichlorobenzene	24.1	60.2	49.2	J
100-51-6	Benzyl alcohol	24.1	60.2	61.6	
95-50-1	1,2-Dichlorobenzene	24.1	60.2	713	
95-48-7	2-Methylphenol	24.1	60.2	36.1	J
108-60-1	bis(2-Chloroisopropyl)ether	24.1	60.2	24.1	U
108-39-4/106	3-,4-Methylphenol	24.1	60.2	595	
621-64-7	N-Nitroso-di-n-propylamine	24.1	60.2	24.1	U
67-72-1	Hexachloroethane	24.1	60.2	24.1	U
65-85-0	Benzoic Acid	24.1	60.2	6080	E
98-95-3	Nitrobenzene	24.1	60.2	150	
78-59-1	Isophorone	24.1	60.2	24.1	U
88-75-5	2-Nitrophenol	24.1	60.2	24.1	U
105-67-9	2,4-Dimethylphenol	24.1	60.2	50.8	J
111-91-1	bis(2-Chloroethoxy)methane	24.1	60.2	24.1	U
120-83-2	2,4-Dichlorophenol	24.1	60.2	24.1	U
120-82-1	1,2,4-Trichlorobenzene	24.1	60.2	24.1	U
91-20-3	Naphthalene	24.1	60.2	1980	E
106-47-8	4-Chloroaniline	24.1	60.2	24.1	U
87-68-3	Hexachlorobutadiene	24.1	60.2	24.1	U
59-50-7	4-Chloro-3-methyl phenol	24.1	60.2	24.1	U
91-57-6	2-Methylnaphthalene	24.1	60.2	37.1	J
77-47-4	Hexachlorocyclopentadiene	24.1	60.2	24.1	U
88-06-2	2,4,6-Trichlorophenol	24.1	60.2	24.1	U
95-95-4	2,4,5-Trichlorophenol	24.1	60.2	24.1	U
91-58-7	2-Chloronaphthalene	24.1	60.2	24.1	U
88-74-4	2-Nitroaniline	24.1	60.2	24.1	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 830.76 ML Lab Sample ID: M278101

Percent Moisture: 100 Decanted: N Lab File ID: M278101DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	24.1	60.2	24.1	U
208-96-8	Acenaphthylene	24.1	60.2	24.1	U
606-20-2	2,6-Dinitrotoluene	24.1	60.2	24.1	U
83-32-9	Acenaphthene	24.1	60.2	24.1	U
51-28-5	2,4-Dinitrophenol	24.1	60.2	24.1	U
100-02-7	4-Nitrophenol	24.1	60.2	24.1	U
121-14-2	2,4-Dinitrotoluene	24.1	60.2	24.1	U
132-64-9	Dibenzofuran	24.1	60.2	24.1	U
84-66-2	Diethylphthalate	24.1	60.2	24.1	U
99-09-2	3-Nitroaniline	24.1	60.2	24.1	U
86-73-7	Fluorene	24.1	60.2	24.1	U
7005-72-3	4-Chlorophenyl phenyl ether	24.1	60.2	24.1	U
100-01-6	4-Nitroaniline	24.1	60.2	24.1	U
534-52-1	4,6-Dinitro-2-methyl phenol	24.1	60.2	24.1	U
86-30-6	N-Nitrosodiphenylamine	24.1	60.2	24.1	U
122-66-7	1,2-Diphenylhydrazine	24.1	60.2	24.1	U
101-55-3	4-Bromophenyl phenyl ether	24.1	60.2	24.1	U
118-74-1	Hexachlorobenzene	24.1	60.2	24.1	U
87-86-5	Pentachlorophenol	24.1	60.2	24.1	U
85-01-8	Phenanthrene	24.1	60.2	24.1	U
120-12-7	Anthracene	24.1	60.2	24.1	U
86-74-8	Carbazole	24.1	60.2	24.1	U
84-74-2	Di-n-butylphthalate	24.1	60.2	24.1	U
206-44-0	Fluoranthene	24.1	60.2	24.1	U
129-00-0	Pyrene	24.1	60.2	24.1	U
85-68-7	Butylbenzylphthalate	24.1	60.2	24.1	U
56-55-3	Benzo(a)anthracene	24.1	60.2	24.1	U
91-94-1	3,3'-Dichlorobenzidine	24.1	60.2	24.1	U
218-01-9	Chrysene	24.1	60.2	24.1	U
117-81-7	bis(2-Ethylhexyl)phthalate	24.1	60.2	24.1	U
117-84-0	Di-n-octylphthalate	24.1	60.2	24.1	U
205-99-2	Benzo(b)fluoroanthene	24.1	60.2	24.1	U
207-08-9	Benzo(k)fluoranthene	24.1	60.2	24.1	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP

Sample wt/vol: (G/ML) 830.76 ML

Percent Moisture: 100 Decanted: N

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M278101

Lab File ID: M278101DL.D

Date Received: 09/18/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	24.1	60.2	24.1	U
193-39-5	Indeno(1,2,3-c,d)pyrene	24.1	60.2	24.1	U
53-70-3	Dibenzo(a,h)anthracene	24.1	60.2	24.1	U
191-24-2	Benzo(g,h,i)perylene	24.1	60.2	24.1	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 830.76 ML Lab Sample ID: M278101DL

Percent Moisture: 100 Decanted: N Lab File ID: M278101DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	120	301	120	U
110-86-1	Pyridine	120	301	567	
62-53-3	Aniline	120	301	120	U
108-95-2	Phenol	120	301	332	
111-44-4	bis(2-Chloroethyl)ether	120	301	120	U
95-57-8	2-Chlorophenol	120	301	120	U
541-73-1	1,3-Dichlorobenzene	120	301	120	U
106-46-7	1,4-Dichlorobenzene	120	301	120	U
100-51-6	Benzyl alcohol	120	301	120	U
95-50-1	1,2-Dichlorobenzene	120	301	662	
95-48-7	2-Methylphenol	120	301	120	U
108-60-1	bis(2-Chloroisopropyl)ether	120	301	120	U
108-39-4/106	3-,4-Methylphenol	120	301	545	
621-64-7	N-Nitroso-di-n-propylamine	120	301	120	U
67-72-1	Hexachloroethane	120	301	120	U
65-85-0	Benzoic Acid	120	301	5170	
98-95-3	Nitrobenzene	120	301	143	J
78-59-1	Isophorone	120	301	120	U
88-75-5	2-Nitrophenol	120	301	120	U
105-67-9	2,4-Dimethylphenol	120	301	120	U
111-91-1	bis(2-Chloroethoxy)methane	120	301	120	U
120-83-2	2,4-Dichlorophenol	120	301	120	U
120-82-1	1,2,4-Trichlorobenzene	120	301	120	U
91-20-3	Naphthalene	120	301	1950	
106-47-8	4-Chloroaniline	120	301	120	U
87-68-3	Hexachlorobutadiene	120	301	120	U
59-50-7	4-Chloro-3-methyl phenol	120	301	120	U
91-57-6	2-Methylnaphthalene	120	301	120	U
77-47-4	Hexachlorocyclopentadiene	120	301	120	U
88-06-2	2,4,6-Trichlorophenol	120	301	120	U
95-95-4	2,4,5-Trichlorophenol	120	301	120	U
91-58-7	2-Chloronaphthalene	120	301	120	U
88-74-4	2-Nitroaniline	120	301	120	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 830.76 ML Lab Sample ID: M278101DL

Percent Moisture: 100 Decanted: N Lab File ID: M278101DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	120	301	120	U
208-96-8	Acenaphthylene	120	301	120	U
606-20-2	2,6-Dinitrotoluene	120	301	120	U
83-32-9	Acenaphthene	120	301	120	U
51-28-5	2,4-Dinitrophenol	120	301	120	U
100-02-7	4-Nitrophenol	120	301	120	U
121-14-2	2,4-Dinitrotoluene	120	301	120	U
132-64-9	Dibenzofuran	120	301	120	U
84-66-2	Diethylphthalate	120	301	120	U
99-09-2	3-Nitroaniline	120	301	120	U
86-73-7	Fluorene	120	301	120	U
7005-72-3	4-Chlorophenyl phenyl ether	120	301	120	U
100-01-6	4-Nitroaniline	120	301	120	U
534-52-1	4,6-Dinitro-2-methyl phenol	120	301	120	U
86-30-6	N-Nitrosodiphenylamine	120	301	120	U
122-66-7	1,2-Diphenylhydrazine	120	301	120	U
101-55-3	4-Bromophenyl phenyl ether	120	301	120	U
118-74-1	Hexachlorobenzene	120	301	120	U
87-86-5	Pentachlorophenol	120	301	120	U
85-01-8	Phenanthrene	120	301	120	U
120-12-7	Anthracene	120	301	120	U
86-74-8	Carbazole	120	301	120	U
84-74-2	Di-n-butylphthalate	120	301	120	U
206-44-0	Fluoranthene	120	301	120	U
129-00-0	Pyrene	120	301	120	U
85-68-7	Butylbenzylphthalate	120	301	120	U
56-55-3	Benzo(a)anthracene	120	301	120	U
91-94-1	3,3'-Dichlorobenzidine	120	301	120	U
218-01-9	Chrysene	120	301	120	U
117-81-7	bis(2-Ethylhexyl)phthalate	120	301	120	U
117-84-0	Di-n-octylphthalate	120	301	120	U
205-99-2	Benzo(b)fluoroanthene	120	301	120	U
207-08-9	Benzo(k)fluoranthene	120	301	120	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP

Sample wt/vol: (G/ML) 830.76 ML

Percent Moisture: 100 Decanted: N

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M278101DL

Lab File ID: M278101DL2.D

Date Received: 09/18/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	120	301	120	U
193-39-5	Indeno(1,2,3-c,d)pyrene	120	301	120	U
53-70-3	Dibenzo(a,h)anthracene	120	301	120	U
191-24-2	Benzo(g,h,i)perylene	120	301	120	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 838.89 ML Lab Sample ID: M278102

Percent Moisture: 100 Decanted: N Lab File ID: M278102DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	23.8	59.6	23.8	U
110-86-1	Pyridine	23.8	59.6	837	
62-53-3	Aniline	23.8	59.6	126	
108-95-2	Phenol	23.8	59.6	278	
111-44-4	bis(2-Chloroethyl)ether	23.8	59.6	23.8	U
95-57-8	2-Chlorophenol	23.8	59.6	23.8	U
541-73-1	1,3-Dichlorobenzene	23.8	59.6	23.8	U
106-46-7	1,4-Dichlorobenzene	23.8	59.6	44.9	J
100-51-6	Benzyl alcohol	23.8	59.6	52.2	J
95-50-1	1,2-Dichlorobenzene	23.8	59.6	672	
95-48-7	2-Methylphenol	23.8	59.6	31.4	J
108-60-1	bis(2-Chloroisopropyl)ether	23.8	59.6	23.8	U
108-39-4/106	3-,4-Methylphenol	23.8	59.6	473	
621-64-7	N-Nitroso-di-n-propylamine	23.8	59.6	23.8	U
67-72-1	Hexachloroethane	23.8	59.6	23.8	U
65-85-0	Benzoic Acid	23.8	59.6	5040	E
98-95-3	Nitrobenzene	23.8	59.6	119	
78-59-1	Isophorone	23.8	59.6	23.8	U
88-75-5	2-Nitrophenol	23.8	59.6	23.8	U
105-67-9	2,4-Dimethylphenol	23.8	59.6	41.8	J
111-91-1	bis(2-Chloroethoxy)methane	23.8	59.6	23.8	U
120-83-2	2,4-Dichlorophenol	23.8	59.6	23.8	U
120-82-1	1,2,4-Trichlorobenzene	23.8	59.6	23.8	U
91-20-3	Naphthalene	23.8	59.6	1840	
106-47-8	4-Chloroaniline	23.8	59.6	23.8	U
87-68-3	Hexachlorobutadiene	23.8	59.6	23.8	U
59-50-7	4-Chloro-3-methyl phenol	23.8	59.6	23.8	U
91-57-6	2-Methylnaphthalene	23.8	59.6	34.2	J
77-47-4	Hexachlorocyclopentadiene	23.8	59.6	23.8	U
88-06-2	2,4,6-Trichlorophenol	23.8	59.6	23.8	U
95-95-4	2,4,5-Trichlorophenol	23.8	59.6	23.8	U
91-58-7	2-Chloronaphthalene	23.8	59.6	23.8	U
88-74-4	2-Nitroaniline	23.8	59.6	23.8	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 838.89 ML Lab Sample ID: M278102

Percent Moisture: 100 Decanted: N Lab File ID: M278102DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	23.8	59.6	23.8	U
208-96-8	Acenaphthylene	23.8	59.6	23.8	U
606-20-2	2,6-Dinitrotoluene	23.8	59.6	23.8	U
83-32-9	Acenaphthene	23.8	59.6	23.8	U
51-28-5	2,4-Dinitrophenol	23.8	59.6	23.8	U
100-02-7	4-Nitrophenol	23.8	59.6	23.8	U
121-14-2	2,4-Dinitrotoluene	23.8	59.6	23.8	U
132-64-9	Dibenzofuran	23.8	59.6	23.8	U
84-66-2	Diethylphthalate	23.8	59.6	23.8	U
99-09-2	3-Nitroaniline	23.8	59.6	23.8	U
86-73-7	Fluorene	23.8	59.6	23.8	U
7005-72-3	4-Chlorophenyl phenyl ether	23.8	59.6	23.8	U
100-01-6	4-Nitroaniline	23.8	59.6	23.8	U
534-52-1	4,6-Dinitro-2-methyl phenol	23.8	59.6	23.8	U
86-30-6	N-Nitrosodiphenylamine	23.8	59.6	23.8	U
122-66-7	1,2-Diphenylhydrazine	23.8	59.6	23.8	U
101-55-3	4-Bromophenyl phenyl ether	23.8	59.6	23.8	U
118-74-1	Hexachlorobenzene	23.8	59.6	23.8	U
87-86-5	Pentachlorophenol	23.8	59.6	23.8	U
85-01-8	Phenanthrene	23.8	59.6	23.8	U
120-12-7	Anthracene	23.8	59.6	23.8	U
86-74-8	Carbazole	23.8	59.6	23.8	U
84-74-2	Di-n-butylphthalate	23.8	59.6	23.8	U
206-44-0	Fluoranthene	23.8	59.6	23.8	U
129-00-0	Pyrene	23.8	59.6	23.8	U
85-68-7	Butylbenzylphthalate	23.8	59.6	23.8	U
56-55-3	Benzo(a)anthracene	23.8	59.6	23.8	U
91-94-1	3,3'-Dichlorobenzidine	23.8	59.6	23.8	U
218-01-9	Chrysene	23.8	59.6	23.8	U
117-81-7	bis(2-Ethylhexyl)phthalate	23.8	59.6	23.8	U
117-84-0	Di-n-octylphthalate	23.8	59.6	23.8	U
205-99-2	Benzo(b)fluoroanthene	23.8	59.6	23.8	U
207-08-9	Benzo(k)fluoranthene	23.8	59.6	23.8	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 838.89 ML Lab Sample ID: M278102

Percent Moisture: 100 Decanted: N Lab File ID: M278102DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	23.8	59.6	23.8	U
193-39-5	Indeno(1,2,3-c,d)pyrene	23.8	59.6	23.8	U
53-70-3	Dibenzo(a,h)anthracene	23.8	59.6	23.8	U
191-24-2	Benzo(g,h,i)perylene	23.8	59.6	23.8	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 838.89 ML Lab Sample ID: M278102DL

Percent Moisture: 100 Decanted: N Lab File ID: M278102DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	119	298	119	U
110-86-1	Pyridine	119	298	788	
62-53-3	Aniline	119	298	119	U
108-95-2	Phenol	119	298	257	J
111-44-4	bis(2-Chloroethyl)ether	119	298	119	U
95-57-8	2-Chlorophenol	119	298	119	U
541-73-1	1,3-Dichlorobenzene	119	298	119	U
106-46-7	1,4-Dichlorobenzene	119	298	119	U
100-51-6	Benzyl alcohol	119	298	119	U
95-50-1	1,2-Dichlorobenzene	119	298	635	
95-48-7	2-Methylphenol	119	298	119	U
108-60-1	bis(2-Chloroisopropyl)ether	119	298	119	U
108-39-4/106	3-,4-Methylphenol	119	298	433	
621-64-7	N-Nitroso-di-n-propylamine	119	298	119	U
67-72-1	Hexachloroethane	119	298	119	U
65-85-0	Benzoic Acid	119	298	4300	
98-95-3	Nitrobenzene	119	298	119	U
78-59-1	Isophorone	119	298	119	U
88-75-5	2-Nitrophenol	119	298	119	U
105-67-9	2,4-Dimethylphenol	119	298	119	U
111-91-1	bis(2-Chloroethoxy)methane	119	298	119	U
120-83-2	2,4-Dichlorophenol	119	298	119	U
120-82-1	1,2,4-Trichlorobenzene	119	298	119	U
91-20-3	Naphthalene	119	298	1820	
106-47-8	4-Chloroaniline	119	298	119	U
87-68-3	Hexachlorobutadiene	119	298	119	U
59-50-7	4-Chloro-3-methyl phenol	119	298	119	U
91-57-6	2-Methylnaphthalene	119	298	119	U
77-47-4	Hexachlorocyclopentadiene	119	298	119	U
88-06-2	2,4,6-Trichlorophenol	119	298	119	U
95-95-4	2,4,5-Trichlorophenol	119	298	119	U
91-58-7	2-Chloronaphthalene	119	298	119	U
88-74-4	2-Nitroaniline	119	298	119	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 838.89 ML Lab Sample ID: M278102DL

Percent Moisture: 100 Decanted: N Lab File ID: M278102DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	119	298	119	U
208-96-8	Acenaphthylene	119	298	119	U
606-20-2	2,6-Dinitrotoluene	119	298	119	U
83-32-9	Acenaphthene	119	298	119	U
51-28-5	2,4-Dinitrophenol	119	298	119	U
100-02-7	4-Nitrophenol	119	298	119	U
121-14-2	2,4-Dinitrotoluene	119	298	119	U
132-64-9	Dibenzofuran	119	298	119	U
84-66-2	Diethylphthalate	119	298	119	U
99-09-2	3-Nitroaniline	119	298	119	U
86-73-7	Fluorene	119	298	119	U
7005-72-3	4-Chlorophenyl phenyl ether	119	298	119	U
100-01-6	4-Nitroaniline	119	298	119	U
534-52-1	4,6-Dinitro-2-methyl phenol	119	298	119	U
86-30-6	N-Nitrosodiphenylamine	119	298	119	U
122-66-7	1,2-Diphenylhydrazine	119	298	119	U
101-55-3	4-Bromophenyl phenyl ether	119	298	119	U
118-74-1	Hexachlorobenzene	119	298	119	U
87-86-5	Pentachlorophenol	119	298	119	U
85-01-8	Phenanthrene	119	298	119	U
120-12-7	Anthracene	119	298	119	U
86-74-8	Carbazole	119	298	119	U
84-74-2	Di-n-butylphthalate	119	298	119	U
206-44-0	Fluoranthene	119	298	119	U
129-00-0	Pyrene	119	298	119	U
85-68-7	Butylbenzylphthalate	119	298	119	U
56-55-3	Benzo(a)anthracene	119	298	119	U
91-94-1	3,3'-Dichlorobenzidine	119	298	119	U
218-01-9	Chrysene	119	298	119	U
117-81-7	bis(2-Ethylhexyl)phthalate	119	298	119	U
117-84-0	Di-n-octylphthalate	119	298	119	U
205-99-2	Benzo(b)fluoroanthene	119	298	119	U
207-08-9	Benzo(k)fluoranthene	119	298	119	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP

Sample wt/vol: (G/ML) 838.89 ML

Percent Moisture: 100 Decanted: N

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M278102DL

Lab File ID: M278102DL2.D

Date Received: 09/18/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	119	298	119	U
193-39-5	Indeno(1,2,3-c,d)pyrene	119	298	119	U
53-70-3	Dibenzo(a,h)anthracene	119	298	119	U
191-24-2	Benzo(g,h,i)perylene	119	298	119	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 827.39 ML Lab Sample ID: M278103

Percent Moisture: 100 Decanted: N Lab File ID: M278103DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	24.2	60.4	24.2	U
110-86-1	Pyridine	24.2	60.4	631	
62-53-3	Aniline	24.2	60.4	79.9	
108-95-2	Phenol	24.2	60.4	212	
111-44-4	bis(2-Chloroethyl)ether	24.2	60.4	24.2	U
95-57-8	2-Chlorophenol	24.2	60.4	24.2	U
541-73-1	1,3-Dichlorobenzene	24.2	60.4	24.2	U
106-46-7	1,4-Dichlorobenzene	24.2	60.4	29.5	J
100-51-6	Benzyl alcohol	24.2	60.4	38.0	J
95-50-1	1,2-Dichlorobenzene	24.2	60.4	450	
95-48-7	2-Methylphenol	24.2	60.4	24.2	U
108-60-1	bis(2-Chloroisopropyl)ether	24.2	60.4	24.2	U
108-39-4/106	3-,4-Methylphenol	24.2	60.4	315	
621-64-7	N-Nitroso-di-n-propylamine	24.2	60.4	24.2	U
67-72-1	Hexachloroethane	24.2	60.4	24.2	U
65-85-0	Benzoic Acid	24.2	60.4	3840	E
98-95-3	Nitrobenzene	24.2	60.4	73.3	
78-59-1	Isophorone	24.2	60.4	24.2	U
88-75-5	2-Nitrophenol	24.2	60.4	24.2	U
105-67-9	2,4-Dimethylphenol	24.2	60.4	24.2	U
111-91-1	bis(2-Chloroethoxy)methane	24.2	60.4	24.2	U
120-83-2	2,4-Dichlorophenol	24.2	60.4	24.2	U
120-82-1	1,2,4-Trichlorobenzene	24.2	60.4	24.2	U
91-20-3	Naphthalene	24.2	60.4	1290	
106-47-8	4-Chloroaniline	24.2	60.4	24.2	U
87-68-3	Hexachlorobutadiene	24.2	60.4	24.2	U
59-50-7	4-Chloro-3-methyl phenol	24.2	60.4	24.2	U
91-57-6	2-Methylnaphthalene	24.2	60.4	24.2	U
77-47-4	Hexachlorocyclopentadiene	24.2	60.4	24.2	U
88-06-2	2,4,6-Trichlorophenol	24.2	60.4	24.2	U
95-95-4	2,4,5-Trichlorophenol	24.2	60.4	24.2	U
91-58-7	2-Chloronaphthalene	24.2	60.4	24.2	U
88-74-4	2-Nitroaniline	24.2	60.4	24.2	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 827.39 ML Lab Sample ID: M278103

Percent Moisture: 100 Decanted: N Lab File ID: M278103DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	24.2	60.4	24.2	U
208-96-8	Acenaphthylene	24.2	60.4	24.2	U
606-20-2	2,6-Dinitrotoluene	24.2	60.4	24.2	U
83-32-9	Acenaphthene	24.2	60.4	24.2	U
51-28-5	2,4-Dinitrophenol	24.2	60.4	24.2	U
100-02-7	4-Nitrophenol	24.2	60.4	24.2	U
121-14-2	2,4-Dinitrotoluene	24.2	60.4	24.2	U
132-64-9	Dibenzofuran	24.2	60.4	24.2	U
84-66-2	Diethylphthalate	24.2	60.4	24.2	U
99-09-2	3-Nitroaniline	24.2	60.4	24.2	U
86-73-7	Fluorene	24.2	60.4	24.2	U
7005-72-3	4-Chlorophenyl phenyl ether	24.2	60.4	24.2	U
100-01-6	4-Nitroaniline	24.2	60.4	24.2	U
534-52-1	4,6-Dinitro-2-methyl phenol	24.2	60.4	24.2	U
86-30-6	N-Nitrosodiphenylamine	24.2	60.4	24.2	U
122-66-7	1,2-Diphenylhydrazine	24.2	60.4	24.2	U
101-55-3	4-Bromophenyl phenyl ether	24.2	60.4	24.2	U
118-74-1	Hexachlorobenzene	24.2	60.4	24.2	U
87-86-5	Pentachlorophenol	24.2	60.4	24.2	U
85-01-8	Phenanthrene	24.2	60.4	24.2	U
120-12-7	Anthracene	24.2	60.4	24.2	U
86-74-8	Carbazole	24.2	60.4	24.2	U
84-74-2	Di-n-butylphthalate	24.2	60.4	24.2	U
206-44-0	Fluoranthene	24.2	60.4	24.2	U
129-00-0	Pyrene	24.2	60.4	24.2	U
85-68-7	Butylbenzylphthalate	24.2	60.4	24.2	U
56-55-3	Benzo(a)anthracene	24.2	60.4	24.2	U
91-94-1	3,3'-Dichlorobenzidine	24.2	60.4	24.2	U
218-01-9	Chrysene	24.2	60.4	24.2	U
117-81-7	bis(2-Ethylhexyl)phthalate	24.2	60.4	24.2	U
117-84-0	Di-n-octylphthalate	24.2	60.4	24.2	U
205-99-2	Benzo(b)fluoroanthene	24.2	60.4	24.2	U
207-08-9	Benzo(k)fluoranthene	24.2	60.4	24.2	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP

Sample wt/vol: (G/ML) 827.39 ML

Percent Moisture: 100 Decanted: N

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M278103

Lab File ID: M278103DL.D

Date Received: 09/18/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	24.2	60.4	24.2	U
193-39-5	Indeno(1,2,3-c,d)pyrene	24.2	60.4	24.2	U
53-70-3	Dibenzo(a,h)anthracene	24.2	60.4	24.2	U
191-24-2	Benzo(g,h,i)perylene	24.2	60.4	24.2	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 827.39 ML Lab Sample ID: M278103DL

Percent Moisture: 100 Decanted: N Lab File ID: M278103DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	121	302	121	U
110-86-1	Pyridine	121	302	787	
62-53-3	Aniline	121	302	121	U
108-95-2	Phenol	121	302	263	J
111-44-4	bis(2-Chloroethyl)ether	121	302	121	U
95-57-8	2-Chlorophenol	121	302	121	U
541-73-1	1,3-Dichlorobenzene	121	302	121	U
106-46-7	1,4-Dichlorobenzene	121	302	121	U
100-51-6	Benzyl alcohol	121	302	121	U
95-50-1	1,2-Dichlorobenzene	121	302	567	
95-48-7	2-Methylphenol	121	302	121	U
108-60-1	bis(2-Chloroisopropyl)ether	121	302	121	U
108-39-4/106	3-,4-Methylphenol	121	302	392	
621-64-7	N-Nitroso-di-n-propylamine	121	302	121	U
67-72-1	Hexachloroethane	121	302	121	U
65-85-0	Benzoic Acid	121	302	4430	
98-95-3	Nitrobenzene	121	302	121	U
78-59-1	Isophorone	121	302	121	U
88-75-5	2-Nitrophenol	121	302	121	U
105-67-9	2,4-Dimethylphenol	121	302	121	U
111-91-1	bis(2-Chloroethoxy)methane	121	302	121	U
120-83-2	2,4-Dichlorophenol	121	302	121	U
120-82-1	1,2,4-Trichlorobenzene	121	302	121	U
91-20-3	Naphthalene	121	302	1570	
106-47-8	4-Chloroaniline	121	302	121	U
87-68-3	Hexachlorobutadiene	121	302	121	U
59-50-7	4-Chloro-3-methyl phenol	121	302	121	U
91-57-6	2-Methylnaphthalene	121	302	121	U
77-47-4	Hexachlorocyclopentadiene	121	302	121	U
88-06-2	2,4,6-Trichlorophenol	121	302	121	U
95-95-4	2,4,5-Trichlorophenol	121	302	121	U
91-58-7	2-Chloronaphthalene	121	302	121	U
88-74-4	2-Nitroaniline	121	302	121	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 827.39 ML Lab Sample ID: M278103DL

Percent Moisture: 100 Decanted: N Lab File ID: M278103DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	121	302	121	U
208-96-8	Acenaphthylene	121	302	121	U
606-20-2	2,6-Dinitrotoluene	121	302	121	U
83-32-9	Acenaphthene	121	302	121	U
51-28-5	2,4-Dinitrophenol	121	302	121	U
100-02-7	4-Nitrophenol	121	302	121	U
121-14-2	2,4-Dinitrotoluene	121	302	121	U
132-64-9	Dibenzofuran	121	302	121	U
84-66-2	Diethylphthalate	121	302	121	U
99-09-2	3-Nitroaniline	121	302	121	U
86-73-7	Fluorene	121	302	121	U
7005-72-3	4-Chlorophenyl phenyl ether	121	302	121	U
100-01-6	4-Nitroaniline	121	302	121	U
534-52-1	4,6-Dinitro-2-methyl phenol	121	302	121	U
86-30-6	N-Nitrosodiphenylamine	121	302	121	U
122-66-7	1,2-Diphenylhydrazine	121	302	121	U
101-55-3	4-Bromophenyl phenyl ether	121	302	121	U
118-74-1	Hexachlorobenzene	121	302	121	U
87-86-5	Pentachlorophenol	121	302	121	U
85-01-8	Phenanthrene	121	302	121	U
120-12-7	Anthracene	121	302	121	U
86-74-8	Carbazole	121	302	121	U
84-74-2	Di-n-butylphthalate	121	302	121	U
206-44-0	Fluoranthene	121	302	121	U
129-00-0	Pyrene	121	302	121	U
85-68-7	Butylbenzylphthalate	121	302	121	U
56-55-3	Benzo(a)anthracene	121	302	121	U
91-94-1	3,3'-Dichlorobenzidine	121	302	121	U
218-01-9	Chrysene	121	302	121	U
117-81-7	bis(2-Ethylhexyl)phthalate	121	302	121	U
117-84-0	Di-n-octylphthalate	121	302	121	U
205-99-2	Benzo(b)fluoroanthene	121	302	121	U
207-08-9	Benzo(k)fluoranthene	121	302	121	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP

Sample wt/vol: (G/ML) 827.39 ML

Percent Moisture: 100 Decanted: N

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M278103DL

Lab File ID: M278103DL2.D

Date Received: 09/18/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	121	302	121	U
193-39-5	Indeno(1,2,3-c,d)pyrene	121	302	121	U
53-70-3	Dibenzo(a,h)anthracene	121	302	121	U
191-24-2	Benzo(g,h,i)perylene	121	302	121	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 864.22 ML Lab Sample ID: M278104

Percent Moisture: 100 Decanted: N Lab File ID: M278104DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	23.1	57.9	23.1	U
110-86-1	Pyridine	23.1	57.9	502	
62-53-3	Aniline	23.1	57.9	49.5	J
108-95-2	Phenol	23.1	57.9	185	
111-44-4	bis(2-Chloroethyl)ether	23.1	57.9	23.1	U
95-57-8	2-Chlorophenol	23.1	57.9	23.1	U
541-73-1	1,3-Dichlorobenzene	23.1	57.9	23.1	U
106-46-7	1,4-Dichlorobenzene	23.1	57.9	27.4	J
100-51-6	Benzyl alcohol	23.1	57.9	34.2	J
95-50-1	1,2-Dichlorobenzene	23.1	57.9	430	
95-48-7	2-Methylphenol	23.1	57.9	23.1	U
108-60-1	bis(2-Chloroisopropyl)ether	23.1	57.9	23.1	U
108-39-4/106	3-,4-Methylphenol	23.1	57.9	297	
621-64-7	N-Nitroso-di-n-propylamine	23.1	57.9	23.1	U
67-72-1	Hexachloroethane	23.1	57.9	23.1	U
65-85-0	Benzoic Acid	23.1	57.9	3330	E
98-95-3	Nitrobenzene	23.1	57.9	59.5	
78-59-1	Isophorone	23.1	57.9	23.1	U
88-75-5	2-Nitrophenol	23.1	57.9	23.1	U
105-67-9	2,4-Dimethylphenol	23.1	57.9	23.1	U
111-91-1	bis(2-Chloroethoxy)methane	23.1	57.9	23.1	U
120-83-2	2,4-Dichlorophenol	23.1	57.9	23.1	U
120-82-1	1,2,4-Trichlorobenzene	23.1	57.9	23.1	U
91-20-3	Naphthalene	23.1	57.9	1150	
106-47-8	4-Chloroaniline	23.1	57.9	23.1	U
87-68-3	Hexachlorobutadiene	23.1	57.9	23.1	U
59-50-7	4-Chloro-3-methyl phenol	23.1	57.9	23.1	U
91-57-6	2-Methylnaphthalene	23.1	57.9	23.1	U
77-47-4	Hexachlorocyclopentadiene	23.1	57.9	23.1	U
88-06-2	2,4,6-Trichlorophenol	23.1	57.9	23.1	U
95-95-4	2,4,5-Trichlorophenol	23.1	57.9	23.1	U
91-58-7	2-Chloronaphthalene	23.1	57.9	23.1	U
88-74-4	2-Nitroaniline	23.1	57.9	23.1	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 864.22 ML Lab Sample ID: M278104

Percent Moisture: 100 Decanted: N Lab File ID: M278104DL.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 10

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	23.1	57.9	23.1	U
208-96-8	Acenaphthylene	23.1	57.9	23.1	U
606-20-2	2,6-Dinitrotoluene	23.1	57.9	23.1	U
83-32-9	Acenaphthene	23.1	57.9	23.1	U
51-28-5	2,4-Dinitrophenol	23.1	57.9	23.1	U
100-02-7	4-Nitrophenol	23.1	57.9	23.1	U
121-14-2	2,4-Dinitrotoluene	23.1	57.9	23.1	U
132-64-9	Dibenzofuran	23.1	57.9	23.1	U
84-66-2	Diethylphthalate	23.1	57.9	23.1	U
99-09-2	3-Nitroaniline	23.1	57.9	23.1	U
86-73-7	Fluorene	23.1	57.9	23.1	U
7005-72-3	4-Chlorophenyl phenyl ether	23.1	57.9	23.1	U
100-01-6	4-Nitroaniline	23.1	57.9	23.1	U
534-52-1	4,6-Dinitro-2-methyl phenol	23.1	57.9	23.1	U
86-30-6	N-Nitrosodiphenylamine	23.1	57.9	23.1	U
122-66-7	1,2-Diphenylhydrazine	23.1	57.9	23.1	U
101-55-3	4-Bromophenyl phenyl ether	23.1	57.9	23.1	U
118-74-1	Hexachlorobenzene	23.1	57.9	23.1	U
87-86-5	Pentachlorophenol	23.1	57.9	23.1	U
85-01-8	Phenanthrene	23.1	57.9	23.1	U
120-12-7	Anthracene	23.1	57.9	23.1	U
86-74-8	Carbazole	23.1	57.9	23.1	U
84-74-2	Di-n-butylphthalate	23.1	57.9	23.1	U
206-44-0	Fluoranthene	23.1	57.9	23.1	U
129-00-0	Pyrene	23.1	57.9	23.1	U
85-68-7	Butylbenzylphthalate	23.1	57.9	23.1	U
56-55-3	Benzo(a)anthracene	23.1	57.9	23.1	U
91-94-1	3,3'-Dichlorobenzidine	23.1	57.9	23.1	U
218-01-9	Chrysene	23.1	57.9	23.1	U
117-81-7	bis(2-Ethylhexyl)phthalate	23.1	57.9	23.1	U
117-84-0	Di-n-octylphthalate	23.1	57.9	23.1	U
205-99-2	Benzo(b)fluoroanthene	23.1	57.9	23.1	U
207-08-9	Benzo(k)fluoranthene	23.1	57.9	23.1	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP

Sample wt/vol: (G/ML) 864.22 ML

Percent Moisture: 100 Decanted: N

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M278104

Lab File ID: M278104DL.D

Date Received: 09/18/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	23.1	57.9	23.1	U
193-39-5	Indeno(1,2,3-c,d)pyrene	23.1	57.9	23.1	U
53-70-3	Dibenzo(a,h)anthracene	23.1	57.9	23.1	U
191-24-2	Benzo(g,h,i)perylene	23.1	57.9	23.1	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 864.22 ML Lab Sample ID: M278104DL

Percent Moisture: 100 Decanted: N Lab File ID: M278104DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	116	289	116	U
110-86-1	Pyridine	116	289	676	
62-53-3	Aniline	116	289	116	U
108-95-2	Phenol	116	289	245	J
111-44-4	bis(2-Chloroethyl)ether	116	289	116	U
95-57-8	2-Chlorophenol	116	289	116	U
541-73-1	1,3-Dichlorobenzene	116	289	116	U
106-46-7	1,4-Dichlorobenzene	116	289	116	U
100-51-6	Benzyl alcohol	116	289	116	U
95-50-1	1,2-Dichlorobenzene	116	289	582	
95-48-7	2-Methylphenol	116	289	116	U
108-60-1	bis(2-Chloroisopropyl)ether	116	289	116	U
108-39-4/106	3-,4-Methylphenol	116	289	396	
621-64-7	N-Nitroso-di-n-propylamine	116	289	116	U
67-72-1	Hexachloroethane	116	289	116	U
65-85-0	Benzoic Acid	116	289	4120	
98-95-3	Nitrobenzene	116	289	116	U
78-59-1	Isophorone	116	289	116	U
88-75-5	2-Nitrophenol	116	289	116	U
105-67-9	2,4-Dimethylphenol	116	289	116	U
111-91-1	bis(2-Chloroethoxy)methane	116	289	116	U
120-83-2	2,4-Dichlorophenol	116	289	116	U
120-82-1	1,2,4-Trichlorobenzene	116	289	116	U
91-20-3	Naphthalene	116	289	1540	
106-47-8	4-Chloroaniline	116	289	116	U
87-68-3	Hexachlorobutadiene	116	289	116	U
59-50-7	4-Chloro-3-methyl phenol	116	289	116	U
91-57-6	2-Methylnaphthalene	116	289	116	U
77-47-4	Hexachlorocyclopentadiene	116	289	116	U
88-06-2	2,4,6-Trichlorophenol	116	289	116	U
95-95-4	2,4,5-Trichlorophenol	116	289	116	U
91-58-7	2-Chloronaphthalene	116	289	116	U
88-74-4	2-Nitroaniline	116	289	116	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 864.22 ML Lab Sample ID: M278104DL

Percent Moisture: 100 Decanted: N Lab File ID: M278104DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	116	289	116	U
208-96-8	Acenaphthylene	116	289	116	U
606-20-2	2,6-Dinitrotoluene	116	289	116	U
83-32-9	Acenaphthene	116	289	116	U
51-28-5	2,4-Dinitrophenol	116	289	116	U
100-02-7	4-Nitrophenol	116	289	116	U
121-14-2	2,4-Dinitrotoluene	116	289	116	U
132-64-9	Dibenzofuran	116	289	116	U
84-66-2	Diethylphthalate	116	289	116	U
99-09-2	3-Nitroaniline	116	289	116	U
86-73-7	Fluorene	116	289	116	U
7005-72-3	4-Chlorophenyl phenyl ether	116	289	116	U
100-01-6	4-Nitroaniline	116	289	116	U
534-52-1	4,6-Dinitro-2-methyl phenol	116	289	116	U
86-30-6	N-Nitrosodiphenylamine	116	289	116	U
122-66-7	1,2-Diphenylhydrazine	116	289	116	U
101-55-3	4-Bromophenyl phenyl ether	116	289	116	U
118-74-1	Hexachlorobenzene	116	289	116	U
87-86-5	Pentachlorophenol	116	289	116	U
85-01-8	Phenanthrene	116	289	116	U
120-12-7	Anthracene	116	289	116	U
86-74-8	Carbazole	116	289	116	U
84-74-2	Di-n-butylphthalate	116	289	116	U
206-44-0	Fluoranthene	116	289	116	U
129-00-0	Pyrene	116	289	116	U
85-68-7	Butylbenzylphthalate	116	289	116	U
56-55-3	Benzo(a)anthracene	116	289	116	U
91-94-1	3,3'-Dichlorobenzidine	116	289	116	U
218-01-9	Chrysene	116	289	116	U
117-81-7	bis(2-Ethylhexyl)phthalate	116	289	116	U
117-84-0	Di-n-octylphthalate	116	289	116	U
205-99-2	Benzo(b)fluoroanthene	116	289	116	U
207-08-9	Benzo(k)fluoranthene	116	289	116	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009DL

SDG No.: M2781

Analysis Method: SW8270C

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 864.22 ML Lab Sample ID: M278104DL

Percent Moisture: 100 Decanted: N Lab File ID: M278104DL2.D

Extraction Method: SW3510 Date Received: 09/18/13

Cleanup - GPC: N Sulfur: N Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1 Date Analyzed: 09/24/13

Injection Volume: (UL)1 Dilution Factor: 50

Instrument: MSW Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	116	289	116	U
193-39-5	Indeno(1,2,3-c,d)pyrene	116	289	116	U
53-70-3	Dibenzo(a,h)anthracene	116	289	116	U
191-24-2	Benzo(g,h,i)perylene	116	289	116	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0920**

SDG No.: M2781

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 09/23/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	2.00	5.00	2.00	U
110-86-1	Pyridine	2.00	5.00	2.00	U
62-53-3	Aniline	2.00	5.00	2.00	U
108-95-2	Phenol	2.00	5.00	2.00	U
111-44-4	bis(2-Chloroethyl)ether	2.00	5.00	2.00	U
95-57-8	2-Chlorophenol	2.00	5.00	2.00	U
541-73-1	1,3-Dichlorobenzene	2.00	5.00	2.00	U
106-46-7	1,4-Dichlorobenzene	2.00	5.00	2.00	U
100-51-6	Benzyl alcohol	2.00	5.00	2.00	U
95-50-1	1,2-Dichlorobenzene	2.00	5.00	2.00	U
95-48-7	2-Methylphenol	2.00	5.00	2.00	U
108-60-1	bis(2-Chloroisopropyl)ether	2.00	5.00	2.00	U
108-39-4/106	3-,4-Methylphenol	2.00	5.00	2.00	U
621-64-7	N-Nitroso-di-n-propylamine	2.00	5.00	2.00	U
67-72-1	Hexachloroethane	2.00	5.00	2.00	U
65-85-0	Benzoic Acid	2.00	5.00	2.00	U
98-95-3	Nitrobenzene	2.00	5.00	2.00	U
78-59-1	Isophorone	2.00	5.00	2.00	U
88-75-5	2-Nitrophenol	2.00	5.00	2.00	U
105-67-9	2,4-Dimethylphenol	2.00	5.00	2.00	U
111-91-1	bis(2-Chloroethoxy)methane	2.00	5.00	2.00	U
120-83-2	2,4-Dichlorophenol	2.00	5.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene	2.00	5.00	2.00	U
91-20-3	Naphthalene	2.00	5.00	2.00	U
106-47-8	4-Chloroaniline	2.00	5.00	2.00	U
87-68-3	Hexachlorobutadiene	2.00	5.00	2.00	U
59-50-7	4-Chloro-3-methyl phenol	2.00	5.00	2.00	U
91-57-6	2-Methylnaphthalene	2.00	5.00	2.00	U
77-47-4	Hexachlorocyclopentadiene	2.00	5.00	2.00	U
88-06-2	2,4,6-Trichlorophenol	2.00	5.00	2.00	U
95-95-4	2,4,5-Trichlorophenol	2.00	5.00	2.00	U
91-58-7	2-Chloronaphthalene	2.00	5.00	2.00	U
88-74-4	2-Nitroaniline	2.00	5.00	2.00	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0920**

SDG No.: M2781

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 09/23/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	2.00	5.00	2.00	U
208-96-8	Acenaphthylene	2.00	5.00	2.00	U
606-20-2	2,6-Dinitrotoluene	2.00	5.00	2.00	U
83-32-9	Acenaphthene	2.00	5.00	2.00	U
51-28-5	2,4-Dinitrophenol	2.00	5.00	2.00	U
100-02-7	4-Nitrophenol	2.00	5.00	2.00	U
121-14-2	2,4-Dinitrotoluene	2.00	5.00	2.00	U
132-64-9	Dibenzofuran	2.00	5.00	2.00	U
84-66-2	Diethylphthalate	2.00	5.00	2.00	U
99-09-2	3-Nitroaniline	2.00	5.00	2.00	U
86-73-7	Fluorene	2.00	5.00	2.00	U
7005-72-3	4-Chlorophenyl phenyl ether	2.00	5.00	2.00	U
100-01-6	4-Nitroaniline	2.00	5.00	2.00	U
534-52-1	4,6-Dinitro-2-methyl phenol	2.00	5.00	2.00	U
86-30-6	N-Nitrosodiphenylamine	2.00	5.00	2.00	U
122-66-7	1,2-Diphenylhydrazine	2.00	5.00	2.00	U
101-55-3	4-Bromophenyl phenyl ether	2.00	5.00	2.00	U
118-74-1	Hexachlorobenzene	2.00	5.00	2.00	U
87-86-5	Pentachlorophenol	2.00	5.00	2.00	U
85-01-8	Phenanthrene	2.00	5.00	2.00	U
120-12-7	Anthracene	2.00	5.00	2.00	U
86-74-8	Carbazole	2.00	5.00	2.00	U
84-74-2	Di-n-butylphthalate	2.00	5.00	2.00	U
206-44-0	Fluoranthene	2.00	5.00	2.00	U
129-00-0	Pyrene	2.00	5.00	2.00	U
85-68-7	Butylbenzylphthalate	2.00	5.00	2.00	U
56-55-3	Benzo(a)anthracene	2.00	5.00	2.00	U
91-94-1	3,3'-Dichlorobenzidine	2.00	5.00	2.00	U
218-01-9	Chrysene	2.00	5.00	2.00	U
117-81-7	bis(2-Ethylhexyl)phthalate	2.00	5.00	2.00	U
117-84-0	Di-n-octylphthalate	2.00	5.00	2.00	U
205-99-2	Benzo(b)fluoroanthene	2.00	5.00	2.00	U
207-08-9	Benzo(k)fluoranthene	2.00	5.00	2.00	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0920**

SDG No.: M2781

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 09/23/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	2.00	5.00	2.00	U
193-39-5	Indeno(1,2,3-c,d)pyrene	2.00	5.00	2.00	U
53-70-3	Dibenzo(a,h)anthracene	2.00	5.00	2.00	U
191-24-2	Benzo(g,h,i)perylene	2.00	5.00	2.00	U

QC SUMMARY

SOIL SEMI-VOLATILE SURROGATE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	RECON ID 019-CH2M Run	0 *	0 *	0 *	0 *	8 *	0 *							D
2	RECON ID 020-CH2M Run	0 *	0 *	0 *	0 *	8 *	0 *							D
3	RECON ID 021-CH2M Run	0 *	0 *	0 *	0 *	8 *	0 *							D
4	RECON ID 022-CH2M Run	0 *	0 *	0 *	0 *	8 *	0 *							D
5	RECON ID 019-CH2M Run 006	54	44	69	63	138 *	67							1
6	RECON ID 020-CH2M Run 007	56	45	77	65	139 *	73							1
7	RECON ID 021-CH2M Run 008	36	29	57	54	122	56							
8	RECON ID 022-CH2M Run 009	35	28	56	56	121	55							

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	2-Fluorophenol	(25-121)
S2:	Phenol-d5	(24-113)
S3:	Nitrobenzene-d5	(23-120)
S4:	2-Fluorobiphenyl	(30-115)
S5:	2,4,6-Tribromophenol	(19-122)
S6:	Terphenyl-d14	(18-137)

WATER SEMI-VOLATILE SURROGATE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	WB1-0920	53	39	68	49	63	75							
2	BS1W0920	40	31	66	57	68	71							

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	2-Fluorophenol	(21-115)
S2:	Phenol-d5	(5-115)
S3:	Nitrobenzene-d5	(35-114)
S4:	2-Fluorobiphenyl	(43-116)
S5:	2,4,6-Tribromophenol	(5-123)
S6:	Terphenyl-d14	(33-141)

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0920

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
N-Nitrosodimethylamine	80.0	30.8	38	30-110	
Pyridine	80.0	23.7	30	30-110	
Aniline	80.0	36.9	46	30-110	
Phenol	80.0	25.8	32	20-120	
bis(2-Chloroethyl)ether	80.0	44.2	55	30-110	
2-Chlorophenol	80.0	44.0	55	20-120	
1,3-Dichlorobenzene	80.0	31.3	39	30-110	
1,4-Dichlorobenzene	80.0	32.6	41	30-110	
Benzyl alcohol	80.0	47.4	59	30-110	
1,2-Dichlorobenzene	80.0	36.1	45	30-110	
2-Methylphenol	80.0	44.0	55	30-110	
bis(2-Chloroisopropyl)ether	80.0	46.0	58	30-110	
3-,4-Methylphenol	80.0	43.3	54	20-120	
N-Nitroso-di-n-propylamine	80.0	51.3	64	30-110	
Hexachloroethane	80.0	25.6	32	30-110	
Benzoic Acid	80.0	27.5	34	30-110	
Nitrobenzene	80.0	47.3	59	30-110	
Isophorone	80.0	51.1	64	30-110	
2-Nitrophenol	80.0	49.3	62	20-120	
2,4-Dimethylphenol	80.0	26.2	33	20-120	
bis(2-Chloroethoxy)methane	80.0	49.4	62	30-110	
2,4-Dichlorophenol	80.0	49.9	62	20-120	
1,2,4-Trichlorobenzene	80.0	39.1	49	30-110	
Naphthalene	80.0	44.5	56	30-110	
4-Chloroaniline	80.0	43.0	54	30-110	
Hexachlorobutadiene	80.0	30.3	38	30-110	
4-Chloro-3-methyl phenol	80.0	41.9	52	20-120	
2-Methylnaphthalene	80.0	47.1	59	30-110	
Hexachlorocyclopentadiene	80.0	20.1	25	30-110	*
2,4,6-Trichlorophenol	80.0	51.9	65	20-120	
2,4,5-Trichlorophenol	80.0	53.2	66	20-120	
2-Chloronaphthalene	80.0	47.0	59	30-110	
2-Nitroaniline	80.0	53.4	67	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0920

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Dimethylphthalate	80.0	53.5	67	30-110	
Acenaphthylene	80.0	48.9	61	30-110	
2,6-Dinitrotoluene	80.0	53.7	67	30-110	
Acenaphthene	80.0	50.2	63	30-110	
2,4-Dinitrophenol	80.0	51.3	64	20-120	
4-Nitrophenol	80.0	28.6	36	20-120	
2,4-Dinitrotoluene	80.0	54.7	68	30-110	
Dibenzofuran	80.0	51.2	64	30-110	
Diethylphthalate	80.0	54.1	68	30-110	
3-Nitroaniline	80.0	50.8	63	30-110	
Fluorene	80.0	53.0	66	30-110	
4-Chlorophenyl phenyl ether	80.0	53.4	67	30-110	
4-Nitroaniline	80.0	53.1	66	30-110	
4,6-Dinitro-2-methyl phenol	80.0	52.7	66	20-120	
N-Nitrosodiphenylamine	80.0	51.8	65	30-110	
1,2-Diphenylhydrazine	80.0	51.2	64	30-110	
4-Bromophenyl phenyl ether	80.0	54.0	67	30-110	
Hexachlorobenzene	80.0	54.9	69	30-110	
Pentachlorophenol	80.0	51.3	64	20-120	
Phenanthrene	80.0	52.9	66	30-110	
Anthracene	80.0	52.3	65	30-110	
Carbazole	80.0	53.0	66	30-110	
Di-n-butylphthalate	80.0	55.9	70	30-110	
Fluoranthene	80.0	55.1	69	30-110	
Pyrene	80.0	53.5	67	30-110	
Butylbenzylphthalate	80.0	55.6	69	30-110	
Benzo(a)anthracene	80.0	53.7	67	30-110	
3,3'-Dichlorobenzidine	80.0	50.7	63	30-110	
Chrysene	80.0	53.9	67	30-110	
bis(2-Ethylhexyl)phthalate	80.0	55.4	69	30-110	
Di-n-octylphthalate	80.0	53.8	67	30-110	
Benzo(b)fluoroanthene	80.0	54.9	69	30-110	
Benzo(k)fluoranthene	80.0	55.1	69	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0920

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Benzo(a)pyrene	80.0	52.6	66	30-110	
Indeno(1,2,3-c,d)pyrene	80.0	54.7	68	30-110	
Dibenzo(a,h)anthracene	80.0	55.4	69	30-110	
Benzo(g,h,i)perylene	80.0	54.3	68	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE METHOD BLANK SUMMARY

Field Sample ID: WB1-0920

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D Date Extracted: 09/20/13

GC Column: ZB-5MS ID: 0.25 (mm) Date Analyzed: 09/23/13

Instrument: MSW Time Analyzed: 1615

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	BS1W0920	BS1W0920	BS1W0920.D	09/23/13	1652
2	RECON ID 019-CH2M Run 006DL	M278101DL	M278101DL2.D	09/24/13	1339
3	RECON ID 020-CH2M Run 007DL	M278102DL	M278102DL2.D	09/24/13	1416
4	RECON ID 021-CH2M Run 008DL	M278103DL	M278103DL2.D	09/24/13	1453
5	RECON ID 022-CH2M Run 009DL	M278104DL	M278104DL2.D	09/24/13	1530
6	RECON ID 019-CH2M Run 006	M278101	M278101DL.D	09/24/13	1835
7	RECON ID 020-CH2M Run 007	M278102	M278102DL.D	09/24/13	1912
8	RECON ID 021-CH2M Run 008	M278103	M278103DL.D	09/24/13	1949
9	RECON ID 022-CH2M Run 009	M278104	M278104DL.D	09/24/13	2026

Comments:

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2781

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 09/18/13

Lab File ID: T2-0918.D

DFTPP Injection Time: 1825

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	28578	(42.7)	
68	less than 2% of mass 69	391	(1.4)	
69	mass 69 relative abundance	28879	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	33515	(50.1)	
197	less than 1% of mass 198	254	(0.4)	
198	base peak, 100% relative abundance	66851	(100.0)	
199	5% to 9% of mass 198	4453	(6.7)	
275	10% to 30% of mass 198	18869	(28.2)	
365	greater than 1% of mass 198	2255	(3.4)	
441	present, but less than mass 443	8109	(75.5)	
442	greater than 40% of mass 198	55613	(83.2)	
443	17% to 23% of mass 442	10735	(19.3)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	LEVEL1	LEVEL1	LEVEL1.D	09/18/13	1859
2	LEVEL2	LEVEL2	LEVEL2.D	09/18/13	1936
3	LEVEL3	LEVEL3	LEVEL3.D	09/18/13	2013
4	LEVEL4	LEVEL4	LEVEL4.D	09/18/13	2050
5	LEVEL5	LEVEL5	LEVEL5.D	09/18/13	2127
6	LEVEL6	LEVEL6	LEVEL6.D	09/18/13	2204
7	ICV-0918	ICV-0918	ICV-0918.D	09/18/13	2241

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2781

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 09/23/13

Lab File ID: T1-0923.D

DFTPP Injection Time: 1351

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	26142	(39.9)	
68	less than 2% of mass 69	406	(1.5)	
69	mass 69 relative abundance	26260	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	31652	(48.3)	
197	less than 1% of mass 198	243	(0.4)	
198	base peak, 100% relative abundance	65491	(100.0)	
199	5% to 9% of mass 198	4524	(6.9)	
275	10% to 30% of mass 198	18479	(28.2)	
365	greater than 1% of mass 198	2389	(3.6)	
441	present, but less than mass 443	9128	(77.6)	
442	greater than 40% of mass 198	63629	(97.2)	
443	17% to 23% of mass 442	11764	(18.5)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0923	CV1-0923	CV1-0923.D	09/23/13	1424
2	WB1-0920	WB1-0920	WB1-0920.D	09/23/13	1615
3	BS1W0920	BS1W0920	BS1W0920.D	09/23/13	1652

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2781

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 09/24/13

Lab File ID: T1-0924.D

DFTPP Injection Time: 1151

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	44752	(41.7)	
68	less than 2% of mass 69	724	(1.6)	
69	mass 69 relative abundance	44728	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	52896	(49.3)	
197	less than 1% of mass 198	564	(0.5)	
198	base peak, 100% relative abundance	107368	(100.0)	
199	5% to 9% of mass 198	7162	(6.7)	
275	10% to 30% of mass 198	29648	(27.6)	
365	greater than 1% of mass 198	3094	(2.9)	
441	present, but less than mass 443	11423	(69.8)	
442	greater than 40% of mass 198	80448	(74.9)	
443	17% to 23% of mass 442	16356	(20.3)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0924	CV1-0924	CV1-0924.D	09/24/13	1225
2	RECON ID 019-CH2M Run	M278101DL	M278101DL2.	09/24/13	1339
3	RECON ID 020-CH2M Run	M278102DL	M278102DL2.	09/24/13	1416
4	RECON ID 021-CH2M Run	M278103DL	M278103DL2.	09/24/13	1453
5	RECON ID 022-CH2M Run	M278104DL	M278104DL2.	09/24/13	1530
6	RECON ID 019-CH2M Run	M278101	M278101DL.D	09/24/13	1835
7	RECON ID 020-CH2M Run	M278102	M278102DL.D	09/24/13	1912
8	RECON ID 021-CH2M Run	M278103	M278103DL.D	09/24/13	1949
9	RECON ID 022-CH2M Run	M278104	M278104DL.D	09/24/13	2026

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs:	LEVEL1	LEVEL2	LEVEL3	LEVEL4	LEVEL5	LEVEL6
ICAL File IDs:	LEVEL1.D	LEVEL2.D	LEVEL3.D	LEVEL4.D	LEVEL5.D	LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
N-Nitrosodimethylamine	5	0.673	20	0.731	50	0.720	80	0.717	120	0.722	160	0.701
Pyridine	5	1.221	20	1.282	50	1.221	80	1.235	120	1.234	160	1.212
2-Fluorophenol	5	1.074	20	1.161	50	1.150	80	1.154	120	1.169	160	1.138
Aniline	5	1.735	20	1.816	50	1.819	80	1.788	120	1.827	160	1.694
Phenol-d5	5	1.338	20	1.434	50	1.419	80	1.399	120	1.422	160	1.377
Phenol#	5	1.373	20	1.441	50	1.416	80	1.397	120	1.408	160	1.365
bis(2-Chloroethyl)ether	5	0.834	20	0.854	50	0.810	80	0.874	120	0.810	160	0.844
2-Chlorophenol	5	1.086	20	1.165	50	1.157	80	1.162	120	1.179	160	1.153
1,3-Dichlorobenzene	5	1.240	20	1.268	50	1.241	80	1.254	120	1.262	160	1.235
1,4-Dichlorobenzene#	5	1.293	20	1.313	50	1.292	80	1.299	120	1.308	160	1.273
Benzyl alcohol	5	0.666	20	0.757	50	0.769	80	0.772	120	0.781	160	0.763
1,2-Dichlorobenzene	5	1.209	20	1.240	50	1.212	80	1.193	120	1.208	160	1.155
2-Methylphenol	5	0.899	20	0.953	50	0.938	80	0.916	120	0.925	160	0.889
bis(2-Chloroisopropyl)ether	5	1.942	20	2.016	50	1.890	80	1.847	120	1.832	160	1.733
3-,4-Methylphenol	5	1.132	20	1.216	50	1.210	80	1.208	120	1.225	160	1.197
N-Nitroso-di-n-propylamine*	5	0.821	20	0.892	50	0.872	80	0.861	120	0.869	160	0.843
Hexachloroethane	5	0.434	20	0.454	50	0.452	80	0.455	120	0.456	160	0.447
Benzoic Acid	5	0.192	20	0.633	50	0.802	80	0.903	120	0.933	160	0.945
Nitrobenzene-d5	5	0.277	20	0.302	50	0.290	80	0.289	120	0.289	160	0.280
Nitrobenzene	5	0.267	20	0.283	50	0.272	80	0.269	120	0.268	160	0.259
Isophorone	5	0.456	20	0.508	50	0.496	80	0.497	120	0.498	160	0.483
2-Nitrophenol#	5	0.128	20	0.148	50	0.149	80	0.153	120	0.156	160	0.152
2,4-Dimethylphenol	5	0.189	20	0.266	50	0.267	80	0.270	120	0.272	160	0.264
bis(2-Chloroethoxy)methane	5	0.301	20	0.312	50	0.303	80	0.302	120	0.304	160	0.292
2,4-Dichlorophenol#	5	0.187	20	0.209	50	0.215	80	0.224	120	0.228	160	0.221
1,2,4-Trichlorobenzene	5	0.235	20	0.244	50	0.241	80	0.245	120	0.249	160	0.244
Naphthalene	5	0.799	20	0.822	50	0.780	80	0.771	120	0.775	160	0.738
4-Chloroaniline	5	0.322	20	0.344	50	0.335	80	0.334	120	0.341	160	0.325
Hexachlorobutadiene#	5	0.140	20	0.147	50	0.148	80	0.154	120	0.156	160	0.154
4-Chloro-3-methyl phenol#	5	0.192	20	0.219	50	0.265	80	0.303	120	0.310	160	0.293

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs:	LEVEL1	LEVEL2	LEVEL3	LEVEL4	LEVEL5	LEVEL6
ICAL File IDs:	LEVEL1.D	LEVEL2.D	LEVEL3.D	LEVEL4.D	LEVEL5.D	LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
2-Methylnaphthalene	5	0.521	20	0.537	50	0.526	80	0.524	120	0.531	160	0.512
Hexachlorocyclopentadiene*	5	0.166	20	0.220	50	0.238	80	0.255	120	0.262	160	0.262
2,4,6-Trichlorophenol#	5	0.232	20	0.269	50	0.276	80	0.285	120	0.293	160	0.290
2,4,5-Trichlorophenol	5	0.236	20	0.270	50	0.280	80	0.294	120	0.298	160	0.300
2-Fluorobiphenyl	5	0.980	20	1.022	50	0.998	80	1.007	120	1.014	160	0.983
2-Chloronaphthalene	5	0.790	20	0.830	50	0.809	80	0.813	120	0.819	160	0.805
2-Nitroaniline	5	0.227	20	0.287	50	0.295	80	0.303	120	0.309	160	0.304
Dimethylphthalate	5	0.876	20	0.920	50	0.898	80	0.907	120	0.921	160	0.902
Acenaphthylene	5	1.289	20	1.393	50	1.351	80	1.356	120	1.370	160	1.331
2,6-Dinitrotoluene	5	0.194	20	0.218	50	0.219	80	0.224	120	0.227	160	0.224
Acenaphthene#	5	0.851	20	0.883	50	0.853	80	0.846	120	0.853	160	0.826
2,4-Dinitrophenol*	5	0.057	20	0.111	50	0.139	80	0.161	120	0.169	160	0.172
4-Nitrophenol*	5	0.132	20	0.186	50	0.203	80	0.210	120	0.216	160	0.215
2,4-Dinitrotoluene	5	0.239	20	0.288	50	0.291	80	0.297	120	0.304	160	0.298
Dibenzofuran	5	1.200	20	1.240	50	1.209	80	1.220	120	1.225	160	1.197
Diethylphthalate	5	0.857	20	0.922	50	0.905	80	0.912	120	0.921	160	0.895
3-Nitroaniline	5	0.209	20	0.250	50	0.254	80	0.258	120	0.262	160	0.259
Fluorene	5	0.938	20	0.988	50	0.972	80	0.977	120	0.982	160	0.954
4-Chlorophenyl phenyl ether	5	0.455	20	0.470	50	0.468	80	0.475	120	0.480	160	0.469
4-Nitroaniline	5	0.210	20	0.262	50	0.266	80	0.272	120	0.277	160	0.273
4,6-Dinitro-2-methyl phenol	5	0.060	20	0.095	50	0.109	80	0.119	120	0.124	160	0.125
N-Nitrosodiphenylamine#	5	0.459	20	0.495	50	0.491	80	0.493	120	0.503	160	0.491
1,2-Diphenylhydrazine	5	0.546	20	0.586	50	0.565	80	0.556	120	0.556	160	0.536
2,4,6-Tribromophenol	5	0.056	20	0.074	50	0.080	80	0.086	120	0.090	160	0.092
4-Bromophenyl phenyl ether	5	0.140	20	0.154	50	0.159	80	0.165	120	0.169	160	0.168
Hexachlorobenzene	5	0.154	20	0.162	50	0.165	80	0.171	120	0.176	160	0.175
Pentachlorophenol#	5	0.052	20	0.095	50	0.115	80	0.129	120	0.136	160	0.138
Phenanthrene	5	0.786	20	0.810	50	0.791	80	0.794	120	0.803	160	0.783
Anthracene	5	0.761	20	0.822	50	0.813	80	0.823	120	0.834	160	0.802
Carbazole	5	0.718	20	0.784	50	0.776	80	0.782	120	0.794	160	0.770

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs: LEVEL1 LEVEL2 LEVEL3 LEVEL4 LEVEL5 LEVEL6

ICAL File IDs: LEVEL1.D LEVEL2.D LEVEL3.D LEVEL4.D LEVEL5.D LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
Di-n-butylphthalate	5	0.677	20	0.841	50	0.849	80	0.859	120	0.865	160	0.834
Fluoranthene#	5	0.784	20	0.856	50	0.858	80	0.871	120	0.875	160	0.851
Pyrene	5	0.791	20	0.844	50	0.825	80	0.815	120	0.829	160	0.800
Terphenyl-d14	5	0.578	20	0.616	50	0.618	80	0.611	120	0.623	160	0.602
Butylbenzylphthalate	5	0.251	20	0.346	50	0.361	80	0.366	120	0.369	160	0.357
Benzo(a)anthracene	5	0.802	20	0.828	50	0.815	80	0.819	120	0.825	160	0.808
3,3'-Dichlorobenzidine	5	0.218	20	0.288	50	0.307	80	0.317	120	0.327	160	0.321
Chrysene	5	0.774	20	0.790	50	0.776	80	0.769	120	0.784	160	0.755
bis(2-Ethylhexyl)phthalate	5	0.407	20	0.516	50	0.528	80	0.526	120	0.538	160	0.512
Di-n-octylphthalate#	5	0.560	20	0.815	50	0.870	80	0.890	120	0.917	160	0.864
Benzo(b)fluoroanthene	5	0.711	20	0.748	50	0.785	80	0.788	120	0.855	160	0.809
Benzo(k)fluoranthene	5	0.713	20	0.796	50	0.789	80	0.804	120	0.805	160	0.811
Benzo(a)pyrene#	5	0.634	20	0.712	50	0.731	80	0.748	120	0.781	160	0.764
Indeno(1,2,3-c,d)pyrene	5	0.737	20	0.821	50	0.841	80	0.865	120	0.908	160	0.900
Dibenzo(a,h)anthracene	5	0.648	20	0.706	50	0.731	80	0.752	120	0.787	160	0.779
Benzo(g,h,i)perylene	5	0.634	20	0.698	50	0.717	80	0.733	120	0.770	160	0.768

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
N-Nitrosodimethylamine	AVG	0.711	2.94	6.84			
Pyridine	AVG	1.234	2.02	6.84			
2-Fluorophenol	AVG	1.141	3.02	6.84			
Aniline	AVG	1.780	3.02	6.84			
Phenol-d5	AVG	1.398	2.55	6.84			
Phenol#	AVG	1.400	2.02	6.84			
bis(2-Chloroethyl)ether	AVG	0.838	3.00	6.84			
2-Chlorophenol	AVG	1.150	2.85	6.84			
1,3-Dichlorobenzene	AVG	1.250	1.08	6.84			
1,4-Dichlorobenzene#	AVG	1.296	1.07	6.84			
Benzyl alcohol	AVG	0.751	5.67	6.84			
1,2-Dichlorobenzene	AVG	1.203	2.34	6.84			
2-Methylphenol	AVG	0.920	2.59	6.84			
bis(2-Chloroisopropyl)ether	AVG	1.877	5.17	6.84			
3-,4-Methylphenol	AVG	1.198	2.82	6.84			
N-Nitroso-di-n-propylamine*	AVG	0.860	2.86	6.84			
Hexachloroethane	AVG	0.450	1.90	6.84			
Benzoic Acid	LINR	0.735			0.999		
Nitrobenzene-d5	AVG	0.288	3.05	6.84			
Nitrobenzene	AVG	0.270	2.86	6.84			
Isophorone	AVG	0.490	3.70	6.84			
2-Nitrophenol#	AVG	0.148	6.78	6.84			
2,4-Dimethylphenol	AVG	0.255	12.6	6.84			
bis(2-Chloroethoxy)methane	AVG	0.302	2.19	6.84			
2,4-Dichlorophenol#	AVG	0.214	6.89	6.84			
1,2,4-Trichlorobenzene	AVG	0.243	1.93	6.84			
Naphthalene	AVG	0.781	3.63	6.84			
4-Chloroaniline	AVG	0.334	2.61	6.84			
Hexachlorobutadiene#	AVG	0.150	3.97	6.84			
4-Chloro-3-methyl phenol#	LINR	0.264			0.998		

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
2-Methylnaphthalene	AVG	0.525	1.63	6.84			
Hexachlorocyclopentadiene*	LINR	0.234			1.000		
2,4,6-Trichlorophenol#	AVG	0.274	8.22	6.84			
2,4,5-Trichlorophenol	AVG	0.280	8.66	6.84			
2-Fluorobiphenyl	AVG	1.000	1.69	6.84			
2-Chloronaphthalene	AVG	0.811	1.66	6.84			
2-Nitroaniline	AVG	0.287	10.7	6.84			
Dimethylphthalate	AVG	0.904	1.84	6.84			
Acenaphthylene	AVG	1.348	2.63	6.84			
2,6-Dinitrotoluene	AVG	0.218	5.53	6.84			
Acenaphthene#	AVG	0.852	2.18	6.84			
2,4-Dinitrophenol*	LINR	0.135			0.998		
4-Nitrophenol*	LINR	0.194			1.000		
2,4-Dinitrotoluene	AVG	0.286	8.30	6.84			
Dibenzofuran	AVG	1.215	1.35	6.84			
Diethylphthalate	AVG	0.902	2.71	6.84			
3-Nitroaniline	AVG	0.249	8.03	6.84			
Fluorene	AVG	0.969	1.95	6.84			
4-Chlorophenyl phenyl ether	AVG	0.470	1.83	6.84			
4-Nitroaniline	AVG	0.260	9.74	6.84			
4,6-Dinitro-2-methyl phenol	LINR	0.105			0.999		
N-Nitrosodiphenylamine#	AVG	0.489	3.07	6.84			
1,2-Diphenylhydrazine	AVG	0.558	3.09	6.84			
2,4,6-Tribromophenol	LINR	0.080			0.999		
4-Bromophenyl phenyl ether	AVG	0.159	6.77	6.84			
Hexachlorobenzene	AVG	0.167	5.16	6.84			
Pentachlorophenol#	LINR	0.111			0.999		
Phenanthrene	AVG	0.795	1.30	6.84			
Anthracene	AVG	0.809	3.20	6.84			
Carbazole	AVG	0.771	3.53	6.84			

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
Di-n-butylphthalate	AVG	0.821	8.73	6.84			
Fluoranthene#	AVG	0.849	3.92	6.84			
Pyrene	AVG	0.817	2.40	6.84			
Terphenyl-d14	AVG	0.608	2.68	6.84			
Butylbenzylphthalate	AVG	0.342	13.3	6.84			
Benzo(a)anthracene	AVG	0.816	1.21	6.84			
3,3'-Dichlorobenzidine	AVG	0.297	13.8	6.84			
Chrysene	AVG	0.775	1.59	6.84			
bis(2-Ethylhexyl)phthalate	AVG	0.504	9.64	6.84			
Di-n-octylphthalate#	LINR	0.819			0.998		
Benzo(b)fluoroanthene	AVG	0.783	6.33	6.84			
Benzo(k)fluoranthene	AVG	0.786	4.66	6.84			
Benzo(a)pyrene#	AVG	0.728	7.16	6.84			
Indeno(1,2,3-c,d)pyrene	AVG	0.845	7.40	6.84			
Dibenzo(a,h)anthracene	AVG	0.734	7.05	6.84			
Benzo(g,h,i)perylene	AVG	0.720	7.03	6.84			

* SPCC # CCC

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/18/13 2241

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

2nd Source ICV-0918 Init. Calib. Time(s): 1859 2204

Lab File ID: ICV-0918.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	50.5	0.717	0.500	0.9	30	
Pyridine	50.0	48.0	1.186	0.500	-4	30	
Aniline	50.0	46.3	1.649	0.500	-7	30	
Phenol#	50.0	50.6	1.416	0.050	1	30	
bis(2-Chloroethyl)ether	50.0	49.8	0.834	0.050	-0.4	30	
2-Chlorophenol	50.0	50.9	1.171	0.050	2	30	
1,3-Dichlorobenzene	50.0	50.9	1.273	0.050	2	30	
1,4-Dichlorobenzene#	50.0	50.1	1.298	0.050	0.1	30	
Benzyl alcohol	50.0	50.5	0.758	0.050	0.9	30	
1,2-Dichlorobenzene	50.0	50.6	1.218	0.050	1	30	
2-Methylphenol	50.0	50.9	0.937	0.050	2	30	
bis(2-Chloroisopropyl)ether	50.0	52.0	1.952	0.050	4	30	
3-,4-Methylphenol	50.0	51.2	1.227	0.050	2	30	
N-Nitroso-di-n-propylamine*	50.0	50.2	0.864	0.050	0.5	30	
Hexachloroethane	50.0	52.0	0.468	0.050	4	30	
Benzoic Acid	50.0	51.6	0.887	0.050	3	30	
Nitrobenzene	50.0	51.1	0.276	0.050	2	30	
Isophorone	50.0	49.6	0.485	0.050	-0.9	30	
2-Nitrophenol#	50.0	51.6	0.152	0.050	3	30	
2,4-Dimethylphenol	50.0	50.4	0.257	0.050	0.8	30	
bis(2-Chloroethoxy)methane	50.0	51.1	0.309	0.050	2	30	
2,4-Dichlorophenol#	50.0	51.1	0.219	0.050	2	30	
1,2,4-Trichlorobenzene	50.0	50.0	0.243	0.050	0.0	30	
Naphthalene	50.0	50.7	0.791	0.050	1	30	
4-Chloroaniline	50.0	49.1	0.327	0.050	-2	30	
Hexachlorobutadiene#	50.0	47.5	0.142	0.050	-5	30	
4-Chloro-3-methyl phenol#	50.0	45.6	0.258	0.050	-9	30	
2-Methylnaphthalene	50.0	51.1	0.537	0.050	2	30	
Hexachlorocyclopentadiene*	50.0	46.2	0.229	0.050	-8	30	
2,4,6-Trichlorophenol#	50.0	50.9	0.279	0.050	2	30	
2,4,5-Trichlorophenol	50.0	49.9	0.279	0.050	-0.2	30	
2-Chloronaphthalene	50.0	51.5	0.835	0.050	3	30	
2-Nitroaniline	50.0	51.7	0.297	0.050	3	30	
Dimethylphthalate	50.0	52.8	0.954	0.050	6	30	
Acenaphthylene	50.0	48.0	1.293	0.050	-4	30	

* SPCC # CCC

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/18/13 2241

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

2nd Source ICV-0918 Init. Calib. Time(s): 1859 2204

Lab File ID: ICV-0918.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2,6-Dinitrotoluene	50.0	52.0	0.226	0.050	4	30	
Acenaphthene#	50.0	50.0	0.852	0.050	0.1	30	
2,4-Dinitrophenol*	50.0	47.1	0.143	0.050	-6	30	
4-Nitrophenol*	50.0	49.0	0.202	0.050	-2	30	
2,4-Dinitrotoluene	50.0	52.4	0.300	0.050	5	30	
Dibenzofuran	50.0	48.5	1.177	0.050	-3	30	
Diethylphthalate	50.0	52.5	0.947	0.050	5	30	
3-Nitroaniline	50.0	52.2	0.260	0.050	4	30	
Fluorene	50.0	51.8	1.003	0.050	4	30	
4-Chlorophenyl phenyl ether	50.0	52.1	0.490	0.050	4	30	
4-Nitroaniline	50.0	51.1	0.266	0.050	2	30	
4,6-Dinitro-2-methyl phenol	50.0	45.9	0.105	0.050	-8	30	
N-Nitrosodiphenylamine#	50.0	49.6	0.484	0.050	-0.8	30	
1,2-Diphenylhydrazine	50.0	48.8	0.544	0.500	-2	30	
4-Bromophenyl phenyl ether	50.0	51.2	0.163	0.050	2	30	
Hexachlorobenzene	50.0	51.4	0.172	0.050	3	30	
Pentachlorophenol#	50.0	41.7	0.101	0.050	-17	30	
Phenanthrene	50.0	50.8	0.807	0.050	2	30	
Anthracene	50.0	50.8	0.822	0.050	2	30	
Carbazole	50.0	49.6	0.765	0.050	-0.7	30	
Di-n-butylphthalate	50.0	55.7	0.915	0.050	11	30	
Fluoranthene#	50.0	52.6	0.893	0.050	5	30	
Pyrene	50.0	52.8	0.863	0.050	6	30	
Butylbenzylphthalate	50.0	55.0	0.376	0.050	10	30	
Benzo(a)anthracene	50.0	52.0	0.849	0.050	4	30	
3,3'-Dichlorobenzidine	50.0	55.6	0.330	0.050	11	30	
Chrysene	50.0	50.0	0.775	0.050	0.0	30	
bis(2-Ethylhexyl)phthalate	50.0	54.1	0.546	0.050	8	30	
Di-n-octylphthalate#	50.0	52.1	0.911	0.050	4	30	
Benzo(b)fluoroanthene	50.0	51.9	0.812	0.050	4	30	
Benzo(k)fluoranthene	50.0	54.6	0.859	0.050	9	30	
Benzo(a)pyrene#	50.0	54.2	0.790	0.050	8	30	
Indeno(1,2,3-c,d)pyrene	50.0	53.4	0.903	0.050	7	30	
Dibenzo(a,h)anthracene	50.0	52.2	0.766	0.050	4	30	
Benzo(g,h,i)perylene	50.0	51.7	0.744	0.050	3	30	

* SPCC # CCC

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/18/13 2241

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 / /

2nd Source ICV-0918 Init. Calib. Time(s): 1859

Lab File ID: ICV-0918.D GC Column: ID: (mm)

Heat Purge:(Y/N) N Concentration Units:

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/23/13 1424

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0923.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	48.6	0.691	0.500	-3	20	
Pyridine	50.0	48.3	1.192	0.500	-3	20	
2-Fluorophenol	50.0	49.7	1.134	0.050	-0.6	20	
Aniline	50.0	50.8	1.807	0.500	2	20	
Phenol-d5	50.0	49.9	1.395	0.050	-0.2	20	
Phenol#	50.0	50.3	1.408	0.050	0.6	20	
bis(2-Chloroethyl)ether	50.0	47.5	0.795	0.050	-5	20	
2-Chlorophenol	50.0	49.6	1.141	0.050	-0.8	20	
1,3-Dichlorobenzene	50.0	49.1	1.228	0.050	-2	20	
1,4-Dichlorobenzene#	50.0	49.6	1.284	0.050	-0.9	20	
Benzyl alcohol	50.0	50.2	0.754	0.050	0.3	20	
1,2-Dichlorobenzene	50.0	50.7	1.219	0.050	1	20	
2-Methylphenol	50.0	51.4	0.945	0.050	3	20	
bis(2-Chloroisopropyl)ether	50.0	50.4	1.893	0.050	0.9	20	
3-,4-Methylphenol	50.0	50.4	1.207	0.050	0.8	20	
N-Nitroso-di-n-propylamine*	50.0	50.9	0.875	0.050	2	20	
Hexachloroethane	50.0	50.1	0.451	0.050	0.2	20	
Benzoic Acid	50.0	44.8	0.754	0.050	-10	20	
Nitrobenzene-d5	50.0	50.3	0.290	0.050	0.6	20	
Nitrobenzene	50.0	50.0	0.270	0.050	0.1	20	
Isophorone	50.0	50.4	0.494	0.050	0.9	20	
2-Nitrophenol#	50.0	50.8	0.150	0.050	2	20	
2,4-Dimethylphenol	50.0	52.7	0.268	0.050	5	20	
bis(2-Chloroethoxy)methane	50.0	49.5	0.299	0.050	-1	20	
2,4-Dichlorophenol#	50.0	50.7	0.217	0.050	1	20	
1,2,4-Trichlorobenzene	50.0	50.0	0.243	0.050	0.0	20	
Naphthalene	50.0	49.4	0.771	0.050	-1	20	
4-Chloroaniline	50.0	48.8	0.326	0.050	-2	20	
Hexachlorobutadiene#	50.0	50.8	0.152	0.050	2	20	
4-Chloro-3-methyl phenol#	50.0	46.9	0.266	0.050	-6	20	
2-Methylnaphthalene	50.0	50.4	0.529	0.050	0.8	20	
Hexachlorocyclopentadiene*	50.0	48.2	0.239	0.050	-4	20	
2,4,6-Trichlorophenol#	50.0	50.8	0.278	0.050	2	20	
2,4,5-Trichlorophenol	50.0	50.3	0.281	0.050	0.6	20	
2-Fluorobiphenyl	50.0	49.5	0.990	0.050	-1	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/23/13 1424

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0923.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2-Chloronaphthalene	50.0	49.5	0.802	0.050	-1	20	
2-Nitroaniline	50.0	50.1	0.288	0.050	0.2	20	
Dimethylphthalate	50.0	49.7	0.899	0.050	-0.5	20	
Acenaphthylene	50.0	49.6	1.336	0.050	-0.9	20	
2,6-Dinitrotoluene	50.0	49.7	0.217	0.050	-0.5	20	
Acenaphthene#	50.0	49.7	0.847	0.050	-0.6	20	
2,4-Dinitrophenol*	50.0	46.3	0.140	0.050	-8	20	
4-Nitrophenol*	50.0	48.4	0.200	0.050	-3	20	
2,4-Dinitrotoluene	50.0	50.3	0.288	0.050	0.5	20	
Dibenzofuran	50.0	49.4	1.199	0.050	-1	20	
Diethylphthalate	50.0	50.5	0.911	0.050	1.0	20	
3-Nitroaniline	50.0	49.6	0.247	0.050	-0.8	20	
Fluorene	50.0	50.4	0.977	0.050	0.8	20	
4-Chlorophenyl phenyl ether	50.0	50.7	0.476	0.050	1	20	
4-Nitroaniline	50.0	50.4	0.262	0.050	0.7	20	
4,6-Dinitro-2-methyl phenol	50.0	46.5	0.107	0.050	-7	20	
N-Nitrosodiphenylamine#	50.0	49.2	0.481	0.050	-2	20	
1,2-Diphenylhydrazine	50.0	49.7	0.555	0.500	-0.5	20	
2,4,6-Tribromophenol	50.0	47.7	0.081	0.050	-5	20	
4-Bromophenyl phenyl ether	50.0	49.2	0.157	0.050	-2	20	
Hexachlorobenzene	50.0	49.7	0.166	0.050	-0.6	20	
Pentachlorophenol#	50.0	44.5	0.109	0.050	-11	20	
Phenanthrene	50.0	49.2	0.783	0.050	-2	20	
Anthracene	50.0	49.6	0.802	0.050	-0.9	20	
Carbazole	50.0	49.2	0.758	0.050	-2	20	
Di-n-butylphthalate	50.0	51.0	0.838	0.050	2	20	
Fluoranthene#	50.0	49.5	0.840	0.050	-1	20	
Pyrene	50.0	50.5	0.825	0.050	1.0	20	
Terphenyl-d14	50.0	50.7	0.616	0.050	1	20	
Butylbenzylphthalate	50.0	51.9	0.355	0.050	4	20	
Benzo(a)anthracene	50.0	50.2	0.819	0.050	0.4	20	
3,3'-Dichlorobenzidine	50.0	51.6	0.306	0.050	3	20	
Chrysene	50.0	49.9	0.773	0.050	-0.2	20	
bis(2-Ethylhexyl)phthalate	50.0	51.8	0.523	0.050	4	20	
Di-n-octylphthalate#	50.0	49.6	0.865	0.050	-0.9	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/23/13 1424

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0923.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Benzo(b)fluoroanthene	50.0	49.5	0.775	0.050	-1	20	
Benzo(k)fluoranthene	50.0	51.0	0.802	0.050	2	20	
Benzo(a)pyrene#	50.0	50.2	0.731	0.050	0.4	20	
Indeno(1,2,3-c,d)pyrene	50.0	49.9	0.843	0.050	-0.3	20	
Dibenzo(a,h)anthracene	50.0	50.1	0.735	0.050	0.1	20	
Benzo(g,h,i)perylene	50.0	49.2	0.708	0.050	-2	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/24/13 1225

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0924.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	49.5	0.703	0.500	-1	20	
Pyridine	50.0	50.4	1.244	0.500	0.8	20	
2-Fluorophenol	50.0	49.9	1.139	0.050	-0.2	20	
Aniline	50.0	50.5	1.798	0.500	1.0	20	
Phenol-d5	50.0	50.3	1.407	0.050	0.6	20	
Phenol#	50.0	51.1	1.430	0.050	2	20	
bis(2-Chloroethyl)ether	50.0	48.2	0.807	0.050	-4	20	
2-Chlorophenol	50.0	49.7	1.142	0.050	-0.7	20	
1,3-Dichlorobenzene	50.0	49.7	1.242	0.050	-0.6	20	
1,4-Dichlorobenzene#	50.0	49.9	1.294	0.050	-0.2	20	
Benzyl alcohol	50.0	52.0	0.781	0.050	4	20	
1,2-Dichlorobenzene	50.0	51.0	1.227	0.050	2	20	
2-Methylphenol	50.0	52.3	0.962	0.050	5	20	
bis(2-Chloroisopropyl)ether	50.0	50.7	1.903	0.050	1	20	
3-,4-Methylphenol	50.0	51.3	1.229	0.050	3	20	
N-Nitroso-di-n-propylamine*	50.0	51.3	0.882	0.050	3	20	
Hexachloroethane	50.0	49.8	0.447	0.050	-0.5	20	
Benzoic Acid	50.0	47.0	0.796	0.050	-6	20	
Nitrobenzene-d5	50.0	50.2	0.289	0.050	0.5	20	
Nitrobenzene	50.0	50.7	0.274	0.050	1	20	
Isophorone	50.0	51.8	0.507	0.050	4	20	
2-Nitrophenol#	50.0	51.1	0.151	0.050	2	20	
2,4-Dimethylphenol	50.0	53.3	0.272	0.050	7	20	
bis(2-Chloroethoxy)methane	50.0	49.8	0.301	0.050	-0.5	20	
2,4-Dichlorophenol#	50.0	52.1	0.223	0.050	4	20	
1,2,4-Trichlorobenzene	50.0	50.3	0.245	0.050	0.6	20	
Naphthalene	50.0	49.7	0.776	0.050	-0.6	20	
4-Chloroaniline	50.0	48.6	0.324	0.050	-3	20	
Hexachlorobutadiene#	50.0	51.8	0.155	0.050	4	20	
4-Chloro-3-methyl phenol#	50.0	42.4	0.239	0.050	-15	20	
2-Methylnaphthalene	50.0	50.3	0.528	0.050	0.6	20	
Hexachlorocyclopentadiene*	50.0	43.5	0.214	0.050	-13	20	
2,4,6-Trichlorophenol#	50.0	50.7	0.278	0.050	1	20	
2,4,5-Trichlorophenol	50.0	51.3	0.287	0.050	3	20	
2-Fluorobiphenyl	50.0	48.8	0.977	0.050	-2	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/24/13 1225

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0924.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2-Chloronaphthalene	50.0	48.7	0.790	0.050	-3	20	
2-Nitroaniline	50.0	50.9	0.293	0.050	2	20	
Dimethylphthalate	50.0	49.9	0.902	0.050	-0.2	20	
Acenaphthylene	50.0	49.1	1.323	0.050	-2	20	
2,6-Dinitrotoluene	50.0	49.7	0.216	0.050	-0.7	20	
Acenaphthene#	50.0	48.9	0.833	0.050	-2	20	
2,4-Dinitrophenol*	50.0	45.4	0.137	0.050	-9	20	
4-Nitrophenol*	50.0	50.1	0.208	0.050	0.3	20	
2,4-Dinitrotoluene	50.0	50.6	0.289	0.050	1	20	
Dibenzofuran	50.0	49.4	1.200	0.050	-1	20	
Diethylphthalate	50.0	50.7	0.914	0.050	1	20	
3-Nitroaniline	50.0	50.3	0.250	0.050	0.5	20	
Fluorene	50.0	50.2	0.972	0.050	0.4	20	
4-Chlorophenyl phenyl ether	50.0	50.7	0.476	0.050	1	20	
4-Nitroaniline	50.0	51.6	0.268	0.050	3	20	
4,6-Dinitro-2-methyl phenol	50.0	45.0	0.103	0.050	-10	20	
N-Nitrosodiphenylamine#	50.0	48.7	0.476	0.050	-3	20	
1,2-Diphenylhydrazine	50.0	49.3	0.550	0.500	-1	20	
2,4,6-Tribromophenol	50.0	49.7	0.085	0.050	-0.7	20	
4-Bromophenyl phenyl ether	50.0	49.5	0.158	0.050	-1	20	
Hexachlorobenzene	50.0	50.0	0.167	0.050	0.1	20	
Pentachlorophenol#	50.0	44.9	0.110	0.050	-10	20	
Phenanthrene	50.0	49.0	0.778	0.050	-2	20	
Anthracene	50.0	49.3	0.798	0.050	-1	20	
Carbazole	50.0	49.3	0.760	0.050	-1	20	
Di-n-butylphthalate	50.0	51.6	0.846	0.050	3	20	
Fluoranthene#	50.0	50.5	0.857	0.050	1.0	20	
Pyrene	50.0	49.5	0.809	0.050	-1.0	20	
Terphenyl-d14	50.0	50.5	0.615	0.050	1	20	
Butylbenzylphthalate	50.0	51.8	0.354	0.050	4	20	
Benzo(a)anthracene	50.0	49.8	0.812	0.050	-0.5	20	
3,3'-Dichlorobenzidine	50.0	50.8	0.301	0.050	2	20	
Chrysene	50.0	49.8	0.771	0.050	-0.5	20	
bis(2-Ethylhexyl)phthalate	50.0	51.7	0.522	0.050	3	20	
Di-n-octylphthalate#	50.0	50.6	0.883	0.050	1	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/24/13 1225

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0924.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Benzo(b)fluoroanthene	50.0	51.4	0.804	0.050	3	20	
Benzo(k)fluoranthene	50.0	49.9	0.785	0.050	-0.2	20	
Benzo(a)pyrene#	50.0	50.4	0.734	0.050	0.8	20	
Indeno(1,2,3-c,d)pyrene	50.0	47.3	0.799	0.050	-5	20	
Dibenzo(a,h)anthracene	50.0	47.7	0.701	0.050	-5	20	
Benzo(g,h,i)perylene	50.0	47.0	0.677	0.050	-6	20	

* SPCC # CCC

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2781

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL3

Date Analyzed: 09/18/13

Lab File ID: LEVEL3.D

Time Analyzed: 2013

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		700210	7.3	3067515	9.03	1808202	12.42
Upper Limit		1400420	7.8	6135030	9.53	3616404	12.92
Lower Limit		350105	6.8	1533758	8.53	904101	11.92
Field Sample ID	Lab Sample ID						
ICV-0918	ICV-0918	656568	7.3	2881673	9.03	1717027	12.42

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8C

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2781

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL3

Date Analyzed: 09/18/13

Lab File ID: LEVEL3.D

Time Analyzed: 2013

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		3130306	15.87	3348173	22.33	3315640	25.6
Upper Limit		6260612	16.37	6696346	22.83	6631280	26.1
Lower Limit		1565153	15.37	1674087	21.83	1657820	25.1
Field Sample ID	Lab Sample ID						
ICV-0918	ICV-0918	2971379	15.87	3131167	22.33	3060783	25.59

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2781

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0923

Date Analyzed: 09/23/13

Lab File ID: CV1-0923.D

Time Analyzed: 1424

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		552641	7.29	2450954	9.01	1489106	12.4
Upper Limit		1105282	7.79	4901908	9.51	2978212	12.9
Lower Limit		276321	6.79	1225477	8.51	744553	11.9
Field Sample ID	Lab Sample ID						
WB1-0920	WB1-0920	675502	7.289	3064980	9.002	1940752	12.38
BS1W0920	BS1W0920	778598	7.289	3514456	9.007	2208753	12.40

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8C

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2781

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0923

Date Analyzed: 09/23/13

Lab File ID: CV1-0923.D

Time Analyzed: 1424

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		2616967	15.84	2762356	22.31	2723170	25.56
Upper Limit		5233934	16.34	5524712	22.81	5446340	26.06
Lower Limit		1308484	15.34	1381178	21.81	1361585	25.06
Field Sample ID	Lab Sample ID						
WB1-0920	WB1-0920	3421530	15.84	3537221	22.29	3581726	25.56
BS1W0920	BS1W0920	3906140	15.85	4290169	22.31	4171252	25.57

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2781

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0924

Date Analyzed: 09/24/13

Lab File ID: CV1-0924.D

Time Analyzed: 1225

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	Reference Cal	556438	7.28	2466523	8.99	1531544	12.38
	Upper Limit	1112876	7.78	4933046	9.49	3063088	12.88
	Lower Limit	278219	6.78	1233262	8.49	765772	11.88
Field Sample ID	Lab Sample ID						
RECON ID 019-CH2M	M278101DL	646522	7.279	2987032	8.992	1946027	12.37
RECON ID 020-CH2M	M278102DL	605701	7.279	2814610	8.992	1860680	12.37
RECON ID 021-CH2M	M278103DL	630792	7.274	2938401	8.992	1946176	12.37
RECON ID 022-CH2M	M278104DL	596219	7.274	2812193	8.992	1874149	12.37
RECON ID 019-CH2M	M278101	535978	7.279	2622114	8.997	1698175	12.37
RECON ID 020-CH2M	M278102	564452	7.279	2711975	8.997	1770848	12.37
RECON ID 021-CH2M	M278103	815848	7.279	3632453	8.997	2277444	12.37
RECON ID 022-CH2M	M278104	836037	7.279	3845907	8.997	2375874	12.37

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2781

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0924

Date Analyzed: 09/24/13

Lab File ID: CV1-0924.D

Time Analyzed: 1225

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		2725830	15.83	2954685	22.29	2856528	25.55
Upper Limit		5451660	16.33	5909370	22.79	5713056	26.05
Lower Limit		1362915	15.33	1477343	21.79	1428264	25.05
Field Sample ID	Lab Sample ID						
RECON ID 019-CH2M	M278101DL	3514483	15.82	3704584	22.28	3797846	25.54
RECON ID 020-CH2M	M278102DL	3368762	15.82	3539625	22.28	3611731	25.54
RECON ID 021-CH2M	M278103DL	3550347	15.82	3735144	22.28	3787174	25.54
RECON ID 022-CH2M	M278104DL	3424538	15.82	3603029	22.28	3655295	25.54
RECON ID 019-CH2M	M278101	3052389	15.83	3240675	22.28	3289235	25.54
RECON ID 020-CH2M	M278102	3183953	15.83	3371907	22.28	3405159	25.54
RECON ID 021-CH2M	M278103	4038514	15.83	4261598	22.29	4314862	25.55
RECON ID 022-CH2M	M278104	4214899	15.83	4441856	22.29	4458571	25.55

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8270C
Matrix: Water

Instrument ID: MSW
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
N-Nitrosodimethylamine	10/01/11	3.00	1.07	0.910	1.10	0.990	0.520	0.770	0.700	0.610	0.216	2.00
Pyridine	10/01/11	3.00	0.800	0.760	0.870	0.630	0.230	0.530	0.640	0.470	0.206	2.00
Aniline	10/01/11	5.00	2.70	2.34	2.96	2.73	2.70	2.68	2.66	3.17	0.241	2.00
Phenol	10/01/11	9.00	2.83	2.70	3.25	2.59	2.23	2.22	2.71	2.45	0.338	2.00
bis(2-Chloroethyl)ether	10/01/11	3.00	2.27	2.01	2.07	2.10	1.92	1.94	2.35	2.13	0.151	2.00
2-Chlorophenol	10/01/11	9.00	5.77	4.95	5.62	5.40	4.89	4.93	5.99	5.28	0.417	2.00
1,3-Dichlorobenzene	10/01/11	3.00	1.87	1.65	1.58	1.64	1.51	1.50	1.73	1.53	0.126	2.00
1,4-Dichlorobenzene	10/01/11	3.00	1.81	1.59	1.62	1.63	1.51	1.52	1.78	1.56	0.112	2.00
Benzyl alcohol	10/01/11	3.00	1.85	1.46	1.74	1.56	1.50	1.57	1.79	1.67	0.142	2.00
1,2-Dichlorobenzene	10/01/11	3.00	1.86	1.60	1.60	1.60	1.57	1.58	1.77	1.57	0.109	2.00
2-Methylphenol	10/01/11	9.00	5.88	4.90	5.56	5.20	4.78	4.69	5.63	4.99	0.439	2.00
bis(2-Chloroisopropyl)ether	10/01/11	3.00	2.20	1.90	1.99	1.99	1.90	1.99	2.26	2.08	0.132	2.00
3-,4-Methylphenol	10/01/11	9.00	5.26	4.70	5.27	4.86	4.30	4.31	5.22	4.55	0.410	2.00
N-Nitroso-di-n-propylamine	10/01/11	3.00	1.91	1.71	1.86	1.76	1.68	1.69	2.01	1.76	0.118	2.00
Hexachloroethane	10/01/11	3.00	1.64	1.36	1.47	1.40	1.37	1.46	1.65	1.35	0.121	2.00
Benzoic Acid	10/01/11	3.00	6.46	6.48	6.73	6.34	6.47	6.43	6.31	6.39	0.128	2.00
Nitrobenzene	10/01/11	3.00	1.87	1.62	1.77	1.70	1.55	1.64	1.91	1.68	0.124	2.00
Isophorone	10/01/11	3.00	1.67	1.42	1.54	1.45	1.33	1.46	1.64	1.43	0.116	2.00
2-Nitrophenol	10/01/11	9.00	5.12	4.63	4.93	4.71	3.85	4.25	5.43	4.78	0.492	2.00
2,4-Dimethylphenol	10/01/11	9.00	6.19	5.41	6.01	5.67	4.99	5.34	6.34	5.47	0.465	2.00
bis(2-Chloroethoxy)methane	10/01/11	3.00	2.10	1.87	1.97	1.81	1.79	1.87	2.16	1.95	0.133	2.00
2,4-Dichlorophenol	10/01/11	9.00	5.26	4.61	5.27	4.98	4.19	4.51	5.60	4.82	0.464	2.00
1,2,4-Trichlorobenzene	10/01/11	3.00	1.79	1.57	1.64	1.56	1.46	1.53	1.75	1.60	0.111	2.00
Naphthalene	10/01/11	3.00	2.00	1.76	1.78	1.68	1.57	1.70	1.96	1.77	0.142	2.00
4-Chloroaniline	10/01/11	3.00	1.90	1.66	1.81	1.67	1.63	1.67	1.99	1.77	0.130	2.00
Hexachlorobutadiene	10/01/11	3.00	1.98	1.70	1.79	1.69	1.57	1.63	1.83	1.64	0.132	2.00
4-Chloro-3-methyl phenol	10/01/11	9.00	5.63	4.92	5.57	5.12	4.58	5.03	5.72	5.12	0.396	2.00
2-Methylnaphthalene	10/01/11	3.00	1.91	1.62	1.70	1.62	1.54	1.66	1.86	1.69	0.125	2.00
Hexachlorocyclopentadiene	10/01/11	5.00	7.07	6.91	7.18	7.29	7.23	7.29	7.22	7.50	0.172	2.00
2,4,6-Trichlorophenol	10/01/11	9.00	5.08	4.48	4.86	4.59	3.70	4.27	5.24	4.36	0.492	2.00
2,4,5-Trichlorophenol	10/01/11	9.00	5.41	4.97	5.47	4.80	3.89	4.48	5.36	4.68	0.542	2.00
2-Chloronaphthalene	10/01/11	3.00	1.86	1.59	1.68	1.52	1.46	1.59	1.75	1.59	0.129	2.00
2-Nitroaniline	10/01/11	3.00	3.56	3.41	3.50	3.35	3.32	3.42	3.61	3.34	0.107	2.00
Dimethylphthalate	10/01/11	3.00	2.23	1.87	1.99	1.88	1.79	2.04	2.14	2.02	0.146	2.00
Acenaphthylene	10/01/11	3.00	1.88	1.65	1.70	1.61	1.50	1.66	1.83	1.71	0.120	2.00
2,6-Dinitrotoluene	10/01/11	3.00	4.69	4.52	4.58	4.56	4.44	4.59	4.77	4.47	0.110	2.00
Acenaphthene	10/01/11	3.00	1.92	1.76	1.80	1.69	1.59	1.78	1.96	1.81	0.118	2.00
2,4-Dinitrophenol	10/01/11	9.00	10.0	9.58	10.2	9.91	8.92	9.78	9.95	9.60	0.391	2.00
4-Nitrophenol	10/01/11	9.00	5.48	5.45	5.87	5.50	4.83	5.11	5.10	5.00	0.339	2.00
2,4-Dinitrotoluene	10/01/11	3.00	3.93	3.64	3.78	3.76	3.54	3.77	3.81	3.62	0.124	2.00
Dibenzofuran	10/01/11	3.00	2.02	1.81	1.84	1.73	1.71	1.86	2.05	1.82	0.123	2.00

MDL FORM

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8270C
Matrix: Water

Instrument ID: MSW
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates								Std. Dev.	DL
			1	2	3	4	5	6	7	8		
Diethylphthalate	10/01/11	3.00	2.47	2.04	2.15	2.09	1.94	2.20	2.34	2.12	0.169	2.00
3-Nitroaniline	10/01/11	3.00	3.79	3.43	3.47	3.60	3.40	3.61	3.53	3.41	0.133	2.00
Fluorene	10/01/11	3.00	1.86	1.63	1.76	1.66	1.52	1.76	1.90	1.80	0.126	2.00
4-Chlorophenyl phenyl ether	10/01/11	3.00	1.86	1.68	1.63	1.58	1.51	1.84	1.88	1.76	0.139	2.00
4-Nitroaniline	10/01/11	3.00	4.08	3.83	3.91	3.93	3.73	3.92	3.99	3.86	0.105	2.00
4,6-Dinitro-2-methyl phenol	10/01/11	9.00	9.08	8.45	8.96	8.97	7.71	8.43	8.87	8.34	0.460	2.00
N-Nitrosodiphenylamine	10/01/11	3.00	2.49	2.19	2.39	2.24	2.06	2.33	2.44	2.24	0.142	2.00
1,2-Diphenylhydrazine	10/01/11	3.00	1.93	1.70	1.79	1.68	1.53	1.78	1.89	1.66	0.130	2.00
4-Bromophenyl phenyl ether	10/01/11	3.00	1.97	1.68	1.77	1.70	1.50	1.71	1.78	1.74	0.130	2.00
Hexachlorobenzene	10/01/11	3.00	2.06	1.77	1.89	1.73	1.72	1.93	2.09	1.81	0.143	2.00
Pentachlorophenol	10/01/11	9.00	7.87	6.74	7.46	7.39	5.78	6.73	7.34	6.80	0.644	2.00
Phenanthrene	10/01/11	3.00	2.33	2.02	2.06	2.00	1.98	2.10	2.25	2.09	0.124	2.00
Anthracene	10/01/11	3.00	2.07	1.80	1.89	1.80	1.75	1.94	2.00	1.84	0.110	2.00
Carbazole	10/01/11	3.00	2.16	1.86	1.93	1.89	1.70	2.00	2.13	1.96	0.148	2.00
Di-n-butylphthalate	10/01/11	3.00	5.46	5.20	5.32	5.26	5.10	5.31	5.38	5.20	0.114	2.00
Fluoranthene	10/01/11	3.00	2.20	1.86	1.99	1.88	1.80	1.97	2.15	1.87	0.144	2.00
Pyrene	10/01/11	3.00	2.33	2.04	2.10	2.04	1.95	2.08	2.35	2.17	0.142	2.00
Butylbenzylphthalate	10/01/11	5.00	5.44	5.22	5.50	6.03	5.61	5.52	5.44	5.55	0.230	2.00
Benzo(a)anthracene	10/01/11	3.00	2.38	2.07	2.18	2.09	1.90	2.18	2.29	2.13	0.145	2.00
3,3'-Dichlorobenzidine	10/01/11	3.00	5.56	5.25	5.30	5.24	5.15	5.28	5.34	5.22	0.122	2.00
Chrysene	10/01/11	3.00	2.24	2.03	2.10	1.98	1.87	2.05	2.17	2.15	0.117	2.00
bis(2-Ethylhexyl)phthalate	10/01/11	3.00	7.59	7.28	7.33	7.33	7.28	7.30	7.41	7.26	0.109	2.00
Di-n-octylphthalate	10/01/11	5.00	8.14	7.90	8.19	8.69	8.25	8.26	8.11	8.32	0.225	2.00
Benzo(b)fluoroanthene	10/01/11	3.00	2.45	2.23	2.36	2.18	2.09	2.30	2.47	2.30	0.130	2.00
Benzo(k)fluoranthene	10/01/11	3.00	2.38	2.17	2.30	2.11	2.11	2.24	2.41	2.36	0.121	2.00
Benzo(a)pyrene	10/01/11	3.00	2.20	1.96	2.05	1.90	1.85	2.02	2.08	1.98	0.109	2.00
Indeno(1,2,3-c,d)pyrene	10/01/11	3.00	2.95	2.42	2.67	2.43	2.38	2.54	2.73	2.62	0.192	2.00
Dibenzo(a,h)anthracene	10/01/11	3.00	2.81	2.38	2.49	2.35	2.35	2.47	2.67	2.62	0.168	2.00
Benzo(g,h,i)perylene	10/01/11	3.00	3.16	2.61	2.77	2.45	2.54	2.52	2.78	2.69	0.224	2.00

MDL FORM

ANALYSIS METHOD

SW9045C

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2781

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW9045C

SAMPLE DATA SUMMARY

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 019-CH2M Run 006

SDG No.: M2781

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M278101

Percent Moisture: 100

Date Received: 09/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	11.2		pH	1	15 G	SW9045C	09/18/13

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 020-CH2M Run 007

SDG No.: M2781

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M278102

Percent Moisture: 100

Date Received: 09/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	11.5		pH	1	15 G	SW9045C	09/18/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 021-CH2M Run 008

SDG No.: M2781

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M278103

Percent Moisture: 100

Date Received: 09/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	11.5		pH	1	15 G	SW9045C	09/18/13

EB131008-13:53-M2781-W

FORM I GEN CHEM

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 022-CH2M Run 009

SDG No.: M2781

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M278104

Percent Moisture: 100

Date Received: 09/18/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	11.4		pH	1	15 G	SW9045C	09/18/13

QC SUMMARY

GENERAL CHEMISTRY CALIBRATION VERIFICATION DATA

SDG No.: M2781

Lab Name: CH2M HILL ASL

Analysis Method: SW9045C

Analytical Lot ID: 091813PH

Instrument Name: PH6

Concentration Units: pH Units

Initial Calibration ID: NONE

CCV #1 ID: CV1-0918 CCV #2 ID: CV2-0918 CCV #3 ID:

Analyte	Expected	Found	%D	Q	Expected	Found	%D	Q	Expected	Found	%D	Q
pH	7.00	7.05	0.7		7.00	7.03	0.4					

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW9045C LCS ID: BS1S0918

Initial Calibration ID: NONE Date Analyzed: 09/18/13

Matrix: (Soil/Water) SOIL Time Analyzed: 1845

Instrument: PH6 Concentration Units: pH Units

Analyte	Expected	Found	%R	QC Limits %R	Q
pH	4.00	4.01	100	80-120	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY ANALYTICAL SEQUENCE

SDG No.: M2781 Lab Name: CH2M HILL ASL

Analysis Method: SW9045C Lab Code: CVO

Instrument: PH6 Analytical Lot ID: 091813PH

	Field Sample ID	Lab Sample ID	Date Analyzed	Time Analyzed
1	CV1-0918	CV1-0918	09/18/13	1610
2	BS1S0918	BS1S0918	09/18/13	1845
3	RECON ID 019-CH2M Run 006	M278101	09/18/13	1847
4	RECON ID 020-CH2M Run 007	M278102	09/18/13	1851
5	RECON ID 021-CH2M Run 008	M278103	09/18/13	1852
6	RECON ID 022-CH2M Run 009	M278104	09/18/13	1854
7	CV2-0918	CV2-0918	09/18/13	1856

Comments:

CHAIN OF CUSTODY/SHIPPING DOCUMENTS

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Email: asl@ch2m.com
www.ch2mlab.com

CHAIN OF CUSTODY RECORD

Project # or Purchase Order #
Pfizer Tier IV S/S Treatability Study

Company Name
For American Cyanamid Superfund site Bridgewater, NJ

Project manager or Contact & Phone #
Richard Traver @ 215-640-9105

Report Copy to:
Richard.Traver@CH2M.com

Turnaround Time
☐24 hours ☐48 hours ☐72 hours
☐7 days ☐14 days ☐21 days

Drinking Water? Yes ☐ No ☐

Sample Disposal: Dispose ☐ Return ☐

THIS AREA FOR LAB USE ONLY

1.7.C
M2781

EPA Tier QC Level
1 (Screening) 2 3 4

Sampling		Type		Matrix				TOTAL # OF CONTAINERS	Requested Analytical Method #									Preservative							
Date	Time	COMP	GRAB	WATER	SOIL	AIR	CLIENT SAMPLE ID		9045 – same day TAT please	1312 – 8270C/820B								UNPRES	UNPRES	HNO_3	HCl	NaOH	ZnAcNaOH	Ammonium chloride	
9-17-13	1700				x		RECON ID 019 – CH2M Run 006	2	2 2x4	x															
9-17-13	1700				x		RECON ID 020 – CH2M Run 007	2	2 2x4	x															
9-17-13	1700				X		RECON ID 021 – CH2M Run 008	2	2 2x4	x															
9-17-13	1700				X		RECON ID 022 – CH2M Run 009	2	2 2x4	x															

Alternate Description	
No SPLP Metals	1
PAC samples	2
Day 28 is 09-18-13	3
	4

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Volatile Contaminants/Odorous ☐ Biohazard ☐ Other _____

Sampled By and Title	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Glenn Knieriem – RECON Treatability Center Manager	9-17-13 @	FEDEX 8034 7580 8952	9-17-13 @ 1700
Received By (Please sign and print name)	**Date/Time**	**Relinquished By** (Please sign and print name)	**Date/Time**
Carmen Wilke	9/18/13 1100		
Received By (Please sign and print name)	**Date/Time**	**Shipped Via** UPS Fed-Ex Other _____	**Tracking #** 8034 7580 8952

Special Instructions

Custody Seal # : 955 894

PLEASE PERFORM pH testing on 09-18-13 – Thank You If possible please start 1312 leaching on 09-18-13. 09-18-13 is Day 28 for curing.

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M2781 Date Received: 9/18/13

Client/Project: Pfizer Checked By: CC

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ – or – (On File) COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID TH173 Exp. 11/13 1.7 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER	✓		
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

ANALYTICAL REPORT

For:
RECON/Pfizer

ASL Report #: M2792

Project ID: 473604.01.TS

Attn: Richard Traver/PHL

cc:
Stephen Maxwell/PHL
Emil Filc/DAY
Glenn Knieriem/glenn.knieriem@reconservices.com

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
October 09, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Accredited in accordance with NELAP:
Oregon (100022)
Arizona (0771)
Louisiana (05031)

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M279201	RECON ID 023-CH2M Run 010	09/18/13 17:00	09/19/13
M279202	RECON ID 024-CH2M Run 011	09/18/13 17:00	09/19/13
M279203	RECON ID 025-CH2M Run 012	09/18/13 17:00	09/19/13
M279204	RECON ID 026-CH2M Run 013	09/18/13 17:00	09/19/13

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CH2M HILL
Applied Sciences Laboratory (ASL)
1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Fax 541.752.0276

Organic CLP-Like Data Qualifiers

U	The analyte was analyzed for, but not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
P	The primary and confirmation analyte result recoveries do not match.
E	The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Inorganic CLP-Like Data Qualifiers

U	The analyte was analyzed for, but not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
E	The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.
N	The matrix spike/matrix spike duplicate recovery for the analyte is outside of acceptance criteria—qualifier is applied to the native sample only.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ANALYSIS METHOD

SW8260B

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GC/MS VOLATILES ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2792

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW8260B: SW5030, E1312

Calibration Verification(s):
The %D for Trichlorofluoromethane (28%) in CV1-0923 exceeded acceptance criteria of 20%.
The %D for Dichlorodifluoromethane (22%) in CV1-0924 exceeded acceptance criteria of 20%.
The %D for Methylene chloride (-22%) in CV1-0924 exceeded acceptance criteria of 20%.
The %D for Hexachlorobutadiene (31%) in CV1-0924 exceeded acceptance criteria of 20%.

Laboratory Control Sample(s):
Recovery of Trichlorofluoromethane (133%) in BS1W0923 did not meet acceptance criteria of 75-125%.
Recovery of Hexachlorobutadiene (128%) in BS1W0923 did not meet acceptance criteria of 75-125%.
Recovery of Hexachlorobutadiene (130%) in BS1W0924 did not meet acceptance criteria of 75-125%.

SAMPLE DATA SUMMARY

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279201

Percent Moisture: 100 Lab File ID: 279201.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	4.00	10.0	4.00	U
74-87-3	Chloromethane	4.00	10.0	4.00	U
75-01-4	Vinyl Chloride	4.00	10.0	4.00	U
74-83-9	Bromomethane	4.00	10.0	4.00	U
75-00-3	Chloroethane	4.00	10.0	4.00	U
75-69-4	Trichlorofluoromethane	4.00	10.0	4.00	U
67-64-1	Acetone	10.0	20.0	34.5	
75-35-4	1,1-Dichloroethene	4.00	10.0	4.00	U
75-09-2	Methylene chloride	4.00	10.0	4.00	U
156-60-5	trans-1,2-Dichloroethene	4.00	10.0	4.00	U
1634-04-4	Methyl tert-butyl ether (MTBE)	4.00	10.0	4.00	U
75-34-3	1,1-Dichloroethane	4.00	10.0	4.00	U
78-93-3	2-Butanone (MEK)	10.0	20.0	10.0	U
156-59-2	cis-1,2-Dichloroethene	4.00	10.0	4.00	U
74-97-5	Bromochloromethane	4.00	10.0	4.00	U
67-66-3	Chloroform	3.00	10.0	3.00	U
594-20-7	2,2-Dichloropropane	4.00	10.0	4.00	U
107-06-2	1,2-Dichloroethane	4.00	10.0	4.00	U
71-55-6	1,1,1-Trichloroethane	4.00	10.0	4.00	U
563-58-6	1,1-Dichloropropene	4.00	10.0	4.00	U
56-23-5	Carbon tetrachloride	4.00	10.0	4.00	U
71-43-2	Benzene	4.00	10.0	344	
74-95-3	Dibromomethane	4.00	10.0	4.00	U
78-87-5	1,2-Dichloropropane	4.00	10.0	4.00	U
79-01-6	Trichloroethene (TCE)	4.00	10.0	4.00	U
75-27-4	Bromodichloromethane	4.00	10.0	4.00	U
10061-01-5	cis-1,3-Dichloropropene	4.00	10.0	4.00	U
108-10-1	4-Methyl-2-pentanone (MIBK)	10.0	20.0	10.0	U
10061-02-6	trans-1,3-Dichloropropene	4.00	10.0	4.00	U
79-00-5	1,1,2-Trichloroethane	4.00	10.0	4.00	U
108-88-3	Toluene	4.00	10.0	413	
142-28-9	1,3-Dichloropropane	4.00	10.0	4.00	U
124-48-1	Dibromochloromethane	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279201

Percent Moisture: 100 Lab File ID: 279201.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	4.00	10.0	4.00	U
127-18-4	Tetrachloroethene (PCE)	4.00	10.0	4.00	U
544-10-5	1-Chlorohexane	4.00	10.0	4.00	U
630-20-6	1,1,1,2-Tetrachloroethane	4.00	10.0	4.00	U
108-90-7	Chlorobenzene	4.00	10.0	4.00	U
100-41-4	Ethylbenzene	4.00	10.0	16.7	
108-38-3/1	m,p-Xylene	8.00	20.0	262	
75-25-2	Bromoform	4.00	10.0	4.00	U
100-42-5	Styrene	4.00	10.0	4.00	U
79-34-5	1,1,2,2-Tetrachloroethane	4.00	10.0	4.00	U
95-47-6	o-Xylene	4.00	10.0	101	
96-18-4	1,2,3-Trichloropropane	4.00	10.0	4.00	U
98-82-8	Isopropylbenzene	4.00	10.0	40.4	
108-86-1	Bromobenzene	4.00	10.0	4.00	U
103-65-1	n-Propylbenzene	4.00	10.0	4.00	U
95-49-8	2-Chlorotoluene	4.00	10.0	4.00	U
106-43-4	4-Chlorotoluene	4.00	10.0	4.00	U
108-67-8	1,3,5-Trimethylbenzene	4.00	10.0	40.4	
98-06-6	tert-Butylbenzene	4.00	10.0	5.91	J
95-63-6	1,2,4-Trimethylbenzene	4.00	10.0	88.5	
135-98-8	sec-Butylbenzene	4.00	10.0	22.1	
541-73-1	1,3-Dichlorobenzene	4.00	10.0	4.00	U
106-46-7	1,4-Dichlorobenzene	4.00	10.0	60.5	
99-87-6	p-Isopropyltoluene	4.00	10.0	5.70	J
95-50-1	1,2-Dichlorobenzene	4.00	10.0	941	
104-51-8	n-Butylbenzene	4.00	10.0	4.00	U
96-12-8	1,2-Dibromo-3-chloropropane	4.00	10.0	4.00	U
120-82-1	1,2,4-Trichlorobenzene	4.00	10.0	4.00	U
91-20-3	Naphthalene	4.00	10.0	3620	E
87-68-3	Hexachlorobutadiene	4.00	10.0	4.00	U
87-61-6	1,2,3-Trichlorobenzene	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279201DL

Percent Moisture: 100 Lab File ID: 279201DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML)1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	350	
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	409	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279201DL

Percent Moisture: 100 Lab File ID: 279201DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	20.0	U
108-38-3/1	m,p-Xylene	40.0	100	214	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	84.5	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	37.5	J
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	35.4	J
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	70.9	
135-98-8	sec-Butylbenzene	20.0	50.0	20.0	U
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	62.1	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	939	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3580	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279202

Percent Moisture: 100 Lab File ID: 279202R3.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/24/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	4.00	10.0	4.00	U
74-87-3	Chloromethane	4.00	10.0	4.00	U
75-01-4	Vinyl Chloride	4.00	10.0	4.00	U
74-83-9	Bromomethane	4.00	10.0	4.00	U
75-00-3	Chloroethane	4.00	10.0	4.00	U
75-69-4	Trichlorofluoromethane	4.00	10.0	4.00	U
67-64-1	Acetone	10.0	20.0	24.2	
75-35-4	1,1-Dichloroethene	4.00	10.0	4.00	U
75-09-2	Methylene chloride	4.00	10.0	4.00	U
156-60-5	trans-1,2-Dichloroethene	4.00	10.0	4.00	U
1634-04-4	Methyl tert-butyl ether (MTBE)	4.00	10.0	4.00	U
75-34-3	1,1-Dichloroethane	4.00	10.0	4.00	U
78-93-3	2-Butanone (MEK)	10.0	20.0	10.0	U
156-59-2	cis-1,2-Dichloroethene	4.00	10.0	4.00	U
74-97-5	Bromochloromethane	4.00	10.0	4.00	U
67-66-3	Chloroform	3.00	10.0	3.00	U
594-20-7	2,2-Dichloropropane	4.00	10.0	4.00	U
107-06-2	1,2-Dichloroethane	4.00	10.0	4.00	U
71-55-6	1,1,1-Trichloroethane	4.00	10.0	4.00	U
563-58-6	1,1-Dichloropropene	4.00	10.0	4.00	U
56-23-5	Carbon tetrachloride	4.00	10.0	4.00	U
71-43-2	Benzene	4.00	10.0	486	
74-95-3	Dibromomethane	4.00	10.0	4.00	U
78-87-5	1,2-Dichloropropane	4.00	10.0	4.00	U
79-01-6	Trichloroethene (TCE)	4.00	10.0	4.00	U
75-27-4	Bromodichloromethane	4.00	10.0	4.00	U
10061-01-5	cis-1,3-Dichloropropene	4.00	10.0	4.00	U
108-10-1	4-Methyl-2-pentanone (MIBK)	10.0	20.0	10.0	U
10061-02-6	trans-1,3-Dichloropropene	4.00	10.0	4.00	U
79-00-5	1,1,2-Trichloroethane	4.00	10.0	4.00	U
108-88-3	Toluene	4.00	10.0	477	
142-28-9	1,3-Dichloropropane	4.00	10.0	4.00	U
124-48-1	Dibromochloromethane	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279202

Percent Moisture: 100 Lab File ID: 279202R3.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/24/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	4.00	10.0	4.00	U
127-18-4	Tetrachloroethene (PCE)	4.00	10.0	4.00	U
544-10-5	1-Chlorohexane	4.00	10.0	4.00	U
630-20-6	1,1,1,2-Tetrachloroethane	4.00	10.0	4.00	U
108-90-7	Chlorobenzene	4.00	10.0	4.00	U
100-41-4	Ethylbenzene	4.00	10.0	18.8	
108-38-3/1	m,p-Xylene	8.00	20.0	286	
75-25-2	Bromoform	4.00	10.0	4.00	U
100-42-5	Styrene	4.00	10.0	4.00	U
79-34-5	1,1,2,2-Tetrachloroethane	4.00	10.0	4.00	U
95-47-6	o-Xylene	4.00	10.0	110	
96-18-4	1,2,3-Trichloropropane	4.00	10.0	4.00	U
98-82-8	Isopropylbenzene	4.00	10.0	46.9	
108-86-1	Bromobenzene	4.00	10.0	4.00	U
103-65-1	n-Propylbenzene	4.00	10.0	4.00	U
95-49-8	2-Chlorotoluene	4.00	10.0	4.00	U
106-43-4	4-Chlorotoluene	4.00	10.0	4.00	U
108-67-8	1,3,5-Trimethylbenzene	4.00	10.0	45.2	
98-06-6	tert-Butylbenzene	4.00	10.0	6.58	J
95-63-6	1,2,4-Trimethylbenzene	4.00	10.0	96.5	
135-98-8	sec-Butylbenzene	4.00	10.0	23.3	
541-73-1	1,3-Dichlorobenzene	4.00	10.0	4.00	U
106-46-7	1,4-Dichlorobenzene	4.00	10.0	57.9	
99-87-6	p-Isopropyltoluene	4.00	10.0	6.21	J
95-50-1	1,2-Dichlorobenzene	4.00	10.0	896	
104-51-8	n-Butylbenzene	4.00	10.0	4.00	U
96-12-8	1,2-Dibromo-3-chloropropane	4.00	10.0	4.00	U
120-82-1	1,2,4-Trichlorobenzene	4.00	10.0	4.00	U
91-20-3	Naphthalene	4.00	10.0	3330	E
87-68-3	Hexachlorobutadiene	4.00	10.0	4.00	U
87-61-6	1,2,3-Trichlorobenzene	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279202DL

Percent Moisture: 100 Lab File ID: 279202DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML)1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	544	
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	510	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279202DL

Percent Moisture: 100 Lab File ID: 279202DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	20.0	U
108-38-3/1	m,p-Xylene	40.0	100	241	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	95.6	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	41.3	J
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	39.4	J
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	76.0	
135-98-8	sec-Butylbenzene	20.0	50.0	21.9	J
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	58.1	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	932	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3500	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279203

Percent Moisture: 100 Lab File ID: 279203R3.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/24/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	4.00	10.0	4.00	U
74-87-3	Chloromethane	4.00	10.0	4.00	U
75-01-4	Vinyl Chloride	4.00	10.0	4.00	U
74-83-9	Bromomethane	4.00	10.0	4.00	U
75-00-3	Chloroethane	4.00	10.0	4.00	U
75-69-4	Trichlorofluoromethane	4.00	10.0	4.00	U
67-64-1	Acetone	10.0	20.0	40.4	
75-35-4	1,1-Dichloroethene	4.00	10.0	4.00	U
75-09-2	Methylene chloride	4.00	10.0	4.00	U
156-60-5	trans-1,2-Dichloroethene	4.00	10.0	4.00	U
1634-04-4	Methyl tert-butyl ether (MTBE)	4.00	10.0	4.00	U
75-34-3	1,1-Dichloroethane	4.00	10.0	4.00	U
78-93-3	2-Butanone (MEK)	10.0	20.0	10.0	U
156-59-2	cis-1,2-Dichloroethene	4.00	10.0	4.00	U
74-97-5	Bromochloromethane	4.00	10.0	4.00	U
67-66-3	Chloroform	3.00	10.0	3.00	U
594-20-7	2,2-Dichloropropane	4.00	10.0	4.00	U
107-06-2	1,2-Dichloroethane	4.00	10.0	4.00	U
71-55-6	1,1,1-Trichloroethane	4.00	10.0	4.00	U
563-58-6	1,1-Dichloropropene	4.00	10.0	4.00	U
56-23-5	Carbon tetrachloride	4.00	10.0	4.00	U
71-43-2	Benzene	4.00	10.0	79.6	
74-95-3	Dibromomethane	4.00	10.0	4.00	U
78-87-5	1,2-Dichloropropane	4.00	10.0	4.00	U
79-01-6	Trichloroethene (TCE)	4.00	10.0	4.00	U
75-27-4	Bromodichloromethane	4.00	10.0	4.00	U
10061-01-5	cis-1,3-Dichloropropene	4.00	10.0	4.00	U
108-10-1	4-Methyl-2-pentanone (MIBK)	10.0	20.0	10.0	U
10061-02-6	trans-1,3-Dichloropropene	4.00	10.0	4.00	U
79-00-5	1,1,2-Trichloroethane	4.00	10.0	4.00	U
108-88-3	Toluene	4.00	10.0	270	
142-28-9	1,3-Dichloropropane	4.00	10.0	4.00	U
124-48-1	Dibromochloromethane	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279203

Percent Moisture: 100 Lab File ID: 279203R3.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/24/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	4.00	10.0	4.00	U
127-18-4	Tetrachloroethene (PCE)	4.00	10.0	4.00	U
544-10-5	1-Chlorohexane	4.00	10.0	4.00	U
630-20-6	1,1,1,2-Tetrachloroethane	4.00	10.0	4.00	U
108-90-7	Chlorobenzene	4.00	10.0	4.00	U
100-41-4	Ethylbenzene	4.00	10.0	15.7	
108-38-3/1	m,p-Xylene	8.00	20.0	224	
75-25-2	Bromoform	4.00	10.0	4.00	U
100-42-5	Styrene	4.00	10.0	4.00	U
79-34-5	1,1,2,2-Tetrachloroethane	4.00	10.0	4.00	U
95-47-6	o-Xylene	4.00	10.0	92.1	
96-18-4	1,2,3-Trichloropropane	4.00	10.0	4.00	U
98-82-8	Isopropylbenzene	4.00	10.0	40.6	
108-86-1	Bromobenzene	4.00	10.0	4.00	U
103-65-1	n-Propylbenzene	4.00	10.0	4.00	U
95-49-8	2-Chlorotoluene	4.00	10.0	4.00	U
106-43-4	4-Chlorotoluene	4.00	10.0	4.00	U
108-67-8	1,3,5-Trimethylbenzene	4.00	10.0	40.9	
98-06-6	tert-Butylbenzene	4.00	10.0	6.69	J
95-63-6	1,2,4-Trimethylbenzene	4.00	10.0	85.1	
135-98-8	sec-Butylbenzene	4.00	10.0	22.5	
541-73-1	1,3-Dichlorobenzene	4.00	10.0	4.00	U
106-46-7	1,4-Dichlorobenzene	4.00	10.0	49.1	
99-87-6	p-Isopropyltoluene	4.00	10.0	5.88	J
95-50-1	1,2-Dichlorobenzene	4.00	10.0	815	
104-51-8	n-Butylbenzene	4.00	10.0	4.00	U
96-12-8	1,2-Dibromo-3-chloropropane	4.00	10.0	4.00	U
120-82-1	1,2,4-Trichlorobenzene	4.00	10.0	4.00	U
91-20-3	Naphthalene	4.00	10.0	3040	E
87-68-3	Hexachlorobutadiene	4.00	10.0	4.00	U
87-61-6	1,2,3-Trichlorobenzene	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279203DL

Percent Moisture: 100 Lab File ID: 279203DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	105	
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	314	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279203DL

Percent Moisture: 100 Lab File ID: 279203DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	20.0	U
108-38-3/1	m,p-Xylene	40.0	100	187	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	81.7	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	37.8	J
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	34.0	J
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	65.1	
135-98-8	sec-Butylbenzene	20.0	50.0	20.2	J
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	58.2	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	888	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3430	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279204

Percent Moisture: 100 Lab File ID: 279204R3.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/24/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	4.00	10.0	4.00	U
74-87-3	Chloromethane	4.00	10.0	4.00	U
75-01-4	Vinyl Chloride	4.00	10.0	4.00	U
74-83-9	Bromomethane	4.00	10.0	4.00	U
75-00-3	Chloroethane	4.00	10.0	4.00	U
75-69-4	Trichlorofluoromethane	4.00	10.0	4.00	U
67-64-1	Acetone	10.0	20.0	40.9	
75-35-4	1,1-Dichloroethene	4.00	10.0	4.00	U
75-09-2	Methylene chloride	4.00	10.0	4.00	U
156-60-5	trans-1,2-Dichloroethene	4.00	10.0	4.00	U
1634-04-4	Methyl tert-butyl ether (MTBE)	4.00	10.0	4.00	U
75-34-3	1,1-Dichloroethane	4.00	10.0	4.00	U
78-93-3	2-Butanone (MEK)	10.0	20.0	10.0	U
156-59-2	cis-1,2-Dichloroethene	4.00	10.0	4.00	U
74-97-5	Bromochloromethane	4.00	10.0	4.00	U
67-66-3	Chloroform	3.00	10.0	3.00	U
594-20-7	2,2-Dichloropropane	4.00	10.0	4.00	U
107-06-2	1,2-Dichloroethane	4.00	10.0	4.00	U
71-55-6	1,1,1-Trichloroethane	4.00	10.0	4.00	U
563-58-6	1,1-Dichloropropene	4.00	10.0	4.00	U
56-23-5	Carbon tetrachloride	4.00	10.0	4.00	U
71-43-2	Benzene	4.00	10.0	74.5	
74-95-3	Dibromomethane	4.00	10.0	4.00	U
78-87-5	1,2-Dichloropropane	4.00	10.0	4.00	U
79-01-6	Trichloroethene (TCE)	4.00	10.0	4.00	U
75-27-4	Bromodichloromethane	4.00	10.0	4.00	U
10061-01-5	cis-1,3-Dichloropropene	4.00	10.0	4.00	U
108-10-1	4-Methyl-2-pentanone (MIBK)	10.0	20.0	10.0	U
10061-02-6	trans-1,3-Dichloropropene	4.00	10.0	4.00	U
79-00-5	1,1,2-Trichloroethane	4.00	10.0	4.00	U
108-88-3	Toluene	4.00	10.0	333	
142-28-9	1,3-Dichloropropane	4.00	10.0	4.00	U
124-48-1	Dibromochloromethane	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279204

Percent Moisture: 100 Lab File ID: 279204R3.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/24/13

Dilution Factor: 20

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	4.00	10.0	4.00	U
127-18-4	Tetrachloroethene (PCE)	4.00	10.0	4.00	U
544-10-5	1-Chlorohexane	4.00	10.0	4.00	U
630-20-6	1,1,1,2-Tetrachloroethane	4.00	10.0	4.00	U
108-90-7	Chlorobenzene	4.00	10.0	4.00	U
100-41-4	Ethylbenzene	4.00	10.0	18.4	
108-38-3/1	m,p-Xylene	8.00	20.0	267	
75-25-2	Bromoform	4.00	10.0	4.00	U
100-42-5	Styrene	4.00	10.0	4.00	U
79-34-5	1,1,2,2-Tetrachloroethane	4.00	10.0	4.00	U
95-47-6	o-Xylene	4.00	10.0	109	
96-18-4	1,2,3-Trichloropropane	4.00	10.0	4.00	U
98-82-8	Isopropylbenzene	4.00	10.0	49.3	
108-86-1	Bromobenzene	4.00	10.0	4.00	U
103-65-1	n-Propylbenzene	4.00	10.0	4.00	U
95-49-8	2-Chlorotoluene	4.00	10.0	4.00	U
106-43-4	4-Chlorotoluene	4.00	10.0	4.00	U
108-67-8	1,3,5-Trimethylbenzene	4.00	10.0	48.8	
98-06-6	tert-Butylbenzene	4.00	10.0	7.64	J
95-63-6	1,2,4-Trimethylbenzene	4.00	10.0	95.6	
135-98-8	sec-Butylbenzene	4.00	10.0	24.9	
541-73-1	1,3-Dichlorobenzene	4.00	10.0	4.00	U
106-46-7	1,4-Dichlorobenzene	4.00	10.0	51.8	
99-87-6	p-Isopropyltoluene	4.00	10.0	6.62	J
95-50-1	1,2-Dichlorobenzene	4.00	10.0	853	
104-51-8	n-Butylbenzene	4.00	10.0	4.00	U
96-12-8	1,2-Dibromo-3-chloropropane	4.00	10.0	4.00	U
120-82-1	1,2,4-Trichlorobenzene	4.00	10.0	4.00	U
91-20-3	Naphthalene	4.00	10.0	3030	E
87-68-3	Hexachlorobutadiene	4.00	10.0	4.00	U
87-61-6	1,2,3-Trichlorobenzene	4.00	10.0	4.00	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279204DL

Percent Moisture: 100 Lab File ID: 279204DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML)1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	20.0	50.0	20.0	U
74-87-3	Chloromethane	20.0	50.0	20.0	U
75-01-4	Vinyl Chloride	20.0	50.0	20.0	U
74-83-9	Bromomethane	20.0	50.0	20.0	U
75-00-3	Chloroethane	20.0	50.0	20.0	U
75-69-4	Trichlorofluoromethane	20.0	50.0	20.0	U
67-64-1	Acetone	50.0	100	50.0	U
75-35-4	1,1-Dichloroethene	20.0	50.0	20.0	U
75-09-2	Methylene chloride	20.0	50.0	20.0	U
156-60-5	trans-1,2-Dichloroethene	20.0	50.0	20.0	U
1634-04-4	Methyl tert-butyl ether (MTBE)	20.0	50.0	20.0	U
75-34-3	1,1-Dichloroethane	20.0	50.0	20.0	U
78-93-3	2-Butanone (MEK)	50.0	100	50.0	U
156-59-2	cis-1,2-Dichloroethene	20.0	50.0	20.0	U
74-97-5	Bromochloromethane	20.0	50.0	20.0	U
67-66-3	Chloroform	15.0	50.0	15.0	U
594-20-7	2,2-Dichloropropane	20.0	50.0	20.0	U
107-06-2	1,2-Dichloroethane	20.0	50.0	20.0	U
71-55-6	1,1,1-Trichloroethane	20.0	50.0	20.0	U
563-58-6	1,1-Dichloropropene	20.0	50.0	20.0	U
56-23-5	Carbon tetrachloride	20.0	50.0	20.0	U
71-43-2	Benzene	20.0	50.0	92.3	
74-95-3	Dibromomethane	20.0	50.0	20.0	U
78-87-5	1,2-Dichloropropane	20.0	50.0	20.0	U
79-01-6	Trichloroethene (TCE)	20.0	50.0	20.0	U
75-27-4	Bromodichloromethane	20.0	50.0	20.0	U
10061-01-5	cis-1,3-Dichloropropene	20.0	50.0	20.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	50.0	100	50.0	U
10061-02-6	trans-1,3-Dichloropropene	20.0	50.0	20.0	U
79-00-5	1,1,2-Trichloroethane	20.0	50.0	20.0	U
108-88-3	Toluene	20.0	50.0	361	
142-28-9	1,3-Dichloropropane	20.0	50.0	20.0	U
124-48-1	Dibromochloromethane	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013DL

SDG No.: M2792

Analysis Method: SW8260B

Matrix: SOIL Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: M279204DL

Percent Moisture: 100 Lab File ID: 279204DL.D

Level: (LOW/MED) LOW Date Received: 09/19/13

Soil Extract Volume: (ML) 1 Date Analyzed: 09/23/13

Dilution Factor: 100

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	20.0	50.0	20.0	U
127-18-4	Tetrachloroethene (PCE)	20.0	50.0	20.0	U
544-10-5	1-Chlorohexane	20.0	50.0	20.0	U
630-20-6	1,1,1,2-Tetrachloroethane	20.0	50.0	20.0	U
108-90-7	Chlorobenzene	20.0	50.0	20.0	U
100-41-4	Ethylbenzene	20.0	50.0	20.0	U
108-38-3/1	m,p-Xylene	40.0	100	226	
75-25-2	Bromoform	20.0	50.0	20.0	U
100-42-5	Styrene	20.0	50.0	20.0	U
79-34-5	1,1,2,2-Tetrachloroethane	20.0	50.0	20.0	U
95-47-6	o-Xylene	20.0	50.0	96.0	
96-18-4	1,2,3-Trichloropropane	20.0	50.0	20.0	U
98-82-8	Isopropylbenzene	20.0	50.0	47.8	J
108-86-1	Bromobenzene	20.0	50.0	20.0	U
103-65-1	n-Propylbenzene	20.0	50.0	20.0	U
95-49-8	2-Chlorotoluene	20.0	50.0	20.0	U
106-43-4	4-Chlorotoluene	20.0	50.0	20.0	U
108-67-8	1,3,5-Trimethylbenzene	20.0	50.0	39.1	J
98-06-6	tert-Butylbenzene	20.0	50.0	20.0	U
95-63-6	1,2,4-Trimethylbenzene	20.0	50.0	72.8	
135-98-8	sec-Butylbenzene	20.0	50.0	21.2	J
541-73-1	1,3-Dichlorobenzene	20.0	50.0	20.0	U
106-46-7	1,4-Dichlorobenzene	20.0	50.0	59.9	
99-87-6	p-Isopropyltoluene	20.0	50.0	20.0	U
95-50-1	1,2-Dichlorobenzene	20.0	50.0	923	
104-51-8	n-Butylbenzene	20.0	50.0	20.0	U
96-12-8	1,2-Dibromo-3-chloropropane	20.0	50.0	20.0	U
120-82-1	1,2,4-Trichlorobenzene	20.0	50.0	20.0	U
91-20-3	Naphthalene	20.0	50.0	3340	
87-68-3	Hexachlorobutadiene	20.0	50.0	20.0	U
87-61-6	1,2,3-Trichlorobenzene	20.0	50.0	20.0	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **SPLPBLK**

SDG No.: M2792

Analysis Method: SW8260B

Matrix: WATER Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: SPLPBLK

Lab File ID: SPLPBLK.D

Level: (LOW/MED) LOW Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	0.200	0.500	0.200	U
74-87-3	Chloromethane	0.200	0.500	0.200	U
75-01-4	Vinyl Chloride	0.200	0.500	0.200	U
74-83-9	Bromomethane	0.200	0.500	0.200	U
75-00-3	Chloroethane	0.200	0.500	0.200	U
75-69-4	Trichlorofluoromethane	0.200	0.500	0.200	U
67-64-1	Acetone	0.500	1.00	0.500	U
75-35-4	1,1-Dichloroethene	0.200	0.500	0.200	U
75-09-2	Methylene chloride	0.200	0.500	0.200	U
156-60-5	trans-1,2-Dichloroethene	0.200	0.500	0.200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	0.200	0.500	0.200	U
75-34-3	1,1-Dichloroethane	0.200	0.500	0.200	U
78-93-3	2-Butanone (MEK)	0.500	1.00	0.500	U
156-59-2	cis-1,2-Dichloroethene	0.200	0.500	0.200	U
74-97-5	Bromochloromethane	0.200	0.500	0.200	U
67-66-3	Chloroform	0.150	0.500	0.150	U
594-20-7	2,2-Dichloropropane	0.200	0.500	0.200	U
107-06-2	1,2-Dichloroethane	0.200	0.500	0.200	U
71-55-6	1,1,1-Trichloroethane	0.200	0.500	0.200	U
563-58-6	1,1-Dichloropropene	0.200	0.500	0.200	U
56-23-5	Carbon tetrachloride	0.200	0.500	0.200	U
71-43-2	Benzene	0.200	0.500	0.890	
74-95-3	Dibromomethane	0.200	0.500	0.200	U
78-87-5	1,2-Dichloropropane	0.200	0.500	0.200	U
79-01-6	Trichloroethene (TCE)	0.200	0.500	0.200	U
75-27-4	Bromodichloromethane	0.200	0.500	0.200	U
10061-01-5	cis-1,3-Dichloropropene	0.200	0.500	0.200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.500	1.00	0.500	U
10061-02-6	trans-1,3-Dichloropropene	0.200	0.500	0.200	U
79-00-5	1,1,2-Trichloroethane	0.200	0.500	0.200	U
108-88-3	Toluene	0.200	0.500	1.74	
142-28-9	1,3-Dichloropropane	0.200	0.500	0.200	U
124-48-1	Dibromochloromethane	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **SPLPBLK**

SDG No.: M2792

Analysis Method: SW8260B

Matrix: WATER Leachate: SPLP Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML Lab Sample ID: SPLPBLK

Lab File ID: SPLPBLK.D

Level: (LOW/MED) LOW Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	0.200	0.500	0.200	U
127-18-4	Tetrachloroethene (PCE)	0.200	0.500	0.200	U
544-10-5	1-Chlorohexane	0.200	0.500	0.200	U
630-20-6	1,1,1,2-Tetrachloroethane	0.200	0.500	0.200	U
108-90-7	Chlorobenzene	0.200	0.500	0.200	U
100-41-4	Ethylbenzene	0.200	0.500	0.200	U
108-38-3/1	m,p-Xylene	0.400	1.00	0.610	J
75-25-2	Bromoform	0.200	0.500	0.200	U
100-42-5	Styrene	0.200	0.500	0.200	U
79-34-5	1,1,2,2-Tetrachloroethane	0.200	0.500	0.200	U
95-47-6	o-Xylene	0.200	0.500	0.200	U
96-18-4	1,2,3-Trichloropropane	0.200	0.500	0.200	U
98-82-8	Isopropylbenzene	0.200	0.500	0.200	U
108-86-1	Bromobenzene	0.200	0.500	0.200	U
103-65-1	n-Propylbenzene	0.200	0.500	0.200	U
95-49-8	2-Chlorotoluene	0.200	0.500	0.200	U
106-43-4	4-Chlorotoluene	0.200	0.500	0.200	U
108-67-8	1,3,5-Trimethylbenzene	0.200	0.500	0.200	U
98-06-6	tert-Butylbenzene	0.200	0.500	0.200	U
95-63-6	1,2,4-Trimethylbenzene	0.200	0.500	0.200	U
135-98-8	sec-Butylbenzene	0.200	0.500	0.200	U
541-73-1	1,3-Dichlorobenzene	0.200	0.500	0.200	U
106-46-7	1,4-Dichlorobenzene	0.200	0.500	0.200	U
99-87-6	p-Isopropyltoluene	0.200	0.500	0.200	U
95-50-1	1,2-Dichlorobenzene	0.200	0.500	0.950	
104-51-8	n-Butylbenzene	0.200	0.500	0.200	U
96-12-8	1,2-Dibromo-3-chloropropane	0.200	0.500	0.200	U
120-82-1	1,2,4-Trichlorobenzene	0.200	0.500	0.200	U
91-20-3	Naphthalene	0.200	0.500	1.63	
87-68-3	Hexachlorobutadiene	0.200	0.500	0.200	U
87-61-6	1,2,3-Trichlorobenzene	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0923**

SDG No.: M2792

Analysis Method: SW8260B

Matrix: WATER

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-0923

Lab File ID: WB1_0923.D

Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	0.200	0.500	0.200	U
74-87-3	Chloromethane	0.200	0.500	0.200	U
75-01-4	Vinyl Chloride	0.200	0.500	0.200	U
74-83-9	Bromomethane	0.200	0.500	0.200	U
75-00-3	Chloroethane	0.200	0.500	0.200	U
75-69-4	Trichlorofluoromethane	0.200	0.500	0.200	U
67-64-1	Acetone	0.500	1.00	0.500	U
75-35-4	1,1-Dichloroethene	0.200	0.500	0.200	U
75-09-2	Methylene chloride	0.200	0.500	0.200	U
156-60-5	trans-1,2-Dichloroethene	0.200	0.500	0.200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	0.200	0.500	0.200	U
75-34-3	1,1-Dichloroethane	0.200	0.500	0.200	U
78-93-3	2-Butanone (MEK)	0.500	1.00	0.500	U
156-59-2	cis-1,2-Dichloroethene	0.200	0.500	0.200	U
74-97-5	Bromochloromethane	0.200	0.500	0.200	U
67-66-3	Chloroform	0.150	0.500	0.150	U
594-20-7	2,2-Dichloropropane	0.200	0.500	0.200	U
107-06-2	1,2-Dichloroethane	0.200	0.500	0.200	U
71-55-6	1,1,1-Trichloroethane	0.200	0.500	0.200	U
563-58-6	1,1-Dichloropropene	0.200	0.500	0.200	U
56-23-5	Carbon tetrachloride	0.200	0.500	0.200	U
71-43-2	Benzene	0.200	0.500	0.200	U
74-95-3	Dibromomethane	0.200	0.500	0.200	U
78-87-5	1,2-Dichloropropane	0.200	0.500	0.200	U
79-01-6	Trichloroethene (TCE)	0.200	0.500	0.200	U
75-27-4	Bromodichloromethane	0.200	0.500	0.200	U
10061-01-5	cis-1,3-Dichloropropene	0.200	0.500	0.200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.500	1.00	0.500	U
10061-02-6	trans-1,3-Dichloropropene	0.200	0.500	0.200	U
79-00-5	1,1,2-Trichloroethane	0.200	0.500	0.200	U
108-88-3	Toluene	0.200	0.500	0.200	U
142-28-9	1,3-Dichloropropane	0.200	0.500	0.200	U
124-48-1	Dibromochloromethane	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0923**

SDG No.: M2792

Analysis Method: SW8260B

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 5 ML

Lab Sample ID: WB1-0923

Lab File ID: WB1_0923.D

Level: (LOW/MED) LOW

Date Received: / /

Date Analyzed: 09/23/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	0.200	0.500	0.200	U
127-18-4	Tetrachloroethene (PCE)	0.200	0.500	0.200	U
544-10-5	1-Chlorohexane	0.200	0.500	0.200	U
630-20-6	1,1,1,2-Tetrachloroethane	0.200	0.500	0.200	U
108-90-7	Chlorobenzene	0.200	0.500	0.200	U
100-41-4	Ethylbenzene	0.200	0.500	0.200	U
108-38-3/1	m,p-Xylene	0.400	1.00	0.400	U
75-25-2	Bromoform	0.200	0.500	0.200	U
100-42-5	Styrene	0.200	0.500	0.200	U
79-34-5	1,1,2,2-Tetrachloroethane	0.200	0.500	0.200	U
95-47-6	o-Xylene	0.200	0.500	0.200	U
96-18-4	1,2,3-Trichloropropane	0.200	0.500	0.200	U
98-82-8	Isopropylbenzene	0.200	0.500	0.200	U
108-86-1	Bromobenzene	0.200	0.500	0.200	U
103-65-1	n-Propylbenzene	0.200	0.500	0.200	U
95-49-8	2-Chlorotoluene	0.200	0.500	0.200	U
106-43-4	4-Chlorotoluene	0.200	0.500	0.200	U
108-67-8	1,3,5-Trimethylbenzene	0.200	0.500	0.200	U
98-06-6	tert-Butylbenzene	0.200	0.500	0.200	U
95-63-6	1,2,4-Trimethylbenzene	0.200	0.500	0.200	U
135-98-8	sec-Butylbenzene	0.200	0.500	0.200	U
541-73-1	1,3-Dichlorobenzene	0.200	0.500	0.200	U
106-46-7	1,4-Dichlorobenzene	0.200	0.500	0.200	U
99-87-6	p-Isopropyltoluene	0.200	0.500	0.200	U
95-50-1	1,2-Dichlorobenzene	0.200	0.500	0.200	U
104-51-8	n-Butylbenzene	0.200	0.500	0.200	U
96-12-8	1,2-Dibromo-3-chloropropane	0.200	0.500	0.200	U
120-82-1	1,2,4-Trichlorobenzene	0.200	0.500	0.200	U
91-20-3	Naphthalene	0.200	0.500	0.200	U
87-68-3	Hexachlorobutadiene	0.200	0.500	0.200	U
87-61-6	1,2,3-Trichlorobenzene	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0924**

SDG No.: M2792

Analysis Method: SW8260B

Matrix: WATER

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-0924

Lab File ID: WB1_0924.D

Date Received: / /

Date Analyzed: 09/24/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
75-71-8	Dichlorodifluoromethane	0.200	0.500	0.200	U
74-87-3	Chloromethane	0.200	0.500	0.200	U
75-01-4	Vinyl Chloride	0.200	0.500	0.200	U
74-83-9	Bromomethane	0.200	0.500	0.200	U
75-00-3	Chloroethane	0.200	0.500	0.200	U
75-69-4	Trichlorofluoromethane	0.200	0.500	0.200	U
67-64-1	Acetone	0.500	1.00	0.500	U
75-35-4	1,1-Dichloroethene	0.200	0.500	0.200	U
75-09-2	Methylene chloride	0.200	0.500	0.200	U
156-60-5	trans-1,2-Dichloroethene	0.200	0.500	0.200	U
1634-04-4	Methyl tert-butyl ether (MTBE)	0.200	0.500	0.200	U
75-34-3	1,1-Dichloroethane	0.200	0.500	0.200	U
78-93-3	2-Butanone (MEK)	0.500	1.00	0.500	U
156-59-2	cis-1,2-Dichloroethene	0.200	0.500	0.200	U
74-97-5	Bromochloromethane	0.200	0.500	0.200	U
67-66-3	Chloroform	0.150	0.500	0.150	U
594-20-7	2,2-Dichloropropane	0.200	0.500	0.200	U
107-06-2	1,2-Dichloroethane	0.200	0.500	0.200	U
71-55-6	1,1,1-Trichloroethane	0.200	0.500	0.200	U
563-58-6	1,1-Dichloropropene	0.200	0.500	0.200	U
56-23-5	Carbon tetrachloride	0.200	0.500	0.200	U
71-43-2	Benzene	0.200	0.500	0.200	U
74-95-3	Dibromomethane	0.200	0.500	0.200	U
78-87-5	1,2-Dichloropropane	0.200	0.500	0.200	U
79-01-6	Trichloroethene (TCE)	0.200	0.500	0.200	U
75-27-4	Bromodichloromethane	0.200	0.500	0.200	U
10061-01-5	cis-1,3-Dichloropropene	0.200	0.500	0.200	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.500	1.00	0.500	U
10061-02-6	trans-1,3-Dichloropropene	0.200	0.500	0.200	U
79-00-5	1,1,2-Trichloroethane	0.200	0.500	0.200	U
108-88-3	Toluene	0.200	0.500	0.200	U
142-28-9	1,3-Dichloropropane	0.200	0.500	0.200	U
124-48-1	Dibromochloromethane	0.200	0.500	0.200	U

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0924**

SDG No.: M2792

Analysis Method: SW8260B

Matrix: WATER

Sample wt/vol: (G/ML) 5 ML

Level: (LOW/MED) LOW

Lab Name: CH2M HILL ASL

Lab Sample ID: WB1-0924

Lab File ID: WB1_0924.D

Date Received: / /

Date Analyzed: 09/24/13

Dilution Factor: 1

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm) Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
106-93-4	1,2-Dibromoethane (EDB)	0.200	0.500	0.200	U
127-18-4	Tetrachloroethene (PCE)	0.200	0.500	0.200	U
544-10-5	1-Chlorohexane	0.200	0.500	0.200	U
630-20-6	1,1,1,2-Tetrachloroethane	0.200	0.500	0.200	U
108-90-7	Chlorobenzene	0.200	0.500	0.200	U
100-41-4	Ethylbenzene	0.200	0.500	0.200	U
108-38-3/1	m,p-Xylene	0.400	1.00	0.400	U
75-25-2	Bromoform	0.200	0.500	0.200	U
100-42-5	Styrene	0.200	0.500	0.200	U
79-34-5	1,1,2,2-Tetrachloroethane	0.200	0.500	0.200	U
95-47-6	o-Xylene	0.200	0.500	0.200	U
96-18-4	1,2,3-Trichloropropane	0.200	0.500	0.200	U
98-82-8	Isopropylbenzene	0.200	0.500	0.200	U
108-86-1	Bromobenzene	0.200	0.500	0.200	U
103-65-1	n-Propylbenzene	0.200	0.500	0.200	U
95-49-8	2-Chlorotoluene	0.200	0.500	0.200	U
106-43-4	4-Chlorotoluene	0.200	0.500	0.200	U
108-67-8	1,3,5-Trimethylbenzene	0.200	0.500	0.200	U
98-06-6	tert-Butylbenzene	0.200	0.500	0.200	U
95-63-6	1,2,4-Trimethylbenzene	0.200	0.500	0.200	U
135-98-8	sec-Butylbenzene	0.200	0.500	0.200	U
541-73-1	1,3-Dichlorobenzene	0.200	0.500	0.200	U
106-46-7	1,4-Dichlorobenzene	0.200	0.500	0.200	U
99-87-6	p-Isopropyltoluene	0.200	0.500	0.200	U
95-50-1	1,2-Dichlorobenzene	0.200	0.500	0.200	U
104-51-8	n-Butylbenzene	0.200	0.500	0.200	U
96-12-8	1,2-Dibromo-3-chloropropane	0.200	0.500	0.200	U
120-82-1	1,2,4-Trichlorobenzene	0.200	0.500	0.200	U
91-20-3	Naphthalene	0.200	0.500	0.200	U
87-68-3	Hexachlorobutadiene	0.200	0.500	0.200	U
87-61-6	1,2,3-Trichlorobenzene	0.200	0.500	0.200	U

QC SUMMARY

SOIL VOLATILE SURROGATE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	RECON ID 023-CH2M Run	104	117	91	94									
2	RECON ID 024-CH2M Run	103	117	91	96									
3	RECON ID 025-CH2M Run	106	121	95	94									
4	RECON ID 026-CH2M Run	106	117	91	92									
5	RECON ID 023-CH2M Run 010	102	114	88	96									
6	RECON ID 024-CH2M Run 011	95	104	89	101									
7	RECON ID 025-CH2M Run 012	100	105	93	98									
8	RECON ID 026-CH2M Run 013	99	105	94	99									

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	Dibromofluoromethane	(65-135)
S2:	1,2-Dichloroethane-d4	(65-135)
S3:	Toluene-d8	(65-135)
S4:	4-Bromofluorobenzene	(65-135)

WATER VOLATILE SURROGATE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	BS1W0923	103	109	98	105									
2	WB1-0923	105	114	94	95									
3	SPLPBLK	106	117	90	94									
4	BS1W0924	102	100	97	107									
5	WB1-0924	110	115	104	107									

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	Dibromofluoromethane	(75-125)
S2:	1,2-Dichloroethane-d4	(75-125)
S3:	Toluene-d8	(75-125)
S4:	4-Bromofluorobenzene	(75-125)

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0923

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Dibromomethane	20.0	18.2	91	75-125	
1,2-Dichloropropane	20.0	17.7	89	75-125	
Trichloroethene (TCE)	20.0	19.3	97	75-125	
Bromodichloromethane	20.0	21.2	106	75-125	
cis-1,3-Dichloropropene	20.0	21.1	105	75-125	
4-Methyl-2-pentanone (MIBK)	20.0	18.0	90	75-125	
trans-1,3-Dichloropropene	20.0	20.1	100	75-125	
1,1,2-Trichloroethane	20.0	18.3	91	75-125	
Toluene	20.0	18.9	95	75-125	
1,3-Dichloropropane	20.0	19.1	95	75-125	
Dibromochloromethane	20.0	21.0	105	75-125	
1,2-Dibromoethane (EDB)	20.0	18.5	92	75-125	
Tetrachloroethene (PCE)	20.0	18.9	94	75-125	
1-Chlorohexane	20.0	20.6	103	75-125	
1,1,1,2-Tetrachloroethane	20.0	21.9	110	75-125	
Chlorobenzene	20.0	17.0	85	75-125	
Ethylbenzene	20.0	18.8	94	75-125	
m,p-Xylene	40.0	37.7	94	75-125	
Bromoform	20.0	22.2	111	75-125	
Styrene	20.0	20.1	100	75-125	
1,1,2,2-Tetrachloroethane	20.0	17.1	86	75-125	
o-Xylene	20.0	18.3	91	75-125	
Dichlorodifluoromethane	20.0	20.1	100	75-125	
Chloromethane	20.0	16.3	82	75-125	
Vinyl Chloride	20.0	17.0	85	75-125	
Bromomethane	20.0	20.8	104	75-125	
Chloroethane	20.0	17.1	86	75-125	
Trichlorofluoromethane	20.0	26.6	133	75-125	*
Acetone	20.0	18.5	92	75-125	
1,1-Dichloroethene	20.0	18.1	90	75-125	
Methylene chloride	20.0	17.4	87	75-125	
trans-1,2-Dichloroethene	20.0	18.1	90	75-125	
Methyl tert-butyl ether (MTBE)	20.0	21.0	105	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0923

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
1,1-Dichloroethane	20.0	18.2	91	75-125	
2-Butanone (MEK)	20.0	19.7	99	75-125	
cis-1,2-Dichloroethene	20.0	18.6	93	75-125	
Bromochloromethane	20.0	18.8	94	75-125	
Chloroform	20.0	19.9	100	75-125	
2,2-Dichloropropane	20.0	19.5	97	75-125	
1,2-Dichloroethane	20.0	21.6	108	75-125	
1,1,1-Trichloroethane	20.0	21.4	107	75-125	
1,1-Dichloropropene	20.0	19.9	99	75-125	
Carbon tetrachloride	20.0	21.8	109	75-125	
Benzene	20.0	18.1	91	75-125	
1,2,3-Trichloropropane	20.0	18.4	92	75-125	
Isopropylbenzene	20.0	19.0	95	75-125	
Bromobenzene	20.0	18.7	94	75-125	
n-Propylbenzene	20.0	18.3	92	75-125	
2-Chlorotoluene	20.0	18.6	93	75-125	
4-Chlorotoluene	20.0	17.9	90	75-125	
1,3,5-Trimethylbenzene	20.0	21.8	109	75-125	
tert-Butylbenzene	20.0	19.9	100	75-125	
1,2,4-Trimethylbenzene	20.0	21.4	107	75-125	
sec-Butylbenzene	20.0	19.2	96	75-125	
1,3-Dichlorobenzene	20.0	16.8	84	75-125	
1,4-Dichlorobenzene	20.0	18.2	91	75-125	
p-Isopropyltoluene	20.0	20.0	100	75-125	
1,2-Dichlorobenzene	20.0	17.4	87	75-125	
n-Butylbenzene	20.0	20.5	102	75-125	
1,2-Dibromo-3-chloropropane	20.0	19.8	99	75-125	
1,2,4-Trichlorobenzene	20.0	20.4	102	75-125	
Naphthalene	20.0	20.3	101	75-125	
Hexachlorobutadiene	20.0	25.6	128	75-125	*
1,2,3-Trichlorobenzene	20.0	21.0	105	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0924

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Dichlorodifluoromethane	20.0	23.0	115	75-125	
Chloromethane	20.0	21.7	108	75-125	
Vinyl Chloride	20.0	18.7	93	75-125	
Bromomethane	20.0	20.5	102	75-125	
Chloroethane	20.0	16.2	81	75-125	
Trichlorofluoromethane	20.0	21.7	108	75-125	
Acetone	20.0	18.2	91	75-125	
1,1-Dichloroethene	20.0	18.3	91	75-125	
Methylene chloride	20.0	16.1	81	75-125	
trans-1,2-Dichloroethene	20.0	17.3	86	75-125	
Methyl tert-butyl ether (MTBE)	20.0	22.5	113	75-125	
1,1-Dichloroethane	20.0	17.8	89	75-125	
2-Butanone (MEK)	20.0	21.5	108	75-125	
cis-1,2-Dichloroethene	20.0	18.0	90	75-125	
Bromochloromethane	20.0	19.3	96	75-125	
Chloroform	20.0	19.1	96	75-125	
2,2-Dichloropropane	20.0	21.1	105	75-125	
1,2-Dichloroethane	20.0	19.7	99	75-125	
1,1,1-Trichloroethane	20.0	20.8	104	75-125	
1,1-Dichloropropene	20.0	19.5	97	75-125	
Carbon tetrachloride	20.0	21.4	107	75-125	
Benzene	20.0	18.0	90	75-125	
Dibromomethane	20.0	18.6	93	75-125	
1,2-Dichloropropane	20.0	16.9	84	75-125	
Trichloroethene (TCE)	20.0	19.2	96	75-125	
Bromodichloromethane	20.0	20.5	103	75-125	
cis-1,3-Dichloropropene	20.0	20.1	100	75-125	
4-Methyl-2-pentanone (MIBK)	20.0	19.9	99	75-125	
trans-1,3-Dichloropropene	20.0	20.6	103	75-125	
1,1,2-Trichloroethane	20.0	17.8	89	75-125	
Toluene	20.0	19.3	96	75-125	
1,3-Dichloropropane	20.0	18.8	94	75-125	
Dibromochloromethane	20.0	21.8	109	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Blank Spike ID: BS1W0924

GC Column: DB-VRX ID: 0.25 (mm) Instrument Name: MSE

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
1,2-Dibromoethane (EDB)	20.0	19.7	99	75-125	
Tetrachloroethene (PCE)	20.0	20.1	101	75-125	
1-Chlorohexane	20.0	20.8	104	75-125	
1,1,1,2-Tetrachloroethane	20.0	22.8	114	75-125	
Chlorobenzene	20.0	18.9	95	75-125	
Ethylbenzene	20.0	19.2	96	75-125	
m,p-Xylene	40.0	40.0	100	75-125	
Bromoform	20.0	23.6	118	75-125	
Styrene	20.0	20.7	104	75-125	
1,1,2,2-Tetrachloroethane	20.0	18.7	93	75-125	
o-Xylene	20.0	20.1	100	75-125	
1,2,3-Trichloropropane	20.0	19.1	96	75-125	
Isopropylbenzene	20.0	20.5	103	75-125	
Bromobenzene	20.0	18.4	92	75-125	
n-Propylbenzene	20.0	19.4	97	75-125	
2-Chlorotoluene	20.0	19.7	99	75-125	
4-Chlorotoluene	20.0	19.3	97	75-125	
1,3,5-Trimethylbenzene	20.0	21.1	105	75-125	
tert-Butylbenzene	20.0	21.4	107	75-125	
1,2,4-Trimethylbenzene	20.0	20.9	104	75-125	
sec-Butylbenzene	20.0	20.4	102	75-125	
1,3-Dichlorobenzene	20.0	18.4	92	75-125	
1,4-Dichlorobenzene	20.0	18.4	92	75-125	
p-Isopropyltoluene	20.0	20.7	103	75-125	
1,2-Dichlorobenzene	20.0	19.1	96	75-125	
n-Butylbenzene	20.0	19.9	100	75-125	
1,2-Dibromo-3-chloropropane	20.0	22.8	114	75-125	
1,2,4-Trichlorobenzene	20.0	21.1	106	75-125	
Naphthalene	20.0	22.3	111	75-125	
Hexachlorobutadiene	20.0	26.0	130	75-125	*
1,2,3-Trichlorobenzene	20.0	21.4	107	75-125	

* Values outside of QC limits

Comments:

WATER VOLATILE METHOD BLANK SUMMARY

Field Sample ID: WB1-0923

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Lab Sample ID: WB1-0923

Lab File ID: WB1_0923.D Date Analyzed: 09/23/13

GC Column: DB-VRX ID: 0.25 (mm) Time Analyzed: 1053

Instrument Name: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	BS1W0923	BS1W0923	BS1W0923.D	09/23/13	0946
2	SPLPBLK	SPLPBLK	SPLPBLK.D	09/23/13	1339
3	RECON ID 023-CH2M Run 010DL	M279201DL	279201DL.D	09/23/13	1556
4	RECON ID 024-CH2M Run 011DL	M279202DL	279202DL.D	09/23/13	1623
5	RECON ID 025-CH2M Run 012DL	M279203DL	279203DL.D	09/23/13	1811
6	RECON ID 026-CH2M Run 013DL	M279204DL	279204DL.D	09/23/13	1838
7	RECON ID 023-CH2M Run 010	M279201	279201.D	09/23/13	1959

Comments:

WATER VOLATILE METHOD BLANK SUMMARY

Field Sample ID: WB1-0924

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Lab Sample ID: WB1-0924

Lab File ID: WB1_0924.D Date Analyzed: 09/24/13

GC Column: DB-VRX ID: 0.25 (mm) Time Analyzed: 1053

Instrument Name: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	BS1W0924	BS1W0924	BS1W0924.D	09/24/13	0957
2	RECON ID 024-CH2M Run 011	M279202	279202R3.D	09/24/13	1440
3	RECON ID 025-CH2M Run 012	M279203	279203R3.D	09/24/13	1507
4	RECON ID 026-CH2M Run 013	M279204	279204R3.D	09/24/13	1535

Comments:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B BFB Injection Date: 08/13/13

Lab File ID: T1_0813.D BFB Injection Time: 0851

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm)

Mass	Ion Abundance Criteria	% Relative	Q
50	15% to 40% of mass 95	3336 (17.6)	
75	30% to 60% of mass 95	8416 (44.4)	
95	base peak, 100% relative abundance	18943 (100.0)	
96	5% to 9% of mass 95	1386 (7.3)	
173	0% to less than 2% of mass 174	100 (0.6)	
174	greater than 50% of mass 95	17532 (92.6)	
175	5% to 9% of mass 174	1370 (7.8)	
176	>95%, but <101% of mass 174	17185 (98.0)	
177	5% to 9% of mass 176	1189 (6.9)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	LEVEL-0.3	LEVEL-0.3	LEVEL_1.D	08/13/13	1014
2	LEVEL-1.0	LEVEL-1.0	LEVEL_2.D	08/13/13	1109
3	LEVEL-5.0	LEVEL-5.0	LEVEL_3.D	08/13/13	1136
4	LEVEL-10.0	LEVEL-10.0	LEVEL_4.D	08/13/13	1204
5	LEVEL-20.0	LEVEL-20.0	LEVEL_5.D	08/13/13	1231
6	LEVEL-50.0	LEVEL-50.0	LEVEL_6.D	08/13/13	1258
7	LEVEL-100.0	LEVEL-100.0	LEVEL_7.D	08/13/13	1325
8	ICVW0813	ICVW0813	ICVW0813.D	08/13/13	1539

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B BFB Injection Date: 09/23/13

Lab File ID: T1_0923.D BFB Injection Time: 0827

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm)

Mass	Ion Abundance Criteria	% Relative	Q
50	15% to 40% of mass 95	4623 (17.8)	
75	30% to 60% of mass 95	12701 (49.0)	
95	base peak, 100% relative abundance	25922 (100.0)	
96	5% to 9% of mass 95	1590 (6.1)	
173	0% to less than 2% of mass 174	64 (0.3)	
174	greater than 50% of mass 95	25255 (97.4)	
175	5% to 9% of mass 174	1856 (7.3)	
176	>95%, but <101% of mass 174	24864 (98.5)	
177	5% to 9% of mass 176	1628 (6.5)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0923	CV1-0923	CV1_0923.D	09/23/13	0827
2	BS1W0923	BS1W0923	BS1W0923.D	09/23/13	0946
3	WB1-0923	WB1-0923	WB1_0923.D	09/23/13	1053
4	SPLPBLK	SPLPBLK	SPLPBLK.D	09/23/13	1339
5	RECON ID 023-CH2M Run 010DL	M279201DL	279201DL.D	09/23/13	1556
6	RECON ID 024-CH2M Run 011DL	M279202DL	279202DL.D	09/23/13	1623
7	RECON ID 025-CH2M Run 012DL	M279203DL	279203DL.D	09/23/13	1811
8	RECON ID 026-CH2M Run 013DL	M279204DL	279204DL.D	09/23/13	1838
9	RECON ID 023-CH2M Run 010	M279201	279201.D	09/23/13	1959

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B BFB Injection Date: 09/24/13

Lab File ID: T1_0924.D BFB Injection Time: 0855

Instrument: MSE

GC Column: DB-VRX ID: 0.25 (mm)

Mass	Ion Abundance Criteria	% Relative	Q
50	15% to 40% of mass 95	3267 (16.0)	
75	30% to 60% of mass 95	8805 (43.1)	
95	base peak, 100% relative abundance	20424 (100.0)	
96	5% to 9% of mass 95	1265 (6.2)	
173	0% to less than 2% of mass 174	50 (0.2)	
174	greater than 50% of mass 95	20232 (99.1)	
175	5% to 9% of mass 174	1163 (5.7)	
176	>95%, but <101% of mass 174	19657 (97.2)	
177	5% to 9% of mass 176	1263 (6.4)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0924	CV1-0924	CV1_0924.D	09/24/13	0855
2	BS1W0924	BS1W0924	BS1W0924.D	09/24/13	0957
3	WB1-0924	WB1-0924	WB1_0924.D	09/24/13	1053
4	RECON ID 024-CH2M Run 011	M279202	279202R3.D	09/24/13	1440
5	RECON ID 025-CH2M Run 012	M279203	279203R3.D	09/24/13	1507
6	RECON ID 026-CH2M Run 013	M279204	279204R3.D	09/24/13	1535

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
Fluorobenzene	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
Dichlorodifluoromethane	.3	0.381	1	0.287	5	0.401	10	0.435	20	0.428	50	0.471
Chloromethane*	.3	0.381	1	0.325	5	0.337	10	0.331	20	0.340	50	0.381
Vinyl Chloride#	.3	0.403	1	0.358	5	0.373	10	0.377	20	0.378	50	0.375
Bromomethane	.3	0.250	1	0.210	5	0.227	10	0.214	20	0.224	50	0.239
Chloroethane	.3	0.222	1	0.180	5	0.178	10	0.180	20	0.190	50	0.205
Trichlorofluoromethane	.3	0.610	1	0.528	5	0.512	10	0.543	20	0.550	50	0.578
Acetone	1	0.079	5	0.073	10	0.073	20	0.065	50	0.068	100	0.064
1,1-Dichloroethene#	.3	0.500	1	0.436	5	0.474	10	0.467	20	0.473	50	0.476
Methylene chloride	.3	0.568	1	0.469	5	0.468	10	0.426	20	0.423	50	0.428
trans-1,2-Dichloroethene	.3	0.502	1	0.445	5	0.443	10	0.409	20	0.425	50	0.431
Methyl tert-butyl ether	.3	0.780	1	0.665	5	0.715	10	0.715	20	0.704	50	0.768
1,1-Dichloroethane*	.3	0.549	1	0.514	5	0.543	10	0.505	20	0.508	50	0.519
2-Butanone (MEK)	1	0.019	5	0.024	10	0.026	20	0.026	50	0.027	100	0.026
cis-1,2-Dichloroethene	.3	0.451	1	0.406	5	0.419	10	0.388	20	0.395	50	0.416
Bromochloromethane	.3	0.234	1	0.213	5	0.227	10	0.212	20	0.213	50	0.218
Chloroform#	.3	0.559	1	0.524	5	0.536	10	0.502	20	0.504	50	0.517
2,2-Dichloropropane	.3	0.421	1	0.361	5	0.415	10	0.388	20	0.405	50	0.436
Dibromofluoromethane	1	0.312	5	0.301	10	0.297	20	0.300	50	0.295		
1,2-Dichloroethane-d4	1	0.340	5	0.307	10	0.310	20	0.310	50	0.296		
1,2-Dichloroethane	.3	0.384	1	0.367	5	0.379	10	0.368	20	0.369	50	0.378
1,1,1-Trichloroethane	.3	0.469	1	0.441	5	0.462	10	0.442	20	0.453	50	0.479
1,1-Dichloropropene	.3	0.357	1	0.335	5	0.340	10	0.344	20	0.351	50	0.371
Carbon tetrachloride	.3	0.369	1	0.317	5	0.344	10	0.346	20	0.367	50	0.410
Benzene	.3	1.157	1	1.044	5	1.081	10	1.037	20	1.043	50	1.065
Dibromomethane	.3	0.212	1	0.184	5	0.178	10	0.175	20	0.173	50	0.178
1,2-Dichloropropane#	.3	0.306	1	0.264	5	0.273	10	0.258	20	0.258	50	0.268
Trichloroethene (TCE)	.3	0.360	1	0.318	5	0.323	10	0.310	20	0.315	50	0.332
Bromodichloromethane	.3	0.319	1	0.327	5	0.328	10	0.330	20	0.340	50	0.368
cis-1,3-Dichloropropene	.3	0.351	1	0.325	5	0.357	10	0.359	20	0.378	50	0.415

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
4-Methyl-2-pentanone (MIBK)	1	0.175	5	0.203	10	0.210	20	0.213	50	0.225	100	0.213
trans-1,3-Dichloropropene	.3	0.287	1	0.281	5	0.313	10	0.326	20	0.338	50	0.379
1,1,2-Trichloroethane	.3	0.214	1	0.194	5	0.197	10	0.195	20	0.193	50	0.200
Toluene-d8	1	0.907	5	0.877	10	0.916	20	0.927	50	0.918		
Toluene#	.3	1.056	1	1.038	5	1.109	10	1.103	20	1.109	50	1.146
1,3-Dichloropropane	.3	0.516	1	0.478	5	0.483	10	0.485	20	0.482	50	0.517
Dibromochloromethane	.3	0.292	1	0.278	5	0.292	10	0.301	20	0.329	50	0.380
1,2-Dibromoethane (EDB)	.3	0.360	1	0.318	5	0.314	10	0.321	20	0.333	50	0.361
Tetrachloroethene (PCE)	.3	0.421	1	0.366	5	0.372	10	0.364	20	0.377	50	0.400
1-Chlorohexane	.3	0.291	1	0.239	5	0.274	10	0.290	20	0.300	50	0.341
1,1,1,2-Tetrachloroethane	.3	0.285	1	0.271	5	0.307	10	0.315	20	0.344	50	0.387
Chlorobenzene-d5	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
Chlorobenzene*	.3	1.093	1	1.021	5	1.024	10	0.997	20	1.009	50	1.077
Ethylbenzene#	.3	1.474	1	1.321	5	1.419	10	1.405	20	1.485	50	1.584
m,p-Xylene	.6	1.065	2	0.997	10	1.142	20	1.126	40	1.158	100	1.230
Bromoform*	.3	0.175	1	0.159	5	0.171	10	0.186	20	0.208	50	0.255
Styrene	.3	0.786	1	0.777	5	0.917	10	0.935	20	1.019	50	1.136
1,1,2,2-Tetrachloroethane*	.3	0.419	1	0.386	5	0.398	10	0.388	20	0.400	50	0.421
o-Xylene	.3	1.114	1	1.094	5	1.247	10	1.213	20	1.260	50	1.346
1,2,3-Trichloropropane	.3	0.653	1	0.587	5	0.573	10	0.582	20	0.579	50	0.585
Isopropylbenzene	.3	2.411	1	2.132	5	2.376	10	2.440	20	2.532	50	2.600
4-Bromofluorobenzene	1	0.805	5	0.788	10	0.820	20	0.838	50	0.795		
Bromobenzene	.3	1.297	1	1.108	5	1.146	10	1.121	20	1.147	50	1.164
n-Propylbenzene	.3	2.406	1	2.157	5	2.425	10	2.455	20	2.597	50	2.673
2-Chlorotoluene	.3	1.780	1	1.744	5	1.859	10	1.835	20	1.875	50	1.900
4-Chlorotoluene	.3	1.866	1	1.804	5	1.977	10	1.961	20	2.023	50	2.045
1,3,5-Trimethylbenzene	.3	1.877	1	1.732	5	1.955	10	2.022	20	2.067	50	2.125
tert-Butylbenzene	.3	1.508	1	1.375	5	1.452	10	1.510	20	1.583	50	1.676
1,2,4-Trimethylbenzene	.3	1.897	1	1.762	5	2.038	10	2.084	20	2.162	50	2.251
sec-Butylbenzene	.3	2.145	1	1.962	5	2.155	10	2.183	20	2.229	50	2.322

* SPCC # CCC

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-0.3 LEVEL-1.0 LEVEL-5.0 LEVEL-10.0 LEVEL-20.0 LEVEL-50.0

ICAL File IDs: LEVEL_1.D LEVEL_2.D LEVEL_3.D LEVEL_4.D LEVEL_5.D LEVEL_6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
1,3-Dichlorobenzene	.3	1.841	1	1.579	5	1.553	10	1.507	20	1.529	50	1.534
1,4-Dichlorobenzene-d4	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000	10	1.000
1,4-Dichlorobenzene	.3	1.961	1	1.651	5	1.653	10	1.587	20	1.617	50	1.606
p-Isopropyltoluene	.3	1.989	1	1.736	5	1.884	10	1.868	20	1.953	50	2.000
1,2-Dichlorobenzene	.3	1.785	1	1.508	5	1.568	10	1.525	20	1.558	50	1.602
n-Butylbenzene	.3	1.534	1	1.344	5	1.489	10	1.494	20	1.593	50	1.699
1,2-Dibromo-3-chloropropane	.3	0.179	1	0.141	5	0.149	10	0.158	20	0.175	50	0.193
1,2,4-Trichlorobenzene	.3	1.178	1	0.969	5	0.919	10	0.883	20	0.941	50	0.934
Naphthalene	.3	2.822	1	2.378	5	2.636	10	2.732	20	2.899	50	2.769
Hexachlorobutadiene	.3	0.561	1	0.427	5	0.382	10	0.381	20	0.385	50	0.377
1,2,3-Trichlorobenzene	.3	1.146	1	0.955	5	0.922	10	0.908	20	0.945	50	0.838

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
Fluorobenzene	10	1.000										
Dichlorodifluoromethane	100	0.441										
Chloromethane*	100	0.366										
Vinyl Chloride#	100	0.355										
Bromomethane	100	0.225										
Chloroethane	100	0.178										
Trichlorofluoromethane	100	0.539										
Acetone												
1,1-Dichloroethene#	100	0.436										
Methylene chloride	100	0.387										
trans-1,2-Dichloroethene	100	0.395										
Methyl tert-butyl ether	100	0.720										
1,1-Dichloroethane*	100	0.476										
2-Butanone (MEK)												
cis-1,2-Dichloroethene	100	0.384										
Bromochloromethane	100	0.201										
Chloroform#	100	0.479										
2,2-Dichloropropane	100	0.405										
Dibromofluoromethane												
1,2-Dichloroethane-d4												
1,2-Dichloroethane	100	0.349										
1,1,1-Trichloroethane	100	0.448										
1,1-Dichloropropene	100	0.345										
Carbon tetrachloride	100	0.393										
Benzene	100	0.983										
Dibromomethane	100	0.166										
1,2-Dichloropropane#	100	0.248										
Trichloroethene (TCE)	100	0.307										
Bromodichloromethane	100	0.351										
cis-1,3-Dichloropropene	100	0.395										

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
4-Methyl-2-pentanone (MIBK)												
trans-1,3-Dichloropropene	100	0.361										
1,1,2-Trichloroethane	100	0.187										
Toluene-d8												
Toluene#	100	1.029										
1,3-Dichloropropane	100	0.496										
Dibromochloromethane	100	0.382										
1,2-Dibromoethane (EDB)	100	0.355										
Tetrachloroethene (PCE)	100	0.382										
1-Chlorohexane	100	0.342										
1,1,1,2-Tetrachloroethane	100	0.386										
Chlorobenzene-d5	10	1.000										
Chlorobenzene*	100	1.039										
Ethylbenzene#	100	1.527										
m,p-Xylene	200	1.161										
Bromoform*												
Styrene												
1,1,2,2-Tetrachloroethane*	100	0.403										
o-Xylene	100	1.277										
1,2,3-Trichloropropane	100	0.552										
Isopropylbenzene	100	2.414										
4-Bromofluorobenzene												
Bromobenzene	100	1.107										
n-Propylbenzene	100	2.528										
2-Chlorotoluene	100	1.800										
4-Chlorotoluene	100	1.939										
1,3,5-Trimethylbenzene	100	1.997										
tert-Butylbenzene	100	1.569										
1,2,4-Trimethylbenzene	100	2.115										
sec-Butylbenzene	100	2.146										

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N) N Concentration Units: ug/L

ICAL Sample IDs: LEVEL-100.0

ICAL File IDs: LEVEL_7.D

Analyte	Std 7	RF 7	Std 8	RF 8	Std 9	RF 9						
1,3-Dichlorobenzene	100	1.463										
1,4-Dichlorobenzene-d4	10	1.000										
1,4-Dichlorobenzene	100	1.503										
p-Isopropyltoluene	100	1.847										
1,2-Dichlorobenzene	100	1.490										
n-Butylbenzene	100	1.602										
1,2-Dibromo-3-chloropropane	100	0.167										
1,2,4-Trichlorobenzene	100	0.742										
Naphthalene	100	2.018										
Hexachlorobutadiene												
1,2,3-Trichlorobenzene												

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
Fluorobenzene	AVG	1.000	0.00	7.51			
Dichlorodifluoromethane	AVG	0.406	14.8	7.51			
Chloromethane*	AVG	0.352	6.77	7.51			
Vinyl Chloride#	AVG	0.374	4.24	7.51			
Bromomethane	AVG	0.227	6.01	7.51			
Chloroethane	AVG	0.190	8.94	7.51			
Trichlorofluoromethane	AVG	0.551	6.00	7.51			
Acetone	LINR	0.070			0.998		
1,1-Dichloroethene#	AVG	0.466	4.95	7.51			
Methylene chloride	LINR	0.453			0.998		
trans-1,2-Dichloroethene	AVG	0.436	7.84	7.51			
Methyl tert-butyl ether (MTBE)	AVG	0.724	5.39	7.51			
1,1-Dichloroethane*	AVG	0.516	4.77	7.51			
2-Butanone (MEK)	AVG	0.024	11.8	7.51			
cis-1,2-Dichloroethene	AVG	0.408	5.65	7.51			
Bromochloromethane	AVG	0.217	4.86	7.51			
Chloroform#	AVG	0.517	4.99	7.51			
2,2-Dichloropropane	AVG	0.404	5.99	7.51			
Dibromofluoromethane	AVG	0.301	2.13	7.51			
1,2-Dichloroethane-d4	AVG	0.312	5.24	7.51			
1,2-Dichloroethane	AVG	0.371	3.11	7.51			
1,1,1-Trichloroethane	AVG	0.456	3.14	7.51			
1,1-Dichloropropene	AVG	0.349	3.48	7.51			
Carbon tetrachloride	AVG	0.363	8.67	7.51			
Benzene	AVG	1.059	5.01	7.51			
Dibromomethane	AVG	0.181	8.08	7.51			
1,2-Dichloropropane#	AVG	0.268	6.90	7.51			
Trichloroethene (TCE)	AVG	0.323	5.62	7.51			
Bromodichloromethane	AVG	0.337	5.03	7.51			
cis-1,3-Dichloropropene	AVG	0.368	8.07	7.51			

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
4-Methyl-2-pentanone (MIBK)	AVG	0.206	8.19	7.51			
trans-1,3-Dichloropropene	AVG	0.326	11.2	7.51			
1,1,2-Trichloroethane	AVG	0.197	4.37	7.51			
Toluene-d8	AVG	0.909	2.12	7.51			
Toluene#	AVG	1.084	4.03	7.51			
1,3-Dichloropropane	AVG	0.494	3.31	7.51			
Dibromochloromethane	AVG	0.322	13.4	7.51			
1,2-Dibromoethane (EDB)	AVG	0.337	6.13	7.51			
Tetrachloroethene (PCE)	AVG	0.383	5.34	7.51			
1-Chlorohexane	AVG	0.297	12.3	7.51			
1,1,1,2-Tetrachloroethane	AVG	0.328	14.1	7.51			
Chlorobenzene-d5	AVG	1.000	0.00	7.51			
Chlorobenzene*	AVG	1.037	3.44	7.51			
Ethylbenzene#	AVG	1.459	5.93	7.51			
m,p-Xylene	AVG	1.125	6.65	7.51			
Bromoform*	QUAD	0.192				1.005	
Styrene	AVG	0.929	14.8	7.51			
1,1,2,2-Tetrachloroethane*	AVG	0.402	3.39	7.51			
o-Xylene	AVG	1.222	7.37	7.51			
1,2,3-Trichloropropane	AVG	0.587	5.30	7.51			
Isopropylbenzene	AVG	2.415	6.10	7.51			
4-Bromofluorobenzene	AVG	0.809	2.50	7.51			
Bromobenzene	AVG	1.155	5.71	7.51			
n-Propylbenzene	AVG	2.463	6.72	7.51			
2-Chlorotoluene	AVG	1.828	3.04	7.51			
4-Chlorotoluene	AVG	1.945	4.38	7.51			
1,3,5-Trimethylbenzene	AVG	1.968	6.63	7.51			
tert-Butylbenzene	AVG	1.525	6.36	7.51			
1,2,4-Trimethylbenzene	AVG	2.044	8.10	7.51			
sec-Butylbenzene	AVG	2.163	5.04	7.51			

* SPCC # CCC

VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date(s): 08/13/13 08/13/13

Instrument Name: MSE Calibration Times: 1014 1325

Heat Purge: (Y/N)N Concentration Units: ug/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
1,3-Dichlorobenzene	AVG	1.572	7.88	7.51			
1,4-Dichlorobenzene-d4	AVG	1.000	0.00	7.51			
1,4-Dichlorobenzene	AVG	1.654	8.72	7.51			
p-Isopropyltoluene	AVG	1.897	4.89	7.51			
1,2-Dichlorobenzene	AVG	1.576	6.31	7.51			
n-Butylbenzene	AVG	1.537	7.27	7.51			
1,2-Dibromo-3-chloropropane	AVG	0.166	11.0	7.51			
1,2,4-Trichlorobenzene	AVG	0.938	13.8	7.51			
Naphthalene	AVG	2.608	11.9	7.51			
Hexachlorobutadiene	LINR	0.419			1.000		
1,2,3-Trichlorobenzene	AVG	0.952	10.9	7.51			

* SPCC # CCC

VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 08/13/13 1539

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

2nd Source ICVW0813 Init. Calib. Time(s): 1014 1325

Lab File ID: ICVW0813.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dichlorodifluoromethane	20.0	21.1	0.429	0.000	6	20	
Chloromethane*	20.0	20.4	0.359	0.100	2	20	
Vinyl Chloride#	20.0	18.9	0.354	0.000	-5	20	
Bromomethane	20.0	19.4	0.220	0.000	-3	20	
Chloroethane	20.0	22.8	0.217	0.000	14	20	
Trichlorofluoromethane	20.0	20.8	0.574	0.000	4	20	
Acetone	20.0	19.2	0.065	0.000	-4	20	
1,1-Dichloroethene#	20.0	18.6	0.433	0.000	-7	20	
Methylene chloride	20.0	19.3	0.411	0.000	-3	20	
trans-1,2-Dichloroethene	20.0	19.1	0.416	0.000	-5	20	
Methyl tert-butyl ether (MTBE)	20.0	18.0	0.651	0.000	-10	20	
1,1-Dichloroethane*	20.0	19.1	0.493	0.100	-5	20	
2-Butanone (MEK)	20.0	19.9	0.024	0.000	-0.7	20	
cis-1,2-Dichloroethene	20.0	18.9	0.385	0.000	-6	20	
Bromochloromethane	20.0	18.9	0.205	0.000	-6	20	
Chloroform#	20.0	18.9	0.489	0.000	-5	20	
2,2-Dichloropropane	20.0	19.7	0.398	0.000	-1	20	
1,2-Dichloroethane	20.0	19.2	0.355	0.000	-4	20	
1,1,1-Trichloroethane	20.0	19.4	0.443	0.000	-3	20	
1,1-Dichloropropene	20.0	19.9	0.347	0.000	-0.7	20	
Carbon tetrachloride	20.0	19.9	0.362	0.000	-0.4	20	
Benzene	20.0	19.4	1.026	0.000	-3	20	
Dibromomethane	20.0	18.4	0.167	0.000	-8	20	
1,2-Dichloropropane#	20.0	19.5	0.262	0.000	-2	20	
Trichloroethene (TCE)	20.0	19.5	0.315	0.000	-2	20	
Bromodichloromethane	20.0	19.7	0.332	0.000	-2	20	
cis-1,3-Dichloropropene	20.0	21.5	0.395	0.000	7	20	
4-Methyl-2-pentanone (MIBK)	20.0	19.7	0.203	0.000	-2	20	
trans-1,3-Dichloropropene	20.0	20.2	0.329	0.000	0.8	20	
1,1,2-Trichloroethane	20.0	19.8	0.195	0.000	-1.0	20	
Toluene#	20.0	20.1	1.091	0.000	0.6	20	
1,3-Dichloropropane	20.0	19.3	0.477	0.000	-3	20	
Dibromochloromethane	20.0	19.2	0.309	0.000	-4	20	
1,2-Dibromoethane (EDB)	20.0	19.0	0.320	0.000	-5	20	
Tetrachloroethene (PCE)	20.0	18.9	0.361	0.000	-6	20	

* SPCC # CCC

VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 08/13/13 1539

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

2nd Source ICVW0813 Init. Calib. Time(s): 1014 1325

Lab File ID: ICVW0813.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
1-Chlorohexane	20.0	20.1	0.298	0.000	0.3	20	
1,1,1,2-Tetrachloroethane	20.0	20.5	0.337	0.000	3	20	
Chlorobenzene*	20.0	17.7	0.917	0.300	-12	20	
Ethylbenzene#	20.0	19.9	1.451	0.000	-0.6	20	
m,p-Xylene	40.0	38.6	1.085	0.000	-4	20	
Bromoform*	20.0	20.1	0.202	0.100	0.6	20	
Styrene	20.0	21.4	0.992	0.000	7	20	
1,1,2,2-Tetrachloroethane*	20.0	18.6	0.374	0.300	-7	20	
o-Xylene	20.0	18.5	1.131	0.000	-7	20	
1,2,3-Trichloropropane	20.0	18.4	0.541	0.000	-8	20	
Isopropylbenzene	20.0	19.0	2.296	0.000	-5	20	
Bromobenzene	20.0	18.8	1.087	0.000	-6	20	
n-Propylbenzene	20.0	19.3	2.371	0.000	-4	20	
2-Chlorotoluene	20.0	18.8	1.722	0.000	-6	20	
4-Chlorotoluene	20.0	18.1	1.760	0.000	-10	20	
1,3,5-Trimethylbenzene	20.0	21.2	2.089	0.000	6	20	
tert-Butylbenzene	20.0	19.0	1.451	0.000	-5	20	
1,2,4-Trimethylbenzene	20.0	21.3	2.174	0.000	6	20	
sec-Butylbenzene	20.0	19.3	2.086	0.000	-4	20	
1,3-Dichlorobenzene	20.0	17.4	1.364	0.000	-13	20	
1,4-Dichlorobenzene	20.0	18.6	1.538	0.000	-7	20	
p-Isopropyltoluene	20.0	19.7	1.870	0.000	-1	20	
1,2-Dichlorobenzene	20.0	17.7	1.397	0.000	-11	20	
n-Butylbenzene	20.0	21.4	1.643	0.000	7	20	
1,2-Dibromo-3-chloropropane	20.0	19.4	0.161	0.000	-3	20	
1,2,4-Trichlorobenzene	20.0	19.6	0.919	0.000	-2	20	
Naphthalene	20.0	20.6	2.681	0.000	3	20	
Hexachlorobutadiene	20.0	21.8	0.412	0.000	9	20	
1,2,3-Trichlorobenzene	20.0	19.3	0.919	0.000	-3	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 09/23/13 0827

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1014 1325

Lab File ID: CV1_0923.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dichlorodifluoromethane	20.0	19.9	0.403	0.000	-0.7	20	
Chloromethane*	20.0	16.2	0.284	0.100	-19	20	
Vinyl Chloride#	20.0	18.6	0.347	0.000	-7	30	
Bromomethane	20.0	21.5	0.244	0.000	7	20	
Chloroethane	20.0	17.9	0.170	0.000	-11	20	
Trichlorofluoromethane	20.0	25.5	0.704	0.000	28	20	*
Acetone	20.0	19.5	0.066	0.000	-3	20	
1,1-Dichloroethene#	20.0	17.9	0.418	0.000	-10	30	
Methylene chloride	20.0	17.2	0.365	0.000	-14	20	
trans-1,2-Dichloroethene	20.0	17.5	0.382	0.000	-12	20	
Methyl tert-butyl ether (MTBE)	20.0	23.4	0.846	0.000	17	20	
1,1-Dichloroethane*	20.0	18.1	0.466	0.100	-10	20	
2-Butanone (MEK)	20.0	21.2	0.026	0.000	6	20	
cis-1,2-Dichloroethene	20.0	18.1	0.369	0.000	-10	20	
Bromochloromethane	20.0	18.6	0.202	0.000	-7	20	
Chloroform#	20.0	19.8	0.512	0.000	-1.0	30	
2,2-Dichloropropane	20.0	19.1	0.387	0.000	-4	20	
Dibromofluoromethane	10.0	10.8	0.323	0.000	7	20	
1,2-Dichloroethane-d4	10.0	11.4	0.355	0.000	14	20	
1,2-Dichloroethane	20.0	21.5	0.398	0.000	7	20	
1,1,1-Trichloroethane	20.0	20.7	0.471	0.000	3	20	
1,1-Dichloropropene	20.0	19.2	0.335	0.000	-4	20	
Carbon tetrachloride	20.0	20.2	0.367	0.000	1.0	20	
Benzene	20.0	17.6	0.932	0.000	-12	20	
Dibromomethane	20.0	18.7	0.169	0.000	-7	20	
1,2-Dichloropropane#	20.0	16.9	0.226	0.000	-16	30	
Trichloroethene (TCE)	20.0	18.5	0.300	0.000	-7	20	
Bromodichloromethane	20.0	21.1	0.355	0.000	5	20	
cis-1,3-Dichloropropene	20.0	19.7	0.364	0.000	-1	20	
4-Methyl-2-pentanone (MIBK)	20.0	20.9	0.216	0.000	5	20	
trans-1,3-Dichloropropene	20.0	20.1	0.329	0.000	0.6	20	
1,1,2-Trichloroethane	20.0	17.7	0.175	0.000	-11	20	
Toluene-d8	10.0	10.1	0.921	0.000	1	20	
Toluene#	20.0	18.7	1.014	0.000	-7	30	
1,3-Dichloropropane	20.0	18.3	0.452	0.000	-8	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 09/23/13 0827

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1014 1325

Lab File ID: CV1_0923.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dibromochloromethane	20.0	21.5	0.347	0.000	8	20	
1,2-Dibromoethane (EDB)	20.0	18.4	0.310	0.000	-8	20	
Tetrachloroethene (PCE)	20.0	18.7	0.357	0.000	-7	20	
1-Chlorohexane	20.0	20.8	0.308	0.000	4	20	
1,1,1,2-Tetrachloroethane	20.0	21.4	0.351	0.000	7	20	
Chlorobenzene*	20.0	18.2	0.942	0.300	-9	20	
Ethylbenzene#	20.0	18.4	1.346	0.000	-8	30	
m,p-Xylene	40.0	38.8	1.092	0.000	-3	20	
Bromoform*	20.0	21.5	0.219	0.100	7	20	
Styrene	20.0	19.7	0.915	0.000	-1	20	
1,1,2,2-Tetrachloroethane*	20.0	17.6	0.353	0.300	-12	20	
o-Xylene	20.0	19.6	1.197	0.000	-2	20	
1,2,3-Trichloropropane	20.0	17.8	0.524	0.000	-11	20	
Isopropylbenzene	20.0	19.6	2.361	0.000	-2	20	
4-Bromofluorobenzene	10.0	10.5	0.848	0.000	5	20	
Bromobenzene	20.0	18.3	1.057	0.000	-9	20	
n-Propylbenzene	20.0	18.7	2.298	0.000	-7	20	
2-Chlorotoluene	20.0	19.1	1.748	0.000	-4	20	
4-Chlorotoluene	20.0	19.0	1.843	0.000	-5	20	
1,3,5-Trimethylbenzene	20.0	20.3	1.992	0.000	1	20	
tert-Butylbenzene	20.0	20.4	1.553	0.000	2	20	
1,2,4-Trimethylbenzene	20.0	20.1	2.056	0.000	0.6	20	
sec-Butylbenzene	20.0	19.5	2.105	0.000	-3	20	
1,3-Dichlorobenzene	20.0	17.7	1.388	0.000	-12	20	
1,4-Dichlorobenzene	20.0	17.8	1.472	0.000	-11	20	
p-Isopropyltoluene	20.0	19.7	1.864	0.000	-2	20	
1,2-Dichlorobenzene	20.0	18.3	1.439	0.000	-9	20	
n-Butylbenzene	20.0	19.2	1.474	0.000	-4	20	
1,2-Dibromo-3-chloropropane	20.0	20.4	0.169	0.000	2	20	
1,2,4-Trichlorobenzene	20.0	19.9	0.931	0.000	-0.7	20	
Naphthalene	20.0	20.5	2.668	0.000	2	20	
Hexachlorobutadiene	20.0	23.0	0.435	0.000	15	20	
1,2,3-Trichlorobenzene	20.0	19.7	0.938	0.000	-1	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 09/24/13 0855

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1014 1325

Lab File ID: CV1_0924.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dichlorodifluoromethane	20.0	24.4	0.497	0.000	22	20	*
Chloromethane*	20.0	22.3	0.391	0.100	11	20	
Vinyl Chloride#	20.0	17.8	0.333	0.000	-11	30	
Bromomethane	20.0	19.7	0.224	0.000	-1	20	
Chloroethane	20.0	16.2	0.154	0.000	-19	20	
Trichlorofluoromethane	20.0	21.3	0.588	0.000	7	20	
Acetone	20.0	17.8	0.061	0.000	-11	20	
1,1-Dichloroethene#	20.0	17.7	0.413	0.000	-11	30	
Methylene chloride	20.0	15.5	0.331	0.000	-22	20	*
trans-1,2-Dichloroethene	20.0	17.0	0.370	0.000	-15	20	
Methyl tert-butyl ether (MTBE)	20.0	21.9	0.792	0.000	9	20	
1,1-Dichloroethane*	20.0	17.4	0.449	0.100	-13	20	
2-Butanone (MEK)	20.0	22.4	0.027	0.000	12	20	
cis-1,2-Dichloroethene	20.0	17.4	0.355	0.000	-13	20	
Bromochloromethane	20.0	19.0	0.206	0.000	-5	20	
Chloroform#	20.0	18.9	0.488	0.000	-6	30	
2,2-Dichloropropane	20.0	20.2	0.408	0.000	0.9	20	
Dibromofluoromethane	10.0	9.80	0.295	0.000	-2	20	
1,2-Dichloroethane-d4	10.0	9.82	0.307	0.000	-2	20	
1,2-Dichloroethane	20.0	19.4	0.360	0.000	-3	20	
1,1,1-Trichloroethane	20.0	19.9	0.455	0.000	-0.3	20	
1,1-Dichloropropene	20.0	19.5	0.341	0.000	-2	20	
Carbon tetrachloride	20.0	20.6	0.375	0.000	3	20	
Benzene	20.0	18.1	0.957	0.000	-10	20	
Dibromomethane	20.0	18.3	0.165	0.000	-9	20	
1,2-Dichloropropane#	20.0	16.8	0.225	0.000	-16	30	
Trichloroethene (TCE)	20.0	19.0	0.308	0.000	-5	20	
Bromodichloromethane	20.0	20.5	0.346	0.000	2	20	
cis-1,3-Dichloropropene	20.0	20.2	0.371	0.000	0.8	20	
4-Methyl-2-pentanone (MIBK)	20.0	19.5	0.201	0.000	-3	20	
trans-1,3-Dichloropropene	20.0	20.8	0.340	0.000	4	20	
1,1,2-Trichloroethane	20.0	18.0	0.178	0.000	-10	20	
Toluene-d8	10.0	9.75	0.886	0.000	-3	20	
Toluene#	20.0	19.1	1.035	0.000	-5	30	
1,3-Dichloropropane	20.0	18.9	0.466	0.000	-6	20	

* SPCC # CCC

VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8260B Calibration Date/Time: 09/24/13 0855

Instrument ID: MSE Init. Calib. Date(s): 08/13/13 08/13/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1014 1325

Lab File ID: CV1_0924.D GC Column: DB-VRX ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: ug/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Dibromochloromethane	20.0	22.0	0.354	0.000	10	20	
1,2-Dibromoethane (EDB)	20.0	19.4	0.327	0.000	-3	20	
Tetrachloroethene (PCE)	20.0	19.9	0.382	0.000	-0.3	20	
1-Chlorohexane	20.0	20.8	0.309	0.000	4	20	
1,1,1,2-Tetrachloroethane	20.0	22.3	0.365	0.000	11	20	
Chlorobenzene*	20.0	18.8	0.974	0.300	-6	20	
Ethylbenzene#	20.0	18.9	1.382	0.000	-5	30	
m,p-Xylene	40.0	39.6	1.114	0.000	-1	20	
Bromoform*	20.0	23.1	0.239	0.100	16	20	
Styrene	20.0	20.4	0.946	0.000	2	20	
1,1,2,2-Tetrachloroethane*	20.0	18.4	0.369	0.300	-8	20	
o-Xylene	20.0	19.9	1.213	0.000	-0.7	20	
1,2,3-Trichloropropane	20.0	19.2	0.564	0.000	-4	20	
Isopropylbenzene	20.0	21.1	2.547	0.000	5	20	
4-Bromofluorobenzene	10.0	10.8	0.876	0.000	8	20	
Bromobenzene	20.0	18.7	1.078	0.000	-7	20	
n-Propylbenzene	20.0	19.6	2.415	0.000	-2	20	
2-Chlorotoluene	20.0	20.0	1.826	0.000	-0.1	20	
4-Chlorotoluene	20.0	19.8	1.925	0.000	-1	20	
1,3,5-Trimethylbenzene	20.0	21.4	2.107	0.000	7	20	
tert-Butylbenzene	20.0	22.3	1.697	0.000	11	20	
1,2,4-Trimethylbenzene	20.0	21.3	2.174	0.000	6	20	
sec-Butylbenzene	20.0	20.8	2.249	0.000	4	20	
1,3-Dichlorobenzene	20.0	18.6	1.459	0.000	-7	20	
1,4-Dichlorobenzene	20.0	18.7	1.546	0.000	-7	20	
p-Isopropyltoluene	20.0	20.9	1.978	0.000	4	20	
1,2-Dichlorobenzene	20.0	19.3	1.518	0.000	-4	20	
n-Butylbenzene	20.0	20.2	1.548	0.000	0.8	20	
1,2-Dibromo-3-chloropropane	20.0	23.2	0.192	0.000	16	20	
1,2,4-Trichlorobenzene	20.0	21.4	1.004	0.000	7	20	
Naphthalene	20.0	22.3	2.901	0.000	11	20	
Hexachlorobutadiene	20.0	26.2	0.494	0.000	31	20	*
1,2,3-Trichlorobenzene	20.0	21.4	1.020	0.000	7	20	

* SPCC # CCC

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2792

Analysis Method: SW8260B

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL_4

Date Analyzed: 08/13/13

Lab File ID: LEVEL_4.D

Time Analyzed: 1204

Instrument Name: MSE

Heat Purge: (Y/N) N

GC Column: DB-VRX ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	Reference Cal	381033	11.99	312712	15.59	165981	18.58
	Upper Limit	762066	12.49	625424	16.09	331962	19.08
	Lower Limit	190517	11.49	156356	15.09	82991	18.08
Field Sample ID	Lab Sample ID						
ICVW0813	ICVW0813	394660	11.98	324847	15.59	176681	18.57
CV1-0923	CV1-0923	232570	11.99	185707	15.59	101009	18.57
BS1W0923	BS1W0923	234582	11.98	187657	15.59	97918	18.57
WB1-0923	WB1-0923	226033	11.98	181663	15.58	93178	18.57
SPLPBLK	SPLPBLK	211873	11.99	168556	15.59	86703	18.57
RECON ID 023-CH2M	M279201DL	219307	11.98	175695	15.59	91017	18.57
RECON ID 024-CH2M	M279202DL	216423	11.98	173040	15.59	89421	18.57
RECON ID 025-CH2M	M279203DL	200959	11.99	164190	15.59	84155	18.57
RECON ID 026-CH2M	M279204DL	211079	11.98	170534	15.59	88832	18.57
RECON ID 023-CH2M	M279201	210347	11.99	166702	15.59	90962	18.57
CV1-0924	CV1-0924	236553	11.98	184597	15.59	95519	18.57
BS1W0924	BS1W0924	223623	11.98	173803	15.59	93055	18.57
WB1-0924	WB1-0924	200728	11.98	159902	15.59	84174	18.57
RECON ID 024-CH2M	M279202	222993	11.98	173365	15.59	93308	18.57
RECON ID 025-CH2M	M279203	223150	11.98	177167	15.58	97400	18.57
RECON ID 026-CH2M	M279204	223613	11.98	180416	15.59	97681	18.57

IS1: Fluorobenzene

IS2: Chlorobenzene-d5

IS3: 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8260B
Matrix: Water

Instrument ID: MSE
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Dichlorodifluoromethane	11/04/11	0.250	0.210	0.270	0.210	0.260	0.190	0.250	0.250		0.0305	0.200
Chloromethane	11/04/11	0.250	0.230	0.270	0.220	0.260	0.270	0.330	0.220		0.0390	0.200
Vinyl Chloride	11/04/11	0.250	0.250	0.300	0.240	0.290	0.240	0.310	0.260		0.0294	0.200
Bromomethane	11/04/11	0.250	0.240	0.320	0.260	0.290	0.290	0.380	0.290		0.0450	0.200
Chloroethane	11/04/11	0.250	0.230	0.280	0.270	0.290	0.210	0.300	0.280		0.0331	0.200
Trichlorofluoromethane	11/04/11	0.250	0.260	0.280	0.260	0.280	0.230	0.300	0.250		0.0230	0.200
Acetone	11/04/11	0.750	0.640	0.730	0.910	0.870	0.900	0.730	0.820		0.102	0.500
1,1-Dichloroethene	11/04/11	0.250	0.250	0.290	0.250	0.280	0.250	0.290	0.290		0.0204	0.200
Methylene chloride	11/04/11	0.250	0.210	0.220	0.220	0.290	0.230	0.350	0.350		0.0624	0.200
trans-1,2-Dichloroethene	11/04/11	0.250	0.260	0.300	0.260	0.310	0.270	0.320	0.320		0.0273	0.200
Methyl tert-butyl ether (MTBE)	11/04/11	0.250	0.260	0.300	0.260	0.280	0.270	0.250	0.300		0.0199	0.200
1,1-Dichloroethane	11/04/11	0.250	0.240	0.300	0.250	0.280	0.250	0.300	0.300		0.0270	0.200
2-Butanone (MEK)	11/04/11	0.750	0.630	0.680	0.650	0.680	0.740	0.620	0.690		0.0408	0.500
cis-1,2-Dichloroethene	11/04/11	0.250	0.240	0.290	0.240	0.290	0.250	0.310	0.300		0.0299	0.200
Bromochloromethane	11/04/11	0.250	0.250	0.300	0.270	0.300	0.240	0.300	0.300		0.0265	0.200
Chloroform	11/04/11	0.250	0.250	0.290	0.250	0.280	0.250	0.290	0.290		0.0204	0.150
2,2-Dichloropropane	11/04/11	0.250	0.240	0.280	0.240	0.270	0.220	0.280	0.250		0.0230	0.200
1,2-Dichloroethane	11/04/11	0.250	0.250	0.300	0.270	0.280	0.250	0.320	0.330		0.0321	0.200
1,1,1-Trichloroethane	11/04/11	0.250	0.240	0.280	0.260	0.270	0.240	0.270	0.280		0.0170	0.200
1,1-Dichloropropene	11/04/11	0.250	0.250	0.290	0.250	0.300	0.250	0.310	0.300		0.0273	0.200
Carbon tetrachloride	11/04/11	0.250	0.230	0.260	0.220	0.250	0.230	0.270	0.260		0.0190	0.200
Benzene	11/04/11	0.250	0.250	0.290	0.260	0.280	0.240	0.300	0.300		0.0244	0.200
Dibromomethane	11/04/11	0.250	0.230	0.300	0.230	0.280	0.240	0.290	0.310		0.0344	0.200
1,2-Dichloropropane	11/04/11	0.250	0.270	0.300	0.250	0.270	0.250	0.300	0.320		0.0271	0.200
Trichloroethene (TCE)	11/04/11	0.250	0.250	0.290	0.250	0.290	0.250	0.300	0.310		0.0263	0.200
Bromodichloromethane	11/04/11	0.250	0.230	0.270	0.230	0.260	0.200	0.270	0.280		0.0291	0.200
cis-1,3-Dichloropropene	11/04/11	0.250	0.230	0.260	0.220	0.250	0.220	0.270	0.260		0.0207	0.200
4-Methyl-2-pentanone (MIBK)	11/04/11	0.750	0.750	0.750	0.790	0.760	0.690	0.720	0.810		0.0403	0.500
trans-1,3-Dichloropropene	11/04/11	0.250	0.220	0.250	0.220	0.240	0.210	0.250	0.260		0.0190	0.200
1,1,2-Trichloroethane	11/04/11	0.250	0.250	0.310	0.250	0.290	0.250	0.310	0.300		0.0289	0.200
Toluene	11/04/11	0.250	0.250	0.280	0.240	0.270	0.230	0.280	0.280		0.0212	0.200
1,3-Dichloropropane	11/04/11	0.250	0.260	0.280	0.250	0.290	0.240	0.280	0.280		0.0186	0.200
Dibromochloromethane	11/04/11	0.250	0.220	0.260	0.210	0.230	0.190	0.230	0.230		0.0215	0.200
1,2-Dibromoethane (EDB)	11/04/11	0.250	0.240	0.300	0.250	0.270	0.230	0.290	0.280		0.0264	0.200
Tetrachloroethene (PCE)	11/04/11	0.250	0.260	0.290	0.240	0.300	0.250	0.300	0.290		0.0251	0.200
1-Chlorohexane	11/04/11	0.250	0.260	0.290	0.250	0.270	0.220	0.220	0.290		0.0293	0.200
1,1,1,2-Tetrachloroethane	11/04/11	0.250	0.220	0.250	0.210	0.250	0.200	0.250	0.260		0.0237	0.200
Chlorobenzene	11/04/11	0.250	0.240	0.290	0.240	0.280	0.250	0.290	0.290		0.0241	0.200
Ethylbenzene	11/04/11	0.250	0.240	0.270	0.230	0.250	0.210	0.270	0.270		0.0234	0.200
m,p-Xylene	11/04/11	0.500	0.460	0.530	0.430	0.520	0.430	0.540	0.530		0.0495	0.400
Bromoform	11/04/11	0.250	0.280	0.300	0.250	0.270	0.270	0.290	0.270		0.0162	0.200

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8260B
Matrix: Water

Instrument ID: MSE
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Styrene	11/04/11	0.250	0.210	0.240	0.200	0.230	0.200	0.250	0.240		0.0207	0.200
1,1,2,2-Tetrachloroethane	11/04/11	0.250	0.220	0.250	0.220	0.250	0.220	0.260	0.260		0.0192	0.200
o-Xylene	11/04/11	0.250	0.250	0.280	0.220	0.280	0.240	0.270	0.280		0.0238	0.200
1,2,3-Trichloropropane	11/04/11	0.250	0.250	0.320	0.280	0.330	0.270	0.340	0.360		0.0407	0.200
Isopropylbenzene	11/04/11	0.250	0.230	0.270	0.240	0.270	0.230	0.280	0.260		0.0207	0.200
Bromobenzene	11/04/11	0.250	0.240	0.300	0.250	0.300	0.250	0.310	0.310		0.0316	0.200
n-Propylbenzene	11/04/11	0.250	0.230	0.270	0.220	0.260	0.230	0.270	0.260		0.0212	0.200
2-Chlorotoluene	11/04/11	0.250	0.240	0.290	0.240	0.280	0.240	0.290	0.280		0.0244	0.200
4-Chlorotoluene	11/04/11	0.250	0.240	0.280	0.230	0.280	0.240	0.280	0.280		0.0234	0.200
1,3,5-Trimethylbenzene	11/04/11	0.250	0.230	0.250	0.230	0.270	0.210	0.260	0.260		0.0215	0.200
tert-Butylbenzene	11/04/11	0.250	0.240	0.270	0.230	0.270	0.220	0.280	0.250		0.0227	0.200
1,2,4-Trimethylbenzene	11/04/11	0.250	0.220	0.260	0.210	0.250	0.210	0.260	0.260		0.0241	0.200
sec-Butylbenzene	11/04/11	0.250	0.230	0.270	0.230	0.270	0.210	0.270	0.260		0.0248	0.200
1,3-Dichlorobenzene	11/04/11	0.250	0.250	0.290	0.250	0.290	0.240	0.290	0.300		0.0250	0.200
1,4-Dichlorobenzene	11/04/11	0.250	0.240	0.300	0.270	0.290	0.250	0.300	0.290		0.0243	0.200
p-Isopropyltoluene	11/04/11	0.250	0.250	0.280	0.250	0.280	0.240	0.280	0.270		0.0172	0.200
1,2-Dichlorobenzene	11/04/11	0.250	0.250	0.290	0.240	0.280	0.240	0.300	0.300		0.0273	0.200
n-Butylbenzene	11/04/11	0.250	0.250	0.270	0.250	0.290	0.220	0.290	0.280		0.0257	0.200
1,2-Dibromo-3-chloropropane	11/04/11	0.250	0.220	0.280	0.250	0.230	0.230	0.270	0.230		0.0230	0.200
1,2,4-Trichlorobenzene	11/04/11	0.250	0.280	0.320	0.280	0.310	0.260	0.310	0.300		0.0215	0.200
Naphthalene	11/04/11	0.250	0.250	0.280	0.240	0.260	0.220	0.270	0.270		0.0207	0.200
Hexachlorobutadiene	11/04/11	0.250	0.310	0.310	0.280	0.320	0.270	0.310	0.320		0.0198	0.200
1,2,3-Trichlorobenzene	11/04/11	0.250	0.280	0.300	0.300	0.310	0.260	0.300	0.300		0.0170	0.200

MDL FORM

ANALYSIS METHOD

SW8270C

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
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Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GC/MS SEMI-VOLATILES ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2792

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW8270C: E1312, SW3510

Matrix Spike/Matrix Spike Duplicate(s):
BS recovery of Hexachlorocyclopentadiene(25%) in BS1W0920 did not meet acceptance criteria of 30-110%.

Surrogate Standard(s):
Surrogate recovery of 2-Fluorophenol(8%) in RECON ID 024-CH2M Run 011 did not meet acceptance criteria of 21-115%.
Surrogate recovery of 2,4,6-Tribromophenol(124%) in RECON ID 026-CH2M Run 013 did not meet acceptance criteria of 5-123%.
Surrogates diluted out of all samples run at 50X dilution.

SAMPLE DATA SUMMARY

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 813.93 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279201

Lab File ID: M279201DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	24.6	61.4	24.6	U
110-86-1	Pyridine	24.6	61.4	802	
62-53-3	Aniline	24.6	61.4	57.5	J
108-95-2	Phenol	24.6	61.4	271	
111-44-4	bis(2-Chloroethyl)ether	24.6	61.4	24.6	U
95-57-8	2-Chlorophenol	24.6	61.4	24.6	U
541-73-1	1,3-Dichlorobenzene	24.6	61.4	24.6	U
106-46-7	1,4-Dichlorobenzene	24.6	61.4	24.6	U
100-51-6	Benzyl alcohol	24.6	61.4	24.6	U
95-50-1	1,2-Dichlorobenzene	24.6	61.4	328	
95-48-7	2-Methylphenol	24.6	61.4	24.6	U
108-60-1	bis(2-Chloroisopropyl)ether	24.6	61.4	24.6	U
108-39-4/106	3-,4-Methylphenol	24.6	61.4	473	
621-64-7	N-Nitroso-di-n-propylamine	24.6	61.4	24.6	U
67-72-1	Hexachloroethane	24.6	61.4	24.6	U
65-85-0	Benzoic Acid	24.6	61.4	4250	E
98-95-3	Nitrobenzene	24.6	61.4	24.6	U
78-59-1	Isophorone	24.6	61.4	24.6	U
88-75-5	2-Nitrophenol	24.6	61.4	24.6	U
105-67-9	2,4-Dimethylphenol	24.6	61.4	24.6	U
111-91-1	bis(2-Chloroethoxy)methane	24.6	61.4	24.6	U
120-83-2	2,4-Dichlorophenol	24.6	61.4	24.6	U
120-82-1	1,2,4-Trichlorobenzene	24.6	61.4	24.6	U
91-20-3	Naphthalene	24.6	61.4	1300	
106-47-8	4-Chloroaniline	24.6	61.4	24.6	U
87-68-3	Hexachlorobutadiene	24.6	61.4	24.6	U
59-50-7	4-Chloro-3-methyl phenol	24.6	61.4	24.6	U
91-57-6	2-Methylnaphthalene	24.6	61.4	25.7	J
77-47-4	Hexachlorocyclopentadiene	24.6	61.4	24.6	U
88-06-2	2,4,6-Trichlorophenol	24.6	61.4	24.6	U
95-95-4	2,4,5-Trichlorophenol	24.6	61.4	24.6	U
91-58-7	2-Chloronaphthalene	24.6	61.4	24.6	U
88-74-4	2-Nitroaniline	24.6	61.4	24.6	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 813.93 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279201

Lab File ID: M279201DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	24.6	61.4	24.6	U
208-96-8	Acenaphthylene	24.6	61.4	24.6	U
606-20-2	2,6-Dinitrotoluene	24.6	61.4	24.6	U
83-32-9	Acenaphthene	24.6	61.4	24.6	U
51-28-5	2,4-Dinitrophenol	24.6	61.4	24.6	U
100-02-7	4-Nitrophenol	24.6	61.4	24.6	U
121-14-2	2,4-Dinitrotoluene	24.6	61.4	24.6	U
132-64-9	Dibenzofuran	24.6	61.4	24.6	U
84-66-2	Diethylphthalate	24.6	61.4	24.6	U
99-09-2	3-Nitroaniline	24.6	61.4	24.6	U
86-73-7	Fluorene	24.6	61.4	24.6	U
7005-72-3	4-Chlorophenyl phenyl ether	24.6	61.4	24.6	U
100-01-6	4-Nitroaniline	24.6	61.4	24.6	U
534-52-1	4,6-Dinitro-2-methyl phenol	24.6	61.4	24.6	U
86-30-6	N-Nitrosodiphenylamine	24.6	61.4	24.6	U
122-66-7	1,2-Diphenylhydrazine	24.6	61.4	24.6	U
101-55-3	4-Bromophenyl phenyl ether	24.6	61.4	24.6	U
118-74-1	Hexachlorobenzene	24.6	61.4	24.6	U
87-86-5	Pentachlorophenol	24.6	61.4	24.6	U
85-01-8	Phenanthrene	24.6	61.4	24.6	U
120-12-7	Anthracene	24.6	61.4	24.6	U
86-74-8	Carbazole	24.6	61.4	24.6	U
84-74-2	Di-n-butylphthalate	24.6	61.4	24.6	U
206-44-0	Fluoranthene	24.6	61.4	24.6	U
129-00-0	Pyrene	24.6	61.4	24.6	U
85-68-7	Butylbenzylphthalate	24.6	61.4	24.6	U
56-55-3	Benzo(a)anthracene	24.6	61.4	24.6	U
91-94-1	3,3'-Dichlorobenzidine	24.6	61.4	24.6	U
218-01-9	Chrysene	24.6	61.4	24.6	U
117-81-7	bis(2-Ethylhexyl)phthalate	24.6	61.4	24.6	U
117-84-0	Di-n-octylphthalate	24.6	61.4	24.6	U
205-99-2	Benzo(b)fluoroanthene	24.6	61.4	24.6	U
207-08-9	Benzo(k)fluoranthene	24.6	61.4	24.6	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 813.93 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279201

Lab File ID: M279201DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	24.6	61.4	24.6	U
193-39-5	Indeno(1,2,3-c,d)pyrene	24.6	61.4	24.6	U
53-70-3	Dibenzo(a,h)anthracene	24.6	61.4	24.6	U
191-24-2	Benzo(g,h,i)perylene	24.6	61.4	24.6	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 813.93 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279201DL

Lab File ID: M279201DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	123	307	123	U
110-86-1	Pyridine	123	307	1060	
62-53-3	Aniline	123	307	123	U
108-95-2	Phenol	123	307	354	
111-44-4	bis(2-Chloroethyl)ether	123	307	123	U
95-57-8	2-Chlorophenol	123	307	123	U
541-73-1	1,3-Dichlorobenzene	123	307	123	U
106-46-7	1,4-Dichlorobenzene	123	307	123	U
100-51-6	Benzyl alcohol	123	307	123	U
95-50-1	1,2-Dichlorobenzene	123	307	440	
95-48-7	2-Methylphenol	123	307	123	U
108-60-1	bis(2-Chloroisopropyl)ether	123	307	123	U
108-39-4/106	3-,4-Methylphenol	123	307	618	
621-64-7	N-Nitroso-di-n-propylamine	123	307	123	U
67-72-1	Hexachloroethane	123	307	123	U
65-85-0	Benzoic Acid	123	307	5030	
98-95-3	Nitrobenzene	123	307	123	U
78-59-1	Isophorone	123	307	123	U
88-75-5	2-Nitrophenol	123	307	123	U
105-67-9	2,4-Dimethylphenol	123	307	123	U
111-91-1	bis(2-Chloroethoxy)methane	123	307	123	U
120-83-2	2,4-Dichlorophenol	123	307	123	U
120-82-1	1,2,4-Trichlorobenzene	123	307	123	U
91-20-3	Naphthalene	123	307	1700	
106-47-8	4-Chloroaniline	123	307	123	U
87-68-3	Hexachlorobutadiene	123	307	123	U
59-50-7	4-Chloro-3-methyl phenol	123	307	123	U
91-57-6	2-Methylnaphthalene	123	307	123	U
77-47-4	Hexachlorocyclopentadiene	123	307	123	U
88-06-2	2,4,6-Trichlorophenol	123	307	123	U
95-95-4	2,4,5-Trichlorophenol	123	307	123	U
91-58-7	2-Chloronaphthalene	123	307	123	U
88-74-4	2-Nitroaniline	123	307	123	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 813.93 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279201DL

Lab File ID: M279201DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	123	307	123	U
208-96-8	Acenaphthylene	123	307	123	U
606-20-2	2,6-Dinitrotoluene	123	307	123	U
83-32-9	Acenaphthene	123	307	123	U
51-28-5	2,4-Dinitrophenol	123	307	123	U
100-02-7	4-Nitrophenol	123	307	123	U
121-14-2	2,4-Dinitrotoluene	123	307	123	U
132-64-9	Dibenzofuran	123	307	123	U
84-66-2	Diethylphthalate	123	307	123	U
99-09-2	3-Nitroaniline	123	307	123	U
86-73-7	Fluorene	123	307	123	U
7005-72-3	4-Chlorophenyl phenyl ether	123	307	123	U
100-01-6	4-Nitroaniline	123	307	123	U
534-52-1	4,6-Dinitro-2-methyl phenol	123	307	123	U
86-30-6	N-Nitrosodiphenylamine	123	307	123	U
122-66-7	1,2-Diphenylhydrazine	123	307	123	U
101-55-3	4-Bromophenyl phenyl ether	123	307	123	U
118-74-1	Hexachlorobenzene	123	307	123	U
87-86-5	Pentachlorophenol	123	307	123	U
85-01-8	Phenanthrene	123	307	123	U
120-12-7	Anthracene	123	307	123	U
86-74-8	Carbazole	123	307	123	U
84-74-2	Di-n-butylphthalate	123	307	123	U
206-44-0	Fluoranthene	123	307	123	U
129-00-0	Pyrene	123	307	123	U
85-68-7	Butylbenzylphthalate	123	307	123	U
56-55-3	Benzo(a)anthracene	123	307	123	U
91-94-1	3,3'-Dichlorobenzidine	123	307	123	U
218-01-9	Chrysene	123	307	123	U
117-81-7	bis(2-Ethylhexyl)phthalate	123	307	123	U
117-84-0	Di-n-octylphthalate	123	307	123	U
205-99-2	Benzo(b)fluoroanthene	123	307	123	U
207-08-9	Benzo(k)fluoranthene	123	307	123	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 813.93 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279201DL

Lab File ID: M279201DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	123	307	123	U
193-39-5	Indeno(1,2,3-c,d)pyrene	123	307	123	U
53-70-3	Dibenzo(a,h)anthracene	123	307	123	U
191-24-2	Benzo(g,h,i)perylene	123	307	123	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 846.86 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279202

Lab File ID: M279202DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	23.6	59.0	23.6	U
110-86-1	Pyridine	23.6	59.0	849	
62-53-3	Aniline	23.6	59.0	147	
108-95-2	Phenol	23.6	59.0	158	
111-44-4	bis(2-Chloroethyl)ether	23.6	59.0	23.6	U
95-57-8	2-Chlorophenol	23.6	59.0	23.6	U
541-73-1	1,3-Dichlorobenzene	23.6	59.0	23.6	U
106-46-7	1,4-Dichlorobenzene	23.6	59.0	23.6	U
100-51-6	Benzyl alcohol	23.6	59.0	23.6	U
95-50-1	1,2-Dichlorobenzene	23.6	59.0	322	
95-48-7	2-Methylphenol	23.6	59.0	23.6	U
108-60-1	bis(2-Chloroisopropyl)ether	23.6	59.0	23.6	U
108-39-4/106	3-,4-Methylphenol	23.6	59.0	344	
621-64-7	N-Nitroso-di-n-propylamine	23.6	59.0	23.6	U
67-72-1	Hexachloroethane	23.6	59.0	23.6	U
65-85-0	Benzoic Acid	23.6	59.0	90.4	
98-95-3	Nitrobenzene	23.6	59.0	23.6	U
78-59-1	Isophorone	23.6	59.0	23.6	U
88-75-5	2-Nitrophenol	23.6	59.0	23.6	U
105-67-9	2,4-Dimethylphenol	23.6	59.0	23.6	U
111-91-1	bis(2-Chloroethoxy)methane	23.6	59.0	23.6	U
120-83-2	2,4-Dichlorophenol	23.6	59.0	23.6	U
120-82-1	1,2,4-Trichlorobenzene	23.6	59.0	23.6	U
91-20-3	Naphthalene	23.6	59.0	1310	
106-47-8	4-Chloroaniline	23.6	59.0	23.6	U
87-68-3	Hexachlorobutadiene	23.6	59.0	23.6	U
59-50-7	4-Chloro-3-methyl phenol	23.6	59.0	23.6	U
91-57-6	2-Methylnaphthalene	23.6	59.0	26.0	J
77-47-4	Hexachlorocyclopentadiene	23.6	59.0	23.6	U
88-06-2	2,4,6-Trichlorophenol	23.6	59.0	23.6	U
95-95-4	2,4,5-Trichlorophenol	23.6	59.0	23.6	U
91-58-7	2-Chloronaphthalene	23.6	59.0	23.6	U
88-74-4	2-Nitroaniline	23.6	59.0	23.6	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 846.86 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279202

Lab File ID: M279202DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	23.6	59.0	23.6	U
208-96-8	Acenaphthylene	23.6	59.0	23.6	U
606-20-2	2,6-Dinitrotoluene	23.6	59.0	23.6	U
83-32-9	Acenaphthene	23.6	59.0	23.6	U
51-28-5	2,4-Dinitrophenol	23.6	59.0	23.6	U
100-02-7	4-Nitrophenol	23.6	59.0	23.6	U
121-14-2	2,4-Dinitrotoluene	23.6	59.0	23.6	U
132-64-9	Dibenzofuran	23.6	59.0	23.6	U
84-66-2	Diethylphthalate	23.6	59.0	23.6	U
99-09-2	3-Nitroaniline	23.6	59.0	23.6	U
86-73-7	Fluorene	23.6	59.0	23.6	U
7005-72-3	4-Chlorophenyl phenyl ether	23.6	59.0	23.6	U
100-01-6	4-Nitroaniline	23.6	59.0	23.6	U
534-52-1	4,6-Dinitro-2-methyl phenol	23.6	59.0	23.6	U
86-30-6	N-Nitrosodiphenylamine	23.6	59.0	23.6	U
122-66-7	1,2-Diphenylhydrazine	23.6	59.0	23.6	U
101-55-3	4-Bromophenyl phenyl ether	23.6	59.0	23.6	U
118-74-1	Hexachlorobenzene	23.6	59.0	23.6	U
87-86-5	Pentachlorophenol	23.6	59.0	23.6	U
85-01-8	Phenanthrene	23.6	59.0	23.6	U
120-12-7	Anthracene	23.6	59.0	23.6	U
86-74-8	Carbazole	23.6	59.0	23.6	U
84-74-2	Di-n-butylphthalate	23.6	59.0	23.6	U
206-44-0	Fluoranthene	23.6	59.0	23.6	U
129-00-0	Pyrene	23.6	59.0	23.6	U
85-68-7	Butylbenzylphthalate	23.6	59.0	23.6	U
56-55-3	Benzo(a)anthracene	23.6	59.0	23.6	U
91-94-1	3,3'-Dichlorobenzidine	23.6	59.0	23.6	U
218-01-9	Chrysene	23.6	59.0	23.6	U
117-81-7	bis(2-Ethylhexyl)phthalate	23.6	59.0	23.6	U
117-84-0	Di-n-octylphthalate	23.6	59.0	23.6	U
205-99-2	Benzo(b)fluoroanthene	23.6	59.0	23.6	U
207-08-9	Benzo(k)fluoranthene	23.6	59.0	23.6	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 846.86 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279202

Lab File ID: M279202DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	23.6	59.0	23.6	U
193-39-5	Indeno(1,2,3-c,d)pyrene	23.6	59.0	23.6	U
53-70-3	Dibenzo(a,h)anthracene	23.6	59.0	23.6	U
191-24-2	Benzo(g,h,i)perylene	23.6	59.0	23.6	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 791.94 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279203

Lab File ID: M279203DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	25.3	63.1	25.3	U
110-86-1	Pyridine	25.3	63.1	995	
62-53-3	Aniline	25.3	63.1	40.7	J
108-95-2	Phenol	25.3	63.1	205	
111-44-4	bis(2-Chloroethyl)ether	25.3	63.1	25.3	U
95-57-8	2-Chlorophenol	25.3	63.1	25.3	U
541-73-1	1,3-Dichlorobenzene	25.3	63.1	25.3	U
106-46-7	1,4-Dichlorobenzene	25.3	63.1	25.3	U
100-51-6	Benzyl alcohol	25.3	63.1	25.3	U
95-50-1	1,2-Dichlorobenzene	25.3	63.1	260	
95-48-7	2-Methylphenol	25.3	63.1	25.3	U
108-60-1	bis(2-Chloroisopropyl)ether	25.3	63.1	25.3	U
108-39-4/106	3-,4-Methylphenol	25.3	63.1	253	
621-64-7	N-Nitroso-di-n-propylamine	25.3	63.1	25.3	U
67-72-1	Hexachloroethane	25.3	63.1	25.3	U
65-85-0	Benzoic Acid	25.3	63.1	3930	E
98-95-3	Nitrobenzene	25.3	63.1	25.3	U
78-59-1	Isophorone	25.3	63.1	25.3	U
88-75-5	2-Nitrophenol	25.3	63.1	25.3	U
105-67-9	2,4-Dimethylphenol	25.3	63.1	25.3	U
111-91-1	bis(2-Chloroethoxy)methane	25.3	63.1	25.3	U
120-83-2	2,4-Dichlorophenol	25.3	63.1	25.3	U
120-82-1	1,2,4-Trichlorobenzene	25.3	63.1	25.3	U
91-20-3	Naphthalene	25.3	63.1	1110	
106-47-8	4-Chloroaniline	25.3	63.1	25.3	U
87-68-3	Hexachlorobutadiene	25.3	63.1	25.3	U
59-50-7	4-Chloro-3-methyl phenol	25.3	63.1	25.3	U
91-57-6	2-Methylnaphthalene	25.3	63.1	25.3	U
77-47-4	Hexachlorocyclopentadiene	25.3	63.1	25.3	U
88-06-2	2,4,6-Trichlorophenol	25.3	63.1	25.3	U
95-95-4	2,4,5-Trichlorophenol	25.3	63.1	25.3	U
91-58-7	2-Chloronaphthalene	25.3	63.1	25.3	U
88-74-4	2-Nitroaniline	25.3	63.1	25.3	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 791.94 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279203

Lab File ID: M279203DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	25.3	63.1	25.3	U
208-96-8	Acenaphthylene	25.3	63.1	25.3	U
606-20-2	2,6-Dinitrotoluene	25.3	63.1	25.3	U
83-32-9	Acenaphthene	25.3	63.1	25.3	U
51-28-5	2,4-Dinitrophenol	25.3	63.1	25.3	U
100-02-7	4-Nitrophenol	25.3	63.1	25.3	U
121-14-2	2,4-Dinitrotoluene	25.3	63.1	25.3	U
132-64-9	Dibenzofuran	25.3	63.1	25.3	U
84-66-2	Diethylphthalate	25.3	63.1	25.3	U
99-09-2	3-Nitroaniline	25.3	63.1	25.3	U
86-73-7	Fluorene	25.3	63.1	25.3	U
7005-72-3	4-Chlorophenyl phenyl ether	25.3	63.1	25.3	U
100-01-6	4-Nitroaniline	25.3	63.1	25.3	U
534-52-1	4,6-Dinitro-2-methyl phenol	25.3	63.1	25.3	U
86-30-6	N-Nitrosodiphenylamine	25.3	63.1	25.3	U
122-66-7	1,2-Diphenylhydrazine	25.3	63.1	25.3	U
101-55-3	4-Bromophenyl phenyl ether	25.3	63.1	25.3	U
118-74-1	Hexachlorobenzene	25.3	63.1	25.3	U
87-86-5	Pentachlorophenol	25.3	63.1	25.3	U
85-01-8	Phenanthrene	25.3	63.1	25.3	U
120-12-7	Anthracene	25.3	63.1	25.3	U
86-74-8	Carbazole	25.3	63.1	25.3	U
84-74-2	Di-n-butylphthalate	25.3	63.1	25.3	U
206-44-0	Fluoranthene	25.3	63.1	25.3	U
129-00-0	Pyrene	25.3	63.1	25.3	U
85-68-7	Butylbenzylphthalate	25.3	63.1	25.3	U
56-55-3	Benzo(a)anthracene	25.3	63.1	25.3	U
91-94-1	3,3'-Dichlorobenzidine	25.3	63.1	25.3	U
218-01-9	Chrysene	25.3	63.1	25.3	U
117-81-7	bis(2-Ethylhexyl)phthalate	25.3	63.1	25.3	U
117-84-0	Di-n-octylphthalate	25.3	63.1	25.3	U
205-99-2	Benzo(b)fluoroanthene	25.3	63.1	25.3	U
207-08-9	Benzo(k)fluoranthene	25.3	63.1	25.3	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 791.94 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279203

Lab File ID: M279203DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	25.3	63.1	25.3	U
193-39-5	Indeno(1,2,3-c,d)pyrene	25.3	63.1	25.3	U
53-70-3	Dibenzo(a,h)anthracene	25.3	63.1	25.3	U
191-24-2	Benzo(g,h,i)perylene	25.3	63.1	25.3	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 791.94 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279203DL

Lab File ID: M279203DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	126	316	126	U
110-86-1	Pyridine	126	316	1290	
62-53-3	Aniline	126	316	126	U
108-95-2	Phenol	126	316	260	J
111-44-4	bis(2-Chloroethyl)ether	126	316	126	U
95-57-8	2-Chlorophenol	126	316	126	U
541-73-1	1,3-Dichlorobenzene	126	316	126	U
106-46-7	1,4-Dichlorobenzene	126	316	126	U
100-51-6	Benzyl alcohol	126	316	126	U
95-50-1	1,2-Dichlorobenzene	126	316	341	
95-48-7	2-Methylphenol	126	316	126	U
108-60-1	bis(2-Chloroisopropyl)ether	126	316	126	U
108-39-4/106	3-,4-Methylphenol	126	316	321	
621-64-7	N-Nitroso-di-n-propylamine	126	316	126	U
67-72-1	Hexachloroethane	126	316	126	U
65-85-0	Benzoic Acid	126	316	4650	
98-95-3	Nitrobenzene	126	316	126	U
78-59-1	Isophorone	126	316	126	U
88-75-5	2-Nitrophenol	126	316	126	U
105-67-9	2,4-Dimethylphenol	126	316	126	U
111-91-1	bis(2-Chloroethoxy)methane	126	316	126	U
120-83-2	2,4-Dichlorophenol	126	316	126	U
120-82-1	1,2,4-Trichlorobenzene	126	316	126	U
91-20-3	Naphthalene	126	316	1390	
106-47-8	4-Chloroaniline	126	316	126	U
87-68-3	Hexachlorobutadiene	126	316	126	U
59-50-7	4-Chloro-3-methyl phenol	126	316	126	U
91-57-6	2-Methylnaphthalene	126	316	126	U
77-47-4	Hexachlorocyclopentadiene	126	316	126	U
88-06-2	2,4,6-Trichlorophenol	126	316	126	U
95-95-4	2,4,5-Trichlorophenol	126	316	126	U
91-58-7	2-Chloronaphthalene	126	316	126	U
88-74-4	2-Nitroaniline	126	316	126	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 791.94 ML

Lab Sample ID: M279203DL

Lab File ID: M279203DL2.D

Extraction Method: SW3510

Date Received: 09/19/13

Cleanup - GPC: N Sulfur: N

Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 09/24/13

Injection Volume: (UL)1

Dilution Factor: 50

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	126	316	126	U
208-96-8	Acenaphthylene	126	316	126	U
606-20-2	2,6-Dinitrotoluene	126	316	126	U
83-32-9	Acenaphthene	126	316	126	U
51-28-5	2,4-Dinitrophenol	126	316	126	U
100-02-7	4-Nitrophenol	126	316	126	U
121-14-2	2,4-Dinitrotoluene	126	316	126	U
132-64-9	Dibenzofuran	126	316	126	U
84-66-2	Diethylphthalate	126	316	126	U
99-09-2	3-Nitroaniline	126	316	126	U
86-73-7	Fluorene	126	316	126	U
7005-72-3	4-Chlorophenyl phenyl ether	126	316	126	U
100-01-6	4-Nitroaniline	126	316	126	U
534-52-1	4,6-Dinitro-2-methyl phenol	126	316	126	U
86-30-6	N-Nitrosodiphenylamine	126	316	126	U
122-66-7	1,2-Diphenylhydrazine	126	316	126	U
101-55-3	4-Bromophenyl phenyl ether	126	316	126	U
118-74-1	Hexachlorobenzene	126	316	126	U
87-86-5	Pentachlorophenol	126	316	126	U
85-01-8	Phenanthrene	126	316	126	U
120-12-7	Anthracene	126	316	126	U
86-74-8	Carbazole	126	316	126	U
84-74-2	Di-n-butylphthalate	126	316	126	U
206-44-0	Fluoranthene	126	316	126	U
129-00-0	Pyrene	126	316	126	U
85-68-7	Butylbenzylphthalate	126	316	126	U
56-55-3	Benzo(a)anthracene	126	316	126	U
91-94-1	3,3'-Dichlorobenzidine	126	316	126	U
218-01-9	Chrysene	126	316	126	U
117-81-7	bis(2-Ethylhexyl)phthalate	126	316	126	U
117-84-0	Di-n-octylphthalate	126	316	126	U
205-99-2	Benzo(b)fluoroanthene	126	316	126	U
207-08-9	Benzo(k)fluoranthene	126	316	126	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 791.94 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279203DL

Lab File ID: M279203DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	126	316	126	U
193-39-5	Indeno(1,2,3-c,d)pyrene	126	316	126	U
53-70-3	Dibenzo(a,h)anthracene	126	316	126	U
191-24-2	Benzo(g,h,i)perylene	126	316	126	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 853.12 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279204

Lab File ID: M279204DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	23.4	58.6	23.4	U
110-86-1	Pyridine	23.4	58.6	830	
62-53-3	Aniline	23.4	58.6	51.0	J
108-95-2	Phenol	23.4	58.6	154	
111-44-4	bis(2-Chloroethyl)ether	23.4	58.6	23.4	U
95-57-8	2-Chlorophenol	23.4	58.6	23.4	U
541-73-1	1,3-Dichlorobenzene	23.4	58.6	23.4	U
106-46-7	1,4-Dichlorobenzene	23.4	58.6	23.4	U
100-51-6	Benzyl alcohol	23.4	58.6	23.4	U
95-50-1	1,2-Dichlorobenzene	23.4	58.6	281	
95-48-7	2-Methylphenol	23.4	58.6	23.4	U
108-60-1	bis(2-Chloroisopropyl)ether	23.4	58.6	23.4	U
108-39-4/106	3-,4-Methylphenol	23.4	58.6	195	
621-64-7	N-Nitroso-di-n-propylamine	23.4	58.6	23.4	U
67-72-1	Hexachloroethane	23.4	58.6	23.4	U
65-85-0	Benzoic Acid	23.4	58.6	3040	E
98-95-3	Nitrobenzene	23.4	58.6	23.4	U
78-59-1	Isophorone	23.4	58.6	23.4	U
88-75-5	2-Nitrophenol	23.4	58.6	23.4	U
105-67-9	2,4-Dimethylphenol	23.4	58.6	23.4	U
111-91-1	bis(2-Chloroethoxy)methane	23.4	58.6	23.4	U
120-83-2	2,4-Dichlorophenol	23.4	58.6	23.4	U
120-82-1	1,2,4-Trichlorobenzene	23.4	58.6	23.4	U
91-20-3	Naphthalene	23.4	58.6	1140	
106-47-8	4-Chloroaniline	23.4	58.6	23.4	U
87-68-3	Hexachlorobutadiene	23.4	58.6	23.4	U
59-50-7	4-Chloro-3-methyl phenol	23.4	58.6	23.4	U
91-57-6	2-Methylnaphthalene	23.4	58.6	23.9	J
77-47-4	Hexachlorocyclopentadiene	23.4	58.6	23.4	U
88-06-2	2,4,6-Trichlorophenol	23.4	58.6	23.4	U
95-95-4	2,4,5-Trichlorophenol	23.4	58.6	23.4	U
91-58-7	2-Chloronaphthalene	23.4	58.6	23.4	U
88-74-4	2-Nitroaniline	23.4	58.6	23.4	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 853.12 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279204

Lab File ID: M279204DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	23.4	58.6	23.4	U
208-96-8	Acenaphthylene	23.4	58.6	23.4	U
606-20-2	2,6-Dinitrotoluene	23.4	58.6	23.4	U
83-32-9	Acenaphthene	23.4	58.6	23.4	U
51-28-5	2,4-Dinitrophenol	23.4	58.6	23.4	U
100-02-7	4-Nitrophenol	23.4	58.6	23.4	U
121-14-2	2,4-Dinitrotoluene	23.4	58.6	23.4	U
132-64-9	Dibenzofuran	23.4	58.6	23.4	U
84-66-2	Diethylphthalate	23.4	58.6	23.4	U
99-09-2	3-Nitroaniline	23.4	58.6	23.4	U
86-73-7	Fluorene	23.4	58.6	23.4	U
7005-72-3	4-Chlorophenyl phenyl ether	23.4	58.6	23.4	U
100-01-6	4-Nitroaniline	23.4	58.6	23.4	U
534-52-1	4,6-Dinitro-2-methyl phenol	23.4	58.6	23.4	U
86-30-6	N-Nitrosodiphenylamine	23.4	58.6	23.4	U
122-66-7	1,2-Diphenylhydrazine	23.4	58.6	23.4	U
101-55-3	4-Bromophenyl phenyl ether	23.4	58.6	23.4	U
118-74-1	Hexachlorobenzene	23.4	58.6	23.4	U
87-86-5	Pentachlorophenol	23.4	58.6	23.4	U
85-01-8	Phenanthrene	23.4	58.6	23.4	U
120-12-7	Anthracene	23.4	58.6	23.4	U
86-74-8	Carbazole	23.4	58.6	23.4	U
84-74-2	Di-n-butylphthalate	23.4	58.6	23.4	U
206-44-0	Fluoranthene	23.4	58.6	23.4	U
129-00-0	Pyrene	23.4	58.6	23.4	U
85-68-7	Butylbenzylphthalate	23.4	58.6	23.4	U
56-55-3	Benzo(a)anthracene	23.4	58.6	23.4	U
91-94-1	3,3'-Dichlorobenzidine	23.4	58.6	23.4	U
218-01-9	Chrysene	23.4	58.6	23.4	U
117-81-7	bis(2-Ethylhexyl)phthalate	23.4	58.6	23.4	U
117-84-0	Di-n-octylphthalate	23.4	58.6	23.4	U
205-99-2	Benzo(b)fluoroanthene	23.4	58.6	23.4	U
207-08-9	Benzo(k)fluoranthene	23.4	58.6	23.4	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 853.12 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279204

Lab File ID: M279204DL.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 10

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	23.4	58.6	23.4	U
193-39-5	Indeno(1,2,3-c,d)pyrene	23.4	58.6	23.4	U
53-70-3	Dibenzo(a,h)anthracene	23.4	58.6	23.4	U
191-24-2	Benzo(g,h,i)perylene	23.4	58.6	23.4	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 853.12 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279204DL

Lab File ID: M279204DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	117	293	117	U
110-86-1	Pyridine	117	293	819	
62-53-3	Aniline	117	293	117	U
108-95-2	Phenol	117	293	150	J
111-44-4	bis(2-Chloroethyl)ether	117	293	117	U
95-57-8	2-Chlorophenol	117	293	117	U
541-73-1	1,3-Dichlorobenzene	117	293	117	U
106-46-7	1,4-Dichlorobenzene	117	293	117	U
100-51-6	Benzyl alcohol	117	293	117	U
95-50-1	1,2-Dichlorobenzene	117	293	281	J
95-48-7	2-Methylphenol	117	293	117	U
108-60-1	bis(2-Chloroisopropyl)ether	117	293	117	U
108-39-4/106	3-,4-Methylphenol	117	293	188	J
621-64-7	N-Nitroso-di-n-propylamine	117	293	117	U
67-72-1	Hexachloroethane	117	293	117	U
65-85-0	Benzoic Acid	117	293	2920	
98-95-3	Nitrobenzene	117	293	117	U
78-59-1	Isophorone	117	293	117	U
88-75-5	2-Nitrophenol	117	293	117	U
105-67-9	2,4-Dimethylphenol	117	293	117	U
111-91-1	bis(2-Chloroethoxy)methane	117	293	117	U
120-83-2	2,4-Dichlorophenol	117	293	117	U
120-82-1	1,2,4-Trichlorobenzene	117	293	117	U
91-20-3	Naphthalene	117	293	1180	
106-47-8	4-Chloroaniline	117	293	117	U
87-68-3	Hexachlorobutadiene	117	293	117	U
59-50-7	4-Chloro-3-methyl phenol	117	293	117	U
91-57-6	2-Methylnaphthalene	117	293	117	U
77-47-4	Hexachlorocyclopentadiene	117	293	117	U
88-06-2	2,4,6-Trichlorophenol	117	293	117	U
95-95-4	2,4,5-Trichlorophenol	117	293	117	U
91-58-7	2-Chloronaphthalene	117	293	117	U
88-74-4	2-Nitroaniline	117	293	117	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 853.12 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279204DL

Lab File ID: M279204DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	117	293	117	U
208-96-8	Acenaphthylene	117	293	117	U
606-20-2	2,6-Dinitrotoluene	117	293	117	U
83-32-9	Acenaphthene	117	293	117	U
51-28-5	2,4-Dinitrophenol	117	293	117	U
100-02-7	4-Nitrophenol	117	293	117	U
121-14-2	2,4-Dinitrotoluene	117	293	117	U
132-64-9	Dibenzofuran	117	293	117	U
84-66-2	Diethylphthalate	117	293	117	U
99-09-2	3-Nitroaniline	117	293	117	U
86-73-7	Fluorene	117	293	117	U
7005-72-3	4-Chlorophenyl phenyl ether	117	293	117	U
100-01-6	4-Nitroaniline	117	293	117	U
534-52-1	4,6-Dinitro-2-methyl phenol	117	293	117	U
86-30-6	N-Nitrosodiphenylamine	117	293	117	U
122-66-7	1,2-Diphenylhydrazine	117	293	117	U
101-55-3	4-Bromophenyl phenyl ether	117	293	117	U
118-74-1	Hexachlorobenzene	117	293	117	U
87-86-5	Pentachlorophenol	117	293	117	U
85-01-8	Phenanthrene	117	293	117	U
120-12-7	Anthracene	117	293	117	U
86-74-8	Carbazole	117	293	117	U
84-74-2	Di-n-butylphthalate	117	293	117	U
206-44-0	Fluoranthene	117	293	117	U
129-00-0	Pyrene	117	293	117	U
85-68-7	Butylbenzylphthalate	117	293	117	U
56-55-3	Benzo(a)anthracene	117	293	117	U
91-94-1	3,3'-Dichlorobenzidine	117	293	117	U
218-01-9	Chrysene	117	293	117	U
117-81-7	bis(2-Ethylhexyl)phthalate	117	293	117	U
117-84-0	Di-n-octylphthalate	117	293	117	U
205-99-2	Benzo(b)fluoroanthene	117	293	117	U
207-08-9	Benzo(k)fluoranthene	117	293	117	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013DL

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER Leachate: SPLP

Sample wt/vol: (G/ML) 853.12 ML

Extraction Method: SW3510

Cleanup - GPC: N Sulfur: N

Concentrated Extract Volume: (ML)1

Injection Volume: (UL)1

Instrument: MSW

Lab Name: CH2M HILL ASL

Lab Sample ID: M279204DL

Lab File ID: M279204DL2.D

Date Received: 09/19/13

Date Extracted: 09/20/13

Date Analyzed: 09/24/13

Dilution Factor: 50

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	117	293	117	U
193-39-5	Indeno(1,2,3-c,d)pyrene	117	293	117	U
53-70-3	Dibenzo(a,h)anthracene	117	293	117	U
191-24-2	Benzo(g,h,i)perylene	117	293	117	U

1C

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

WB1-0920

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 09/23/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
62-75-9	N-Nitrosodimethylamine	2.00	5.00	2.00	U
110-86-1	Pyridine	2.00	5.00	2.00	U
62-53-3	Aniline	2.00	5.00	2.00	U
108-95-2	Phenol	2.00	5.00	2.00	U
111-44-4	bis(2-Chloroethyl)ether	2.00	5.00	2.00	U
95-57-8	2-Chlorophenol	2.00	5.00	2.00	U
541-73-1	1,3-Dichlorobenzene	2.00	5.00	2.00	U
106-46-7	1,4-Dichlorobenzene	2.00	5.00	2.00	U
100-51-6	Benzyl alcohol	2.00	5.00	2.00	U
95-50-1	1,2-Dichlorobenzene	2.00	5.00	2.00	U
95-48-7	2-Methylphenol	2.00	5.00	2.00	U
108-60-1	bis(2-Chloroisopropyl)ether	2.00	5.00	2.00	U
108-39-4/106	3-,4-Methylphenol	2.00	5.00	2.00	U
621-64-7	N-Nitroso-di-n-propylamine	2.00	5.00	2.00	U
67-72-1	Hexachloroethane	2.00	5.00	2.00	U
65-85-0	Benzoic Acid	2.00	5.00	2.00	U
98-95-3	Nitrobenzene	2.00	5.00	2.00	U
78-59-1	Isophorone	2.00	5.00	2.00	U
88-75-5	2-Nitrophenol	2.00	5.00	2.00	U
105-67-9	2,4-Dimethylphenol	2.00	5.00	2.00	U
111-91-1	bis(2-Chloroethoxy)methane	2.00	5.00	2.00	U
120-83-2	2,4-Dichlorophenol	2.00	5.00	2.00	U
120-82-1	1,2,4-Trichlorobenzene	2.00	5.00	2.00	U
91-20-3	Naphthalene	2.00	5.00	2.00	U
106-47-8	4-Chloroaniline	2.00	5.00	2.00	U
87-68-3	Hexachlorobutadiene	2.00	5.00	2.00	U
59-50-7	4-Chloro-3-methyl phenol	2.00	5.00	2.00	U
91-57-6	2-Methylnaphthalene	2.00	5.00	2.00	U
77-47-4	Hexachlorocyclopentadiene	2.00	5.00	2.00	U
88-06-2	2,4,6-Trichlorophenol	2.00	5.00	2.00	U
95-95-4	2,4,5-Trichlorophenol	2.00	5.00	2.00	U
91-58-7	2-Chloronaphthalene	2.00	5.00	2.00	U
88-74-4	2-Nitroaniline	2.00	5.00	2.00	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0920**

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 09/23/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
131-11-3	Dimethylphthalate	2.00	5.00	2.00	U
208-96-8	Acenaphthylene	2.00	5.00	2.00	U
606-20-2	2,6-Dinitrotoluene	2.00	5.00	2.00	U
83-32-9	Acenaphthene	2.00	5.00	2.00	U
51-28-5	2,4-Dinitrophenol	2.00	5.00	2.00	U
100-02-7	4-Nitrophenol	2.00	5.00	2.00	U
121-14-2	2,4-Dinitrotoluene	2.00	5.00	2.00	U
132-64-9	Dibenzofuran	2.00	5.00	2.00	U
84-66-2	Diethylphthalate	2.00	5.00	2.00	U
99-09-2	3-Nitroaniline	2.00	5.00	2.00	U
86-73-7	Fluorene	2.00	5.00	2.00	U
7005-72-3	4-Chlorophenyl phenyl ether	2.00	5.00	2.00	U
100-01-6	4-Nitroaniline	2.00	5.00	2.00	U
534-52-1	4,6-Dinitro-2-methyl phenol	2.00	5.00	2.00	U
86-30-6	N-Nitrosodiphenylamine	2.00	5.00	2.00	U
122-66-7	1,2-Diphenylhydrazine	2.00	5.00	2.00	U
101-55-3	4-Bromophenyl phenyl ether	2.00	5.00	2.00	U
118-74-1	Hexachlorobenzene	2.00	5.00	2.00	U
87-86-5	Pentachlorophenol	2.00	5.00	2.00	U
85-01-8	Phenanthrene	2.00	5.00	2.00	U
120-12-7	Anthracene	2.00	5.00	2.00	U
86-74-8	Carbazole	2.00	5.00	2.00	U
84-74-2	Di-n-butylphthalate	2.00	5.00	2.00	U
206-44-0	Fluoranthene	2.00	5.00	2.00	U
129-00-0	Pyrene	2.00	5.00	2.00	U
85-68-7	Butylbenzylphthalate	2.00	5.00	2.00	U
56-55-3	Benzo(a)anthracene	2.00	5.00	2.00	U
91-94-1	3,3'-Dichlorobenzidine	2.00	5.00	2.00	U
218-01-9	Chrysene	2.00	5.00	2.00	U
117-81-7	bis(2-Ethylhexyl)phthalate	2.00	5.00	2.00	U
117-84-0	Di-n-octylphthalate	2.00	5.00	2.00	U
205-99-2	Benzo(b)fluoroanthene	2.00	5.00	2.00	U
207-08-9	Benzo(k)fluoranthene	2.00	5.00	2.00	U

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **WB1-0920**

SDG No.: M2792

Analysis Method: SW8270C

Matrix: WATER

Lab Name: CH2M HILL ASL

Sample wt/vol: (G/ML) 1000 ML

Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D

Extraction Method: SW3510

Date Received: / /

Cleanup - GPC: N Sulfur: N

Date Extracted: 09/20/13

Concentrated Extract Volume: (ML)1

Date Analyzed: 09/23/13

Injection Volume: (UL)1

Dilution Factor: 1

Instrument: MSW

Concentration Units: ug/L

CAS No.	Analyte	DL	PQL	Result	Q
50-32-8	Benzo(a)pyrene	2.00	5.00	2.00	U
193-39-5	Indeno(1,2,3-c,d)pyrene	2.00	5.00	2.00	U
53-70-3	Dibenzo(a,h)anthracene	2.00	5.00	2.00	U
191-24-2	Benzo(g,h,i)perylene	2.00	5.00	2.00	U

QC SUMMARY

WATER SEMI-VOLATILE SURROGATE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

	Field/QC Sample ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# Out
1	WB1-0920	53	39	68	49	63	75							
2	BS1W0920	40	31	66	57	68	71							
3	RECON ID 023-CH2M Run	0 *	0 *	0 *	0 *	8	0 *							D
4	RECON ID 025-CH2M Run	0 *	0 *	0 *	0 *	8	0 *							D
5	RECON ID 026-CH2M Run	0 *	0 *	0 *	0 *	8	0 *							D
6	RECON ID 023-CH2M Run 010	37	30	55	52	121	55							
7	RECON ID 024-CH2M Run 011	8 *	26	60	56	78	59							1
8	RECON ID 025-CH2M Run 012	36	29	55	49	119	53							
9	RECON ID 026-CH2M Run 013	36	29	56	58	124 *	58							1

* Values outside of QC limits

D Surrogate diluted out

		QC Limits
S1:	2-Fluorophenol	(21-115)
S2:	Phenol-d5	(5-115)
S3:	Nitrobenzene-d5	(35-114)
S4:	2-Fluorobiphenyl	(43-116)
S5:	2,4,6-Tribromophenol	(5-123)
S6:	Terphenyl-d14	(33-141)

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0920

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
N-Nitrosodimethylamine	80.0	30.8	38	30-110	
Pyridine	80.0	23.7	30	30-110	
Aniline	80.0	36.9	46	30-110	
Phenol	80.0	25.8	32	20-120	
bis(2-Chloroethyl)ether	80.0	44.2	55	30-110	
2-Chlorophenol	80.0	44.0	55	20-120	
1,3-Dichlorobenzene	80.0	31.3	39	30-110	
1,4-Dichlorobenzene	80.0	32.6	41	30-110	
Benzyl alcohol	80.0	47.4	59	30-110	
1,2-Dichlorobenzene	80.0	36.1	45	30-110	
2-Methylphenol	80.0	44.0	55	30-110	
bis(2-Chloroisopropyl)ether	80.0	46.0	58	30-110	
3-,4-Methylphenol	80.0	43.3	54	20-120	
N-Nitroso-di-n-propylamine	80.0	51.3	64	30-110	
Hexachloroethane	80.0	25.6	32	30-110	
Benzoic Acid	80.0	27.5	34	30-110	
Nitrobenzene	80.0	47.3	59	30-110	
Isophorone	80.0	51.1	64	30-110	
2-Nitrophenol	80.0	49.3	62	20-120	
2,4-Dimethylphenol	80.0	26.2	33	20-120	
bis(2-Chloroethoxy)methane	80.0	49.4	62	30-110	
2,4-Dichlorophenol	80.0	49.9	62	20-120	
1,2,4-Trichlorobenzene	80.0	39.1	49	30-110	
Naphthalene	80.0	44.5	56	30-110	
4-Chloroaniline	80.0	43.0	54	30-110	
Hexachlorobutadiene	80.0	30.3	38	30-110	
4-Chloro-3-methyl phenol	80.0	41.9	52	20-120	
2-Methylnaphthalene	80.0	47.1	59	30-110	
Hexachlorocyclopentadiene	80.0	20.1	25	30-110	*
2,4,6-Trichlorophenol	80.0	51.9	65	20-120	
2,4,5-Trichlorophenol	80.0	53.2	66	20-120	
2-Chloronaphthalene	80.0	47.0	59	30-110	
2-Nitroaniline	80.0	53.4	67	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0920

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Dimethylphthalate	80.0	53.5	67	30-110	
Acenaphthylene	80.0	48.9	61	30-110	
2,6-Dinitrotoluene	80.0	53.7	67	30-110	
Acenaphthene	80.0	50.2	63	30-110	
2,4-Dinitrophenol	80.0	51.3	64	20-120	
4-Nitrophenol	80.0	28.6	36	20-120	
2,4-Dinitrotoluene	80.0	54.7	68	30-110	
Dibenzofuran	80.0	51.2	64	30-110	
Diethylphthalate	80.0	54.1	68	30-110	
3-Nitroaniline	80.0	50.8	63	30-110	
Fluorene	80.0	53.0	66	30-110	
4-Chlorophenyl phenyl ether	80.0	53.4	67	30-110	
4-Nitroaniline	80.0	53.1	66	30-110	
4,6-Dinitro-2-methyl phenol	80.0	52.7	66	20-120	
N-Nitrosodiphenylamine	80.0	51.8	65	30-110	
1,2-Diphenylhydrazine	80.0	51.2	64	30-110	
4-Bromophenyl phenyl ether	80.0	54.0	67	30-110	
Hexachlorobenzene	80.0	54.9	69	30-110	
Pentachlorophenol	80.0	51.3	64	20-120	
Phenanthrene	80.0	52.9	66	30-110	
Anthracene	80.0	52.3	65	30-110	
Carbazole	80.0	53.0	66	30-110	
Di-n-butylphthalate	80.0	55.9	70	30-110	
Fluoranthene	80.0	55.1	69	30-110	
Pyrene	80.0	53.5	67	30-110	
Butylbenzylphthalate	80.0	55.6	69	30-110	
Benzo(a)anthracene	80.0	53.7	67	30-110	
3,3'-Dichlorobenzidine	80.0	50.7	63	30-110	
Chrysene	80.0	53.9	67	30-110	
bis(2-Ethylhexyl)phthalate	80.0	55.4	69	30-110	
Di-n-octylphthalate	80.0	53.8	67	30-110	
Benzo(b)fluoroanthene	80.0	54.9	69	30-110	
Benzo(k)fluoranthene	80.0	55.1	69	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE BLANK SPIKE RECOVERY

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Blank Spike ID: BS1W0920

GC Column: ZB-5MS ID: 0.25 (mm) Instrument Name: MSW

Analyte	Spike Added (ug/L)	BS Result (ug/L)	%R	QC Limits %R	Q
Benzo(a)pyrene	80.0	52.6	66	30-110	
Indeno(1,2,3-c,d)pyrene	80.0	54.7	68	30-110	
Dibenzo(a,h)anthracene	80.0	55.4	69	30-110	
Benzo(g,h,i)perylene	80.0	54.3	68	30-110	

* Values outside of QC limits

Comments:

WATER SEMI-VOLATILE METHOD BLANK SUMMARY

Field Sample ID: WB1-0920

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Lab Sample ID: WB1-0920

Lab File ID: WB1-0920.D Date Extracted: 09/20/13

GC Column: ZB-5MS ID: 0.25 (mm) Date Analyzed: 09/23/13

Instrument: MSW Time Analyzed: 1615

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	BS1W0920	BS1W0920	BS1W0920.D	09/23/13	1652
2	RECON ID 023-CH2M Run 010DL	M279201DL	M279201DL2.D	09/24/13	1607
3	RECON ID 025-CH2M Run 012DL	M279203DL	M279203DL2.D	09/24/13	1721
4	RECON ID 026-CH2M Run 013DL	M279204DL	M279204DL2.D	09/24/13	1758
5	RECON ID 023-CH2M Run 010	M279201	M279201DL.D	09/24/13	2103
6	RECON ID 024-CH2M Run 011	M279202	M279202DL.D	09/24/13	2140
7	RECON ID 025-CH2M Run 012	M279203	M279203DL.D	09/24/13	2217
8	RECON ID 026-CH2M Run 013	M279204	M279204DL.D	09/24/13	2254

Comments:

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2792

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 09/18/13

Lab File ID: T2-0918.D

DFTPP Injection Time: 1825

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	28578	(42.7)	
68	less than 2% of mass 69	391	(1.4)	
69	mass 69 relative abundance	28879	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	33515	(50.1)	
197	less than 1% of mass 198	254	(0.4)	
198	base peak, 100% relative abundance	66851	(100.0)	
199	5% to 9% of mass 198	4453	(6.7)	
275	10% to 30% of mass 198	18869	(28.2)	
365	greater than 1% of mass 198	2255	(3.4)	
441	present, but less than mass 443	8109	(75.5)	
442	greater than 40% of mass 198	55613	(83.2)	
443	17% to 23% of mass 442	10735	(19.3)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	LEVEL1	LEVEL1	LEVEL1.D	09/18/13	1859
2	LEVEL2	LEVEL2	LEVEL2.D	09/18/13	1936
3	LEVEL3	LEVEL3	LEVEL3.D	09/18/13	2013
4	LEVEL4	LEVEL4	LEVEL4.D	09/18/13	2050
5	LEVEL5	LEVEL5	LEVEL5.D	09/18/13	2127
6	LEVEL6	LEVEL6	LEVEL6.D	09/18/13	2204
7	ICV-0918	ICV-0918	ICV-0918.D	09/18/13	2241

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2792

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 09/23/13

Lab File ID: T1-0923.D

DFTPP Injection Time: 1351

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	26142	(39.9)	
68	less than 2% of mass 69	406	(1.5)	
69	mass 69 relative abundance	26260	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	31652	(48.3)	
197	less than 1% of mass 198	243	(0.4)	
198	base peak, 100% relative abundance	65491	(100.0)	
199	5% to 9% of mass 198	4524	(6.9)	
275	10% to 30% of mass 198	18479	(28.2)	
365	greater than 1% of mass 198	2389	(3.6)	
441	present, but less than mass 443	9128	(77.6)	
442	greater than 40% of mass 198	63629	(97.2)	
443	17% to 23% of mass 442	11764	(18.5)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0923	CV1-0923	CV1-0923.D	09/23/13	1424
2	WB1-0920	WB1-0920	WB1-0920.D	09/23/13	1615
3	BS1W0920	BS1W0920	BS1W0920.D	09/23/13	1652

5B

SEMI-VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

SDG No.: M2792

Lab Name: CH2M HILL ASL

Analysis Method: SW8270C

DFTPP Injection Date: 09/24/13

Lab File ID: T1-0924.D

DFTPP Injection Time: 1151

Instrument ID: MSW

Mass	Ion Abundance Criteria	% Relative		Q
51	30% to 60% of mass 198	44752	(41.7)	
68	less than 2% of mass 69	724	(1.6)	
69	mass 69 relative abundance	44728	(100.0)	
70	less than 2% of mass 69	0	(0.0)	
127	40% to 60% of mass 198	52896	(49.3)	
197	less than 1% of mass 198	564	(0.5)	
198	base peak, 100% relative abundance	107368	(100.0)	
199	5% to 9% of mass 198	7162	(6.7)	
275	10% to 30% of mass 198	29648	(27.6)	
365	greater than 1% of mass 198	3094	(2.9)	
441	present, but less than mass 443	11423	(69.8)	
442	greater than 40% of mass 198	80448	(74.9)	
443	17% to 23% of mass 442	16356	(20.3)	

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	CV1-0924	CV1-0924	CV1-0924.D	09/24/13	1225
2	RECON ID 023-CH2M Run	M279201DL	M279201DL2.	09/24/13	1607
3	RECON ID 025-CH2M Run	M279203DL	M279203DL2.	09/24/13	1721
4	RECON ID 026-CH2M Run	M279204DL	M279204DL2.	09/24/13	1758
5	RECON ID 023-CH2M Run	M279201	M279201DL.D	09/24/13	2103
6	RECON ID 024-CH2M Run	M279202	M279202DL.D	09/24/13	2140
7	RECON ID 025-CH2M Run	M279203	M279203DL.D	09/24/13	2217
8	RECON ID 026-CH2M Run	M279204	M279204DL.D	09/24/13	2254

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs:	LEVEL1	LEVEL2	LEVEL3	LEVEL4	LEVEL5	LEVEL6
ICAL File IDs:	LEVEL1.D	LEVEL2.D	LEVEL3.D	LEVEL4.D	LEVEL5.D	LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
N-Nitrosodimethylamine	5	0.673	20	0.731	50	0.720	80	0.717	120	0.722	160	0.701
Pyridine	5	1.221	20	1.282	50	1.221	80	1.235	120	1.234	160	1.212
2-Fluorophenol	5	1.074	20	1.161	50	1.150	80	1.154	120	1.169	160	1.138
Aniline	5	1.735	20	1.816	50	1.819	80	1.788	120	1.827	160	1.694
Phenol-d5	5	1.338	20	1.434	50	1.419	80	1.399	120	1.422	160	1.377
Phenol#	5	1.373	20	1.441	50	1.416	80	1.397	120	1.408	160	1.365
bis(2-Chloroethyl)ether	5	0.834	20	0.854	50	0.810	80	0.874	120	0.810	160	0.844
2-Chlorophenol	5	1.086	20	1.165	50	1.157	80	1.162	120	1.179	160	1.153
1,3-Dichlorobenzene	5	1.240	20	1.268	50	1.241	80	1.254	120	1.262	160	1.235
1,4-Dichlorobenzene#	5	1.293	20	1.313	50	1.292	80	1.299	120	1.308	160	1.273
Benzyl alcohol	5	0.666	20	0.757	50	0.769	80	0.772	120	0.781	160	0.763
1,2-Dichlorobenzene	5	1.209	20	1.240	50	1.212	80	1.193	120	1.208	160	1.155
2-Methylphenol	5	0.899	20	0.953	50	0.938	80	0.916	120	0.925	160	0.889
bis(2-Chloroisopropyl)ether	5	1.942	20	2.016	50	1.890	80	1.847	120	1.832	160	1.733
3-,4-Methylphenol	5	1.132	20	1.216	50	1.210	80	1.208	120	1.225	160	1.197
N-Nitroso-di-n-propylamine*	5	0.821	20	0.892	50	0.872	80	0.861	120	0.869	160	0.843
Hexachloroethane	5	0.434	20	0.454	50	0.452	80	0.455	120	0.456	160	0.447
Benzoic Acid	5	0.192	20	0.633	50	0.802	80	0.903	120	0.933	160	0.945
Nitrobenzene-d5	5	0.277	20	0.302	50	0.290	80	0.289	120	0.289	160	0.280
Nitrobenzene	5	0.267	20	0.283	50	0.272	80	0.269	120	0.268	160	0.259
Isophorone	5	0.456	20	0.508	50	0.496	80	0.497	120	0.498	160	0.483
2-Nitrophenol#	5	0.128	20	0.148	50	0.149	80	0.153	120	0.156	160	0.152
2,4-Dimethylphenol	5	0.189	20	0.266	50	0.267	80	0.270	120	0.272	160	0.264
bis(2-Chloroethoxy)methane	5	0.301	20	0.312	50	0.303	80	0.302	120	0.304	160	0.292
2,4-Dichlorophenol#	5	0.187	20	0.209	50	0.215	80	0.224	120	0.228	160	0.221
1,2,4-Trichlorobenzene	5	0.235	20	0.244	50	0.241	80	0.245	120	0.249	160	0.244
Naphthalene	5	0.799	20	0.822	50	0.780	80	0.771	120	0.775	160	0.738
4-Chloroaniline	5	0.322	20	0.344	50	0.335	80	0.334	120	0.341	160	0.325
Hexachlorobutadiene#	5	0.140	20	0.147	50	0.148	80	0.154	120	0.156	160	0.154
4-Chloro-3-methyl phenol#	5	0.192	20	0.219	50	0.265	80	0.303	120	0.310	160	0.293

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs:	LEVEL1	LEVEL2	LEVEL3	LEVEL4	LEVEL5	LEVEL6
ICAL File IDs:	LEVEL1.D	LEVEL2.D	LEVEL3.D	LEVEL4.D	LEVEL5.D	LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
2-Methylnaphthalene	5	0.521	20	0.537	50	0.526	80	0.524	120	0.531	160	0.512
Hexachlorocyclopentadiene*	5	0.166	20	0.220	50	0.238	80	0.255	120	0.262	160	0.262
2,4,6-Trichlorophenol#	5	0.232	20	0.269	50	0.276	80	0.285	120	0.293	160	0.290
2,4,5-Trichlorophenol	5	0.236	20	0.270	50	0.280	80	0.294	120	0.298	160	0.300
2-Fluorobiphenyl	5	0.980	20	1.022	50	0.998	80	1.007	120	1.014	160	0.983
2-Chloronaphthalene	5	0.790	20	0.830	50	0.809	80	0.813	120	0.819	160	0.805
2-Nitroaniline	5	0.227	20	0.287	50	0.295	80	0.303	120	0.309	160	0.304
Dimethylphthalate	5	0.876	20	0.920	50	0.898	80	0.907	120	0.921	160	0.902
Acenaphthylene	5	1.289	20	1.393	50	1.351	80	1.356	120	1.370	160	1.331
2,6-Dinitrotoluene	5	0.194	20	0.218	50	0.219	80	0.224	120	0.227	160	0.224
Acenaphthene#	5	0.851	20	0.883	50	0.853	80	0.846	120	0.853	160	0.826
2,4-Dinitrophenol*	5	0.057	20	0.111	50	0.139	80	0.161	120	0.169	160	0.172
4-Nitrophenol*	5	0.132	20	0.186	50	0.203	80	0.210	120	0.216	160	0.215
2,4-Dinitrotoluene	5	0.239	20	0.288	50	0.291	80	0.297	120	0.304	160	0.298
Dibenzofuran	5	1.200	20	1.240	50	1.209	80	1.220	120	1.225	160	1.197
Diethylphthalate	5	0.857	20	0.922	50	0.905	80	0.912	120	0.921	160	0.895
3-Nitroaniline	5	0.209	20	0.250	50	0.254	80	0.258	120	0.262	160	0.259
Fluorene	5	0.938	20	0.988	50	0.972	80	0.977	120	0.982	160	0.954
4-Chlorophenyl phenyl ether	5	0.455	20	0.470	50	0.468	80	0.475	120	0.480	160	0.469
4-Nitroaniline	5	0.210	20	0.262	50	0.266	80	0.272	120	0.277	160	0.273
4,6-Dinitro-2-methyl phenol	5	0.060	20	0.095	50	0.109	80	0.119	120	0.124	160	0.125
N-Nitrosodiphenylamine#	5	0.459	20	0.495	50	0.491	80	0.493	120	0.503	160	0.491
1,2-Diphenylhydrazine	5	0.546	20	0.586	50	0.565	80	0.556	120	0.556	160	0.536
2,4,6-Tribromophenol	5	0.056	20	0.074	50	0.080	80	0.086	120	0.090	160	0.092
4-Bromophenyl phenyl ether	5	0.140	20	0.154	50	0.159	80	0.165	120	0.169	160	0.168
Hexachlorobenzene	5	0.154	20	0.162	50	0.165	80	0.171	120	0.176	160	0.175
Pentachlorophenol#	5	0.052	20	0.095	50	0.115	80	0.129	120	0.136	160	0.138
Phenanthrene	5	0.786	20	0.810	50	0.791	80	0.794	120	0.803	160	0.783
Anthracene	5	0.761	20	0.822	50	0.813	80	0.823	120	0.834	160	0.802
Carbazole	5	0.718	20	0.784	50	0.776	80	0.782	120	0.794	160	0.770

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

ICAL Sample IDs: LEVEL1 LEVEL2 LEVEL3 LEVEL4 LEVEL5 LEVEL6

ICAL File IDs: LEVEL1.D LEVEL2.D LEVEL3.D LEVEL4.D LEVEL5.D LEVEL6.D

Analyte	Std 1	RF 1	Std 2	RF 2	Std 3	RF 3	Std 4	RF 4	Std 5	RF 5	Std 6	RF 6
Di-n-butylphthalate	5	0.677	20	0.841	50	0.849	80	0.859	120	0.865	160	0.834
Fluoranthene#	5	0.784	20	0.856	50	0.858	80	0.871	120	0.875	160	0.851
Pyrene	5	0.791	20	0.844	50	0.825	80	0.815	120	0.829	160	0.800
Terphenyl-d14	5	0.578	20	0.616	50	0.618	80	0.611	120	0.623	160	0.602
Butylbenzylphthalate	5	0.251	20	0.346	50	0.361	80	0.366	120	0.369	160	0.357
Benzo(a)anthracene	5	0.802	20	0.828	50	0.815	80	0.819	120	0.825	160	0.808
3,3'-Dichlorobenzidine	5	0.218	20	0.288	50	0.307	80	0.317	120	0.327	160	0.321
Chrysene	5	0.774	20	0.790	50	0.776	80	0.769	120	0.784	160	0.755
bis(2-Ethylhexyl)phthalate	5	0.407	20	0.516	50	0.528	80	0.526	120	0.538	160	0.512
Di-n-octylphthalate#	5	0.560	20	0.815	50	0.870	80	0.890	120	0.917	160	0.864
Benzo(b)fluoroanthene	5	0.711	20	0.748	50	0.785	80	0.788	120	0.855	160	0.809
Benzo(k)fluoranthene	5	0.713	20	0.796	50	0.789	80	0.804	120	0.805	160	0.811
Benzo(a)pyrene#	5	0.634	20	0.712	50	0.731	80	0.748	120	0.781	160	0.764
Indeno(1,2,3-c,d)pyrene	5	0.737	20	0.821	50	0.841	80	0.865	120	0.908	160	0.900
Dibenzo(a,h)anthracene	5	0.648	20	0.706	50	0.731	80	0.752	120	0.787	160	0.779
Benzo(g,h,i)perylene	5	0.634	20	0.698	50	0.717	80	0.733	120	0.770	160	0.768

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
N-Nitrosodimethylamine	AVG	0.711	2.94	6.84			
Pyridine	AVG	1.234	2.02	6.84			
2-Fluorophenol	AVG	1.141	3.02	6.84			
Aniline	AVG	1.780	3.02	6.84			
Phenol-d5	AVG	1.398	2.55	6.84			
Phenol#	AVG	1.400	2.02	6.84			
bis(2-Chloroethyl)ether	AVG	0.838	3.00	6.84			
2-Chlorophenol	AVG	1.150	2.85	6.84			
1,3-Dichlorobenzene	AVG	1.250	1.08	6.84			
1,4-Dichlorobenzene#	AVG	1.296	1.07	6.84			
Benzyl alcohol	AVG	0.751	5.67	6.84			
1,2-Dichlorobenzene	AVG	1.203	2.34	6.84			
2-Methylphenol	AVG	0.920	2.59	6.84			
bis(2-Chloroisopropyl)ether	AVG	1.877	5.17	6.84			
3-,4-Methylphenol	AVG	1.198	2.82	6.84			
N-Nitroso-di-n-propylamine*	AVG	0.860	2.86	6.84			
Hexachloroethane	AVG	0.450	1.90	6.84			
Benzoic Acid	LINR	0.735			0.999		
Nitrobenzene-d5	AVG	0.288	3.05	6.84			
Nitrobenzene	AVG	0.270	2.86	6.84			
Isophorone	AVG	0.490	3.70	6.84			
2-Nitrophenol#	AVG	0.148	6.78	6.84			
2,4-Dimethylphenol	AVG	0.255	12.6	6.84			
bis(2-Chloroethoxy)methane	AVG	0.302	2.19	6.84			
2,4-Dichlorophenol#	AVG	0.214	6.89	6.84			
1,2,4-Trichlorobenzene	AVG	0.243	1.93	6.84			
Naphthalene	AVG	0.781	3.63	6.84			
4-Chloroaniline	AVG	0.334	2.61	6.84			
Hexachlorobutadiene#	AVG	0.150	3.97	6.84			
4-Chloro-3-methyl phenol#	LINR	0.264			0.998		

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
2-Methylnaphthalene	AVG	0.525	1.63	6.84			
Hexachlorocyclopentadiene*	LINR	0.234			1.000		
2,4,6-Trichlorophenol#	AVG	0.274	8.22	6.84			
2,4,5-Trichlorophenol	AVG	0.280	8.66	6.84			
2-Fluorobiphenyl	AVG	1.000	1.69	6.84			
2-Chloronaphthalene	AVG	0.811	1.66	6.84			
2-Nitroaniline	AVG	0.287	10.7	6.84			
Dimethylphthalate	AVG	0.904	1.84	6.84			
Acenaphthylene	AVG	1.348	2.63	6.84			
2,6-Dinitrotoluene	AVG	0.218	5.53	6.84			
Acenaphthene#	AVG	0.852	2.18	6.84			
2,4-Dinitrophenol*	LINR	0.135			0.998		
4-Nitrophenol*	LINR	0.194			1.000		
2,4-Dinitrotoluene	AVG	0.286	8.30	6.84			
Dibenzofuran	AVG	1.215	1.35	6.84			
Diethylphthalate	AVG	0.902	2.71	6.84			
3-Nitroaniline	AVG	0.249	8.03	6.84			
Fluorene	AVG	0.969	1.95	6.84			
4-Chlorophenyl phenyl ether	AVG	0.470	1.83	6.84			
4-Nitroaniline	AVG	0.260	9.74	6.84			
4,6-Dinitro-2-methyl phenol	LINR	0.105			0.999		
N-Nitrosodiphenylamine#	AVG	0.489	3.07	6.84			
1,2-Diphenylhydrazine	AVG	0.558	3.09	6.84			
2,4,6-Tribromophenol	LINR	0.080			0.999		
4-Bromophenyl phenyl ether	AVG	0.159	6.77	6.84			
Hexachlorobenzene	AVG	0.167	5.16	6.84			
Pentachlorophenol#	LINR	0.111			0.999		
Phenanthrene	AVG	0.795	1.30	6.84			
Anthracene	AVG	0.809	3.20	6.84			
Carbazole	AVG	0.771	3.53	6.84			

* SPCC # CCC

SEMI-VOLATILE ORGANICS INITIAL CALIBRATION DATA

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date(s): 09/18/13 09/18/13

Instrument Name: MSW Calibration Times: 1859 2204

GC Column: ZB-5MS ID: 0.25 (mm) Concentration Units: mg/L

Analyte	Curve Type	Avg. RF	%RSD	Mean %RSD	r	COD	Q
Di-n-butylphthalate	AVG	0.821	8.73	6.84			
Fluoranthene#	AVG	0.849	3.92	6.84			
Pyrene	AVG	0.817	2.40	6.84			
Terphenyl-d14	AVG	0.608	2.68	6.84			
Butylbenzylphthalate	AVG	0.342	13.3	6.84			
Benzo(a)anthracene	AVG	0.816	1.21	6.84			
3,3'-Dichlorobenzidine	AVG	0.297	13.8	6.84			
Chrysene	AVG	0.775	1.59	6.84			
bis(2-Ethylhexyl)phthalate	AVG	0.504	9.64	6.84			
Di-n-octylphthalate#	LINR	0.819			0.998		
Benzo(b)fluoroanthene	AVG	0.783	6.33	6.84			
Benzo(k)fluoranthene	AVG	0.786	4.66	6.84			
Benzo(a)pyrene#	AVG	0.728	7.16	6.84			
Indeno(1,2,3-c,d)pyrene	AVG	0.845	7.40	6.84			
Dibenzo(a,h)anthracene	AVG	0.734	7.05	6.84			
Benzo(g,h,i)perylene	AVG	0.720	7.03	6.84			

* SPCC # CCC

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/18/13 2241

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

2nd Source ICV-0918 Init. Calib. Time(s): 1859 2204

Lab File ID: ICV-0918.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	50.5	0.717	0.500	0.9	30	
Pyridine	50.0	48.0	1.186	0.500	-4	30	
Aniline	50.0	46.3	1.649	0.500	-7	30	
Phenol#	50.0	50.6	1.416	0.050	1	30	
bis(2-Chloroethyl)ether	50.0	49.8	0.834	0.050	-0.4	30	
2-Chlorophenol	50.0	50.9	1.171	0.050	2	30	
1,3-Dichlorobenzene	50.0	50.9	1.273	0.050	2	30	
1,4-Dichlorobenzene#	50.0	50.1	1.298	0.050	0.1	30	
Benzyl alcohol	50.0	50.5	0.758	0.050	0.9	30	
1,2-Dichlorobenzene	50.0	50.6	1.218	0.050	1	30	
2-Methylphenol	50.0	50.9	0.937	0.050	2	30	
bis(2-Chloroisopropyl)ether	50.0	52.0	1.952	0.050	4	30	
3-,4-Methylphenol	50.0	51.2	1.227	0.050	2	30	
N-Nitroso-di-n-propylamine*	50.0	50.2	0.864	0.050	0.5	30	
Hexachloroethane	50.0	52.0	0.468	0.050	4	30	
Benzoic Acid	50.0	51.6	0.887	0.050	3	30	
Nitrobenzene	50.0	51.1	0.276	0.050	2	30	
Isophorone	50.0	49.6	0.485	0.050	-0.9	30	
2-Nitrophenol#	50.0	51.6	0.152	0.050	3	30	
2,4-Dimethylphenol	50.0	50.4	0.257	0.050	0.8	30	
bis(2-Chloroethoxy)methane	50.0	51.1	0.309	0.050	2	30	
2,4-Dichlorophenol#	50.0	51.1	0.219	0.050	2	30	
1,2,4-Trichlorobenzene	50.0	50.0	0.243	0.050	0.0	30	
Naphthalene	50.0	50.7	0.791	0.050	1	30	
4-Chloroaniline	50.0	49.1	0.327	0.050	-2	30	
Hexachlorobutadiene#	50.0	47.5	0.142	0.050	-5	30	
4-Chloro-3-methyl phenol#	50.0	45.6	0.258	0.050	-9	30	
2-Methylnaphthalene	50.0	51.1	0.537	0.050	2	30	
Hexachlorocyclopentadiene*	50.0	46.2	0.229	0.050	-8	30	
2,4,6-Trichlorophenol#	50.0	50.9	0.279	0.050	2	30	
2,4,5-Trichlorophenol	50.0	49.9	0.279	0.050	-0.2	30	
2-Chloronaphthalene	50.0	51.5	0.835	0.050	3	30	
2-Nitroaniline	50.0	51.7	0.297	0.050	3	30	
Dimethylphthalate	50.0	52.8	0.954	0.050	6	30	
Acenaphthylene	50.0	48.0	1.293	0.050	-4	30	

* SPCC # CCC

7B

SEMI-VOLATILE INITIAL CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/18/13 2241

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

2nd Source ICV-0918 Init. Calib. Time(s): 1859 2204

Lab File ID: ICV-0918.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2,6-Dinitrotoluene	50.0	52.0	0.226	0.050	4	30	
Acenaphthene#	50.0	50.0	0.852	0.050	0.1	30	
2,4-Dinitrophenol*	50.0	47.1	0.143	0.050	-6	30	
4-Nitrophenol*	50.0	49.0	0.202	0.050	-2	30	
2,4-Dinitrotoluene	50.0	52.4	0.300	0.050	5	30	
Dibenzofuran	50.0	48.5	1.177	0.050	-3	30	
Diethylphthalate	50.0	52.5	0.947	0.050	5	30	
3-Nitroaniline	50.0	52.2	0.260	0.050	4	30	
Fluorene	50.0	51.8	1.003	0.050	4	30	
4-Chlorophenyl phenyl ether	50.0	52.1	0.490	0.050	4	30	
4-Nitroaniline	50.0	51.1	0.266	0.050	2	30	
4,6-Dinitro-2-methyl phenol	50.0	45.9	0.105	0.050	-8	30	
N-Nitrosodiphenylamine#	50.0	49.6	0.484	0.050	-0.8	30	
1,2-Diphenylhydrazine	50.0	48.8	0.544	0.500	-2	30	
4-Bromophenyl phenyl ether	50.0	51.2	0.163	0.050	2	30	
Hexachlorobenzene	50.0	51.4	0.172	0.050	3	30	
Pentachlorophenol#	50.0	41.7	0.101	0.050	-17	30	
Phenanthrene	50.0	50.8	0.807	0.050	2	30	
Anthracene	50.0	50.8	0.822	0.050	2	30	
Carbazole	50.0	49.6	0.765	0.050	-0.7	30	
Di-n-butylphthalate	50.0	55.7	0.915	0.050	11	30	
Fluoranthene#	50.0	52.6	0.893	0.050	5	30	
Pyrene	50.0	52.8	0.863	0.050	6	30	
Butylbenzylphthalate	50.0	55.0	0.376	0.050	10	30	
Benzo(a)anthracene	50.0	52.0	0.849	0.050	4	30	
3,3'-Dichlorobenzidine	50.0	55.6	0.330	0.050	11	30	
Chrysene	50.0	50.0	0.775	0.050	0.0	30	
bis(2-Ethylhexyl)phthalate	50.0	54.1	0.546	0.050	8	30	
Di-n-octylphthalate#	50.0	52.1	0.911	0.050	4	30	
Benzo(b)fluoroanthene	50.0	51.9	0.812	0.050	4	30	
Benzo(k)fluoranthene	50.0	54.6	0.859	0.050	9	30	
Benzo(a)pyrene#	50.0	54.2	0.790	0.050	8	30	
Indeno(1,2,3-c,d)pyrene	50.0	53.4	0.903	0.050	7	30	
Dibenzo(a,h)anthracene	50.0	52.2	0.766	0.050	4	30	
Benzo(g,h,i)perylene	50.0	51.7	0.744	0.050	3	30	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/23/13 1424

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0923.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	48.6	0.691	0.500	-3	20	
Pyridine	50.0	48.3	1.192	0.500	-3	20	
2-Fluorophenol	50.0	49.7	1.134	0.050	-0.6	20	
Aniline	50.0	50.8	1.807	0.500	2	20	
Phenol-d5	50.0	49.9	1.395	0.050	-0.2	20	
Phenol#	50.0	50.3	1.408	0.050	0.6	20	
bis(2-Chloroethyl)ether	50.0	47.5	0.795	0.050	-5	20	
2-Chlorophenol	50.0	49.6	1.141	0.050	-0.8	20	
1,3-Dichlorobenzene	50.0	49.1	1.228	0.050	-2	20	
1,4-Dichlorobenzene#	50.0	49.6	1.284	0.050	-0.9	20	
Benzyl alcohol	50.0	50.2	0.754	0.050	0.3	20	
1,2-Dichlorobenzene	50.0	50.7	1.219	0.050	1	20	
2-Methylphenol	50.0	51.4	0.945	0.050	3	20	
bis(2-Chloroisopropyl)ether	50.0	50.4	1.893	0.050	0.9	20	
3-,4-Methylphenol	50.0	50.4	1.207	0.050	0.8	20	
N-Nitroso-di-n-propylamine*	50.0	50.9	0.875	0.050	2	20	
Hexachloroethane	50.0	50.1	0.451	0.050	0.2	20	
Benzoic Acid	50.0	44.8	0.754	0.050	-10	20	
Nitrobenzene-d5	50.0	50.3	0.290	0.050	0.6	20	
Nitrobenzene	50.0	50.0	0.270	0.050	0.1	20	
Isophorone	50.0	50.4	0.494	0.050	0.9	20	
2-Nitrophenol#	50.0	50.8	0.150	0.050	2	20	
2,4-Dimethylphenol	50.0	52.7	0.268	0.050	5	20	
bis(2-Chloroethoxy)methane	50.0	49.5	0.299	0.050	-1	20	
2,4-Dichlorophenol#	50.0	50.7	0.217	0.050	1	20	
1,2,4-Trichlorobenzene	50.0	50.0	0.243	0.050	0.0	20	
Naphthalene	50.0	49.4	0.771	0.050	-1	20	
4-Chloroaniline	50.0	48.8	0.326	0.050	-2	20	
Hexachlorobutadiene#	50.0	50.8	0.152	0.050	2	20	
4-Chloro-3-methyl phenol#	50.0	46.9	0.266	0.050	-6	20	
2-Methylnaphthalene	50.0	50.4	0.529	0.050	0.8	20	
Hexachlorocyclopentadiene*	50.0	48.2	0.239	0.050	-4	20	
2,4,6-Trichlorophenol#	50.0	50.8	0.278	0.050	2	20	
2,4,5-Trichlorophenol	50.0	50.3	0.281	0.050	0.6	20	
2-Fluorobiphenyl	50.0	49.5	0.990	0.050	-1	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/23/13 1424

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0923.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2-Chloronaphthalene	50.0	49.5	0.802	0.050	-1	20	
2-Nitroaniline	50.0	50.1	0.288	0.050	0.2	20	
Dimethylphthalate	50.0	49.7	0.899	0.050	-0.5	20	
Acenaphthylene	50.0	49.6	1.336	0.050	-0.9	20	
2,6-Dinitrotoluene	50.0	49.7	0.217	0.050	-0.5	20	
Acenaphthene#	50.0	49.7	0.847	0.050	-0.6	20	
2,4-Dinitrophenol*	50.0	46.3	0.140	0.050	-8	20	
4-Nitrophenol*	50.0	48.4	0.200	0.050	-3	20	
2,4-Dinitrotoluene	50.0	50.3	0.288	0.050	0.5	20	
Dibenzofuran	50.0	49.4	1.199	0.050	-1	20	
Diethylphthalate	50.0	50.5	0.911	0.050	1.0	20	
3-Nitroaniline	50.0	49.6	0.247	0.050	-0.8	20	
Fluorene	50.0	50.4	0.977	0.050	0.8	20	
4-Chlorophenyl phenyl ether	50.0	50.7	0.476	0.050	1	20	
4-Nitroaniline	50.0	50.4	0.262	0.050	0.7	20	
4,6-Dinitro-2-methyl phenol	50.0	46.5	0.107	0.050	-7	20	
N-Nitrosodiphenylamine#	50.0	49.2	0.481	0.050	-2	20	
1,2-Diphenylhydrazine	50.0	49.7	0.555	0.500	-0.5	20	
2,4,6-Tribromophenol	50.0	47.7	0.081	0.050	-5	20	
4-Bromophenyl phenyl ether	50.0	49.2	0.157	0.050	-2	20	
Hexachlorobenzene	50.0	49.7	0.166	0.050	-0.6	20	
Pentachlorophenol#	50.0	44.5	0.109	0.050	-11	20	
Phenanthrene	50.0	49.2	0.783	0.050	-2	20	
Anthracene	50.0	49.6	0.802	0.050	-0.9	20	
Carbazole	50.0	49.2	0.758	0.050	-2	20	
Di-n-butylphthalate	50.0	51.0	0.838	0.050	2	20	
Fluoranthene#	50.0	49.5	0.840	0.050	-1	20	
Pyrene	50.0	50.5	0.825	0.050	1.0	20	
Terphenyl-d14	50.0	50.7	0.616	0.050	1	20	
Butylbenzylphthalate	50.0	51.9	0.355	0.050	4	20	
Benzo(a)anthracene	50.0	50.2	0.819	0.050	0.4	20	
3,3'-Dichlorobenzidine	50.0	51.6	0.306	0.050	3	20	
Chrysene	50.0	49.9	0.773	0.050	-0.2	20	
bis(2-Ethylhexyl)phthalate	50.0	51.8	0.523	0.050	4	20	
Di-n-octylphthalate#	50.0	49.6	0.865	0.050	-0.9	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/23/13 1424

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0923 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0923.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Benzo(b)fluoroanthene	50.0	49.5	0.775	0.050	-1	20	
Benzo(k)fluoranthene	50.0	51.0	0.802	0.050	2	20	
Benzo(a)pyrene#	50.0	50.2	0.731	0.050	0.4	20	
Indeno(1,2,3-c,d)pyrene	50.0	49.9	0.843	0.050	-0.3	20	
Dibenzo(a,h)anthracene	50.0	50.1	0.735	0.050	0.1	20	
Benzo(g,h,i)perylene	50.0	49.2	0.708	0.050	-2	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/24/13 1225

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0924.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
N-Nitrosodimethylamine	50.0	49.5	0.703	0.500	-1	20	
Pyridine	50.0	50.4	1.244	0.500	0.8	20	
2-Fluorophenol	50.0	49.9	1.139	0.050	-0.2	20	
Aniline	50.0	50.5	1.798	0.500	1.0	20	
Phenol-d5	50.0	50.3	1.407	0.050	0.6	20	
Phenol#	50.0	51.1	1.430	0.050	2	20	
bis(2-Chloroethyl)ether	50.0	48.2	0.807	0.050	-4	20	
2-Chlorophenol	50.0	49.7	1.142	0.050	-0.7	20	
1,3-Dichlorobenzene	50.0	49.7	1.242	0.050	-0.6	20	
1,4-Dichlorobenzene#	50.0	49.9	1.294	0.050	-0.2	20	
Benzyl alcohol	50.0	52.0	0.781	0.050	4	20	
1,2-Dichlorobenzene	50.0	51.0	1.227	0.050	2	20	
2-Methylphenol	50.0	52.3	0.962	0.050	5	20	
bis(2-Chloroisopropyl)ether	50.0	50.7	1.903	0.050	1	20	
3-,4-Methylphenol	50.0	51.3	1.229	0.050	3	20	
N-Nitroso-di-n-propylamine*	50.0	51.3	0.882	0.050	3	20	
Hexachloroethane	50.0	49.8	0.447	0.050	-0.5	20	
Benzoic Acid	50.0	47.0	0.796	0.050	-6	20	
Nitrobenzene-d5	50.0	50.2	0.289	0.050	0.5	20	
Nitrobenzene	50.0	50.7	0.274	0.050	1	20	
Isophorone	50.0	51.8	0.507	0.050	4	20	
2-Nitrophenol#	50.0	51.1	0.151	0.050	2	20	
2,4-Dimethylphenol	50.0	53.3	0.272	0.050	7	20	
bis(2-Chloroethoxy)methane	50.0	49.8	0.301	0.050	-0.5	20	
2,4-Dichlorophenol#	50.0	52.1	0.223	0.050	4	20	
1,2,4-Trichlorobenzene	50.0	50.3	0.245	0.050	0.6	20	
Naphthalene	50.0	49.7	0.776	0.050	-0.6	20	
4-Chloroaniline	50.0	48.6	0.324	0.050	-3	20	
Hexachlorobutadiene#	50.0	51.8	0.155	0.050	4	20	
4-Chloro-3-methyl phenol#	50.0	42.4	0.239	0.050	-15	20	
2-Methylnaphthalene	50.0	50.3	0.528	0.050	0.6	20	
Hexachlorocyclopentadiene*	50.0	43.5	0.214	0.050	-13	20	
2,4,6-Trichlorophenol#	50.0	50.7	0.278	0.050	1	20	
2,4,5-Trichlorophenol	50.0	51.3	0.287	0.050	3	20	
2-Fluorobiphenyl	50.0	48.8	0.977	0.050	-2	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/24/13 1225

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0924.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
2-Chloronaphthalene	50.0	48.7	0.790	0.050	-3	20	
2-Nitroaniline	50.0	50.9	0.293	0.050	2	20	
Dimethylphthalate	50.0	49.9	0.902	0.050	-0.2	20	
Acenaphthylene	50.0	49.1	1.323	0.050	-2	20	
2,6-Dinitrotoluene	50.0	49.7	0.216	0.050	-0.7	20	
Acenaphthene#	50.0	48.9	0.833	0.050	-2	20	
2,4-Dinitrophenol*	50.0	45.4	0.137	0.050	-9	20	
4-Nitrophenol*	50.0	50.1	0.208	0.050	0.3	20	
2,4-Dinitrotoluene	50.0	50.6	0.289	0.050	1	20	
Dibenzofuran	50.0	49.4	1.200	0.050	-1	20	
Diethylphthalate	50.0	50.7	0.914	0.050	1	20	
3-Nitroaniline	50.0	50.3	0.250	0.050	0.5	20	
Fluorene	50.0	50.2	0.972	0.050	0.4	20	
4-Chlorophenyl phenyl ether	50.0	50.7	0.476	0.050	1	20	
4-Nitroaniline	50.0	51.6	0.268	0.050	3	20	
4,6-Dinitro-2-methyl phenol	50.0	45.0	0.103	0.050	-10	20	
N-Nitrosodiphenylamine#	50.0	48.7	0.476	0.050	-3	20	
1,2-Diphenylhydrazine	50.0	49.3	0.550	0.500	-1	20	
2,4,6-Tribromophenol	50.0	49.7	0.085	0.050	-0.7	20	
4-Bromophenyl phenyl ether	50.0	49.5	0.158	0.050	-1	20	
Hexachlorobenzene	50.0	50.0	0.167	0.050	0.1	20	
Pentachlorophenol#	50.0	44.9	0.110	0.050	-10	20	
Phenanthrene	50.0	49.0	0.778	0.050	-2	20	
Anthracene	50.0	49.3	0.798	0.050	-1	20	
Carbazole	50.0	49.3	0.760	0.050	-1	20	
Di-n-butylphthalate	50.0	51.6	0.846	0.050	3	20	
Fluoranthene#	50.0	50.5	0.857	0.050	1.0	20	
Pyrene	50.0	49.5	0.809	0.050	-1.0	20	
Terphenyl-d14	50.0	50.5	0.615	0.050	1	20	
Butylbenzylphthalate	50.0	51.8	0.354	0.050	4	20	
Benzo(a)anthracene	50.0	49.8	0.812	0.050	-0.5	20	
3,3'-Dichlorobenzidine	50.0	50.8	0.301	0.050	2	20	
Chrysene	50.0	49.8	0.771	0.050	-0.5	20	
bis(2-Ethylhexyl)phthalate	50.0	51.7	0.522	0.050	3	20	
Di-n-octylphthalate#	50.0	50.6	0.883	0.050	1	20	

* SPCC # CCC

SEMI-VOLATILE CONTINUING CALIBRATION CHECK

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW8270C Calibration Date/Time: 09/24/13 1225

Instrument ID: MSW Init. Calib. Date(s): 09/18/13 09/18/13

Cal Check ID: CV1-0924 Init. Calib. Time(s): 1859 2204

Lab File ID: CV1-0924.D GC Column: ZB-5MS ID: 0.25 (mm)

Heat Purge:(Y/N) N Concentration Units: mg/L

Analyte	Expected	Found	RRF	Min. RRF	%D	Max. %D	Q
Benzo(b)fluoroanthene	50.0	51.4	0.804	0.050	3	20	
Benzo(k)fluoranthene	50.0	49.9	0.785	0.050	-0.2	20	
Benzo(a)pyrene#	50.0	50.4	0.734	0.050	0.8	20	
Indeno(1,2,3-c,d)pyrene	50.0	47.3	0.799	0.050	-5	20	
Dibenzo(a,h)anthracene	50.0	47.7	0.701	0.050	-5	20	
Benzo(g,h,i)perylene	50.0	47.0	0.677	0.050	-6	20	

* SPCC # CCC

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2792

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL3

Date Analyzed: 09/18/13

Lab File ID: LEVEL3.D

Time Analyzed: 2013

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		700210	7.3	3067515	9.03	1808202	12.42
Upper Limit		1400420	7.8	6135030	9.53	3616404	12.92
Lower Limit		350105	6.8	1533758	8.53	904101	11.92
Field Sample ID	Lab Sample ID						
ICV-0918	ICV-0918	656568	7.3	2881673	9.03	1717027	12.42

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8C

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2792

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: LEVEL3

Date Analyzed: 09/18/13

Lab File ID: LEVEL3.D

Time Analyzed: 2013

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		3130306	15.87	3348173	22.33	3315640	25.6
Upper Limit		6260612	16.37	6696346	22.83	6631280	26.1
Lower Limit		1565153	15.37	1674087	21.83	1657820	25.1
Field Sample ID	Lab Sample ID						
ICV-0918	ICV-0918	2971379	15.87	3131167	22.33	3060783	25.59

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2792

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0923

Date Analyzed: 09/23/13

Lab File ID: CV1-0923.D

Time Analyzed: 1424

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		552641	7.29	2450954	9.01	1489106	12.4
Upper Limit		1105282	7.79	4901908	9.51	2978212	12.9
Lower Limit		276321	6.79	1225477	8.51	744553	11.9
Field Sample ID	Lab Sample ID						
WB1-0920	WB1-0920	675502	7.289	3064980	9.002	1940752	12.38
BS1W0920	BS1W0920	778598	7.289	3514456	9.007	2208753	12.40

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8C

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2792

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0923

Date Analyzed: 09/23/13

Lab File ID: CV1-0923.D

Time Analyzed: 1424

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		2616967	15.84	2762356	22.31	2723170	25.56
Upper Limit		5233934	16.34	5524712	22.81	5446340	26.06
Lower Limit		1308484	15.34	1381178	21.81	1361585	25.06
Field Sample ID	Lab Sample ID						
WB1-0920	WB1-0920	3421530	15.84	3537221	22.29	3581726	25.56
BS1W0920	BS1W0920	3906140	15.85	4290169	22.31	4171252	25.57

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8B

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2792

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0924

Date Analyzed: 09/24/13

Lab File ID: CV1-0924.D

Time Analyzed: 1225

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS1		IS2		IS3	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	Reference Cal	556438	7.28	2466523	8.99	1531544	12.38
	Upper Limit	1112876	7.78	4933046	9.49	3063088	12.88
	Lower Limit	278219	6.78	1233262	8.49	765772	11.88
Field Sample ID	Lab Sample ID						
RECON ID 023-CH2M	M279201DL	607346	7.274	2845540	8.992	1882602	12.37
RECON ID 025-CH2M	M279203DL	583165	7.279	2764940	8.992	1844297	12.37
RECON ID 026-CH2M	M279204DL	745273	7.279	3241224	8.992	2006506	12.37
RECON ID 023-CH2M	M279201	916753	7.279	4158818	8.997	2531670	12.38
RECON ID 024-CH2M	M279202	761258	7.279	3425994	8.997	2117952	12.37
RECON ID 025-CH2M	M279203	867829	7.279	3924135	8.997	2450045	12.37
RECON ID 026-CH2M	M279204	770579	7.279	3453226	8.997	2105233	12.37

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

8C

SEMI-VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

SDG No.: M2792

Analysis Method: SW8270C

Lab Name: CH2M HILL ASL

Lab Sample ID: CV1-0924

Date Analyzed: 09/24/13

Lab File ID: CV1-0924.D

Time Analyzed: 1225

Instrument Name: MSW

Heat Purge: (Y/N)

GC Column: ZB-5MS ID: 0.25 (mm)

		IS4		IS5		IS6	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
Reference Cal		2725830	15.83	2954685	22.29	2856528	25.55
Upper Limit		5451660	16.33	5909370	22.79	5713056	26.05
Lower Limit		1362915	15.33	1477343	21.79	1428264	25.05
Field Sample ID	Lab Sample ID						
RECON ID 023-CH2M	M279201DL	3391494	15.82	3563452	22.28	3592902	25.54
RECON ID 025-CH2M	M279203DL	3368332	15.82	3530951	22.28	3569896	25.54
RECON ID 026-CH2M	M279204DL	3604347	15.83	3817764	22.28	3946744	25.55
RECON ID 023-CH2M	M279201	4475137	15.83	4737585	22.29	4742679	25.55
RECON ID 024-CH2M	M279202	3741327	15.83	3941061	22.28	3996463	25.54
RECON ID 025-CH2M	M279203	4344571	15.83	4547061	22.29	4588167	25.55
RECON ID 026-CH2M	M279204	3718342	15.83	3925859	22.28	3934691	25.55

IS1: 1,4-Dichlorobenzene-d4

IS2: Naphthalene-d8

IS3: Acenaphthene-d10

IS4: Phenanthrene-d10

IS5: Chrysene-d12

IS6: Perylene-d12

AREA UPPER LIMIT = + 100% of Internal Standard Area
AREA LOWER LIMIT = - 50% of Internal Standard Area
RT UPPER LIMIT = + 0.50 of Internal Standard RT
RT LOWER LIMIT = - 0.50 of Internal Standard RT

Column used to flag values outside of QC limits with an asterisk

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8270C
Matrix: Water

Instrument ID: MSW
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
N-Nitrosodimethylamine	10/01/11	3.00	1.07	0.910	1.10	0.990	0.520	0.770	0.700	0.610	0.216	2.00
Pyridine	10/01/11	3.00	0.800	0.760	0.870	0.630	0.230	0.530	0.640	0.470	0.206	2.00
Aniline	10/01/11	5.00	2.70	2.34	2.96	2.73	2.70	2.68	2.66	3.17	0.241	2.00
Phenol	10/01/11	9.00	2.83	2.70	3.25	2.59	2.23	2.22	2.71	2.45	0.338	2.00
bis(2-Chloroethyl)ether	10/01/11	3.00	2.27	2.01	2.07	2.10	1.92	1.94	2.35	2.13	0.151	2.00
2-Chlorophenol	10/01/11	9.00	5.77	4.95	5.62	5.40	4.89	4.93	5.99	5.28	0.417	2.00
1,3-Dichlorobenzene	10/01/11	3.00	1.87	1.65	1.58	1.64	1.51	1.50	1.73	1.53	0.126	2.00
1,4-Dichlorobenzene	10/01/11	3.00	1.81	1.59	1.62	1.63	1.51	1.52	1.78	1.56	0.112	2.00
Benzyl alcohol	10/01/11	3.00	1.85	1.46	1.74	1.56	1.50	1.57	1.79	1.67	0.142	2.00
1,2-Dichlorobenzene	10/01/11	3.00	1.86	1.60	1.60	1.60	1.57	1.58	1.77	1.57	0.109	2.00
2-Methylphenol	10/01/11	9.00	5.88	4.90	5.56	5.20	4.78	4.69	5.63	4.99	0.439	2.00
bis(2-Chloroisopropyl)ether	10/01/11	3.00	2.20	1.90	1.99	1.99	1.90	1.99	2.26	2.08	0.132	2.00
3-,4-Methylphenol	10/01/11	9.00	5.26	4.70	5.27	4.86	4.30	4.31	5.22	4.55	0.410	2.00
N-Nitroso-di-n-propylamine	10/01/11	3.00	1.91	1.71	1.86	1.76	1.68	1.69	2.01	1.76	0.118	2.00
Hexachloroethane	10/01/11	3.00	1.64	1.36	1.47	1.40	1.37	1.46	1.65	1.35	0.121	2.00
Benzoic Acid	10/01/11	3.00	6.46	6.48	6.73	6.34	6.47	6.43	6.31	6.39	0.128	2.00
Nitrobenzene	10/01/11	3.00	1.87	1.62	1.77	1.70	1.55	1.64	1.91	1.68	0.124	2.00
Isophorone	10/01/11	3.00	1.67	1.42	1.54	1.45	1.33	1.46	1.64	1.43	0.116	2.00
2-Nitrophenol	10/01/11	9.00	5.12	4.63	4.93	4.71	3.85	4.25	5.43	4.78	0.492	2.00
2,4-Dimethylphenol	10/01/11	9.00	6.19	5.41	6.01	5.67	4.99	5.34	6.34	5.47	0.465	2.00
bis(2-Chloroethoxy)methane	10/01/11	3.00	2.10	1.87	1.97	1.81	1.79	1.87	2.16	1.95	0.133	2.00
2,4-Dichlorophenol	10/01/11	9.00	5.26	4.61	5.27	4.98	4.19	4.51	5.60	4.82	0.464	2.00
1,2,4-Trichlorobenzene	10/01/11	3.00	1.79	1.57	1.64	1.56	1.46	1.53	1.75	1.60	0.111	2.00
Naphthalene	10/01/11	3.00	2.00	1.76	1.78	1.68	1.57	1.70	1.96	1.77	0.142	2.00
4-Chloroaniline	10/01/11	3.00	1.90	1.66	1.81	1.67	1.63	1.67	1.99	1.77	0.130	2.00
Hexachlorobutadiene	10/01/11	3.00	1.98	1.70	1.79	1.69	1.57	1.63	1.83	1.64	0.132	2.00
4-Chloro-3-methyl phenol	10/01/11	9.00	5.63	4.92	5.57	5.12	4.58	5.03	5.72	5.12	0.396	2.00
2-Methylnaphthalene	10/01/11	3.00	1.91	1.62	1.70	1.62	1.54	1.66	1.86	1.69	0.125	2.00
Hexachlorocyclopentadiene	10/01/11	5.00	7.07	6.91	7.18	7.29	7.23	7.29	7.22	7.50	0.172	2.00
2,4,6-Trichlorophenol	10/01/11	9.00	5.08	4.48	4.86	4.59	3.70	4.27	5.24	4.36	0.492	2.00
2,4,5-Trichlorophenol	10/01/11	9.00	5.41	4.97	5.47	4.80	3.89	4.48	5.36	4.68	0.542	2.00
2-Chloronaphthalene	10/01/11	3.00	1.86	1.59	1.68	1.52	1.46	1.59	1.75	1.59	0.129	2.00
2-Nitroaniline	10/01/11	3.00	3.56	3.41	3.50	3.35	3.32	3.42	3.61	3.34	0.107	2.00
Dimethylphthalate	10/01/11	3.00	2.23	1.87	1.99	1.88	1.79	2.04	2.14	2.02	0.146	2.00
Acenaphthylene	10/01/11	3.00	1.88	1.65	1.70	1.61	1.50	1.66	1.83	1.71	0.120	2.00
2,6-Dinitrotoluene	10/01/11	3.00	4.69	4.52	4.58	4.56	4.44	4.59	4.77	4.47	0.110	2.00
Acenaphthene	10/01/11	3.00	1.92	1.76	1.80	1.69	1.59	1.78	1.96	1.81	0.118	2.00
2,4-Dinitrophenol	10/01/11	9.00	10.0	9.58	10.2	9.91	8.92	9.78	9.95	9.60	0.391	2.00
4-Nitrophenol	10/01/11	9.00	5.48	5.45	5.87	5.50	4.83	5.11	5.10	5.00	0.339	2.00
2,4-Dinitrotoluene	10/01/11	3.00	3.93	3.64	3.78	3.76	3.54	3.77	3.81	3.62	0.124	2.00
Dibenzofuran	10/01/11	3.00	2.02	1.81	1.84	1.73	1.71	1.86	2.05	1.82	0.123	2.00

MDL FORM

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8270C
Matrix: Water

Instrument ID: MSW
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates								Std. Dev.	DL
			1	2	3	4	5	6	7	8		
Diethylphthalate	10/01/11	3.00	2.47	2.04	2.15	2.09	1.94	2.20	2.34	2.12	0.169	2.00
3-Nitroaniline	10/01/11	3.00	3.79	3.43	3.47	3.60	3.40	3.61	3.53	3.41	0.133	2.00
Fluorene	10/01/11	3.00	1.86	1.63	1.76	1.66	1.52	1.76	1.90	1.80	0.126	2.00
4-Chlorophenyl phenyl ether	10/01/11	3.00	1.86	1.68	1.63	1.58	1.51	1.84	1.88	1.76	0.139	2.00
4-Nitroaniline	10/01/11	3.00	4.08	3.83	3.91	3.93	3.73	3.92	3.99	3.86	0.105	2.00
4,6-Dinitro-2-methyl phenol	10/01/11	9.00	9.08	8.45	8.96	8.97	7.71	8.43	8.87	8.34	0.460	2.00
N-Nitrosodiphenylamine	10/01/11	3.00	2.49	2.19	2.39	2.24	2.06	2.33	2.44	2.24	0.142	2.00
1,2-Diphenylhydrazine	10/01/11	3.00	1.93	1.70	1.79	1.68	1.53	1.78	1.89	1.66	0.130	2.00
4-Bromophenyl phenyl ether	10/01/11	3.00	1.97	1.68	1.77	1.70	1.50	1.71	1.78	1.74	0.130	2.00
Hexachlorobenzene	10/01/11	3.00	2.06	1.77	1.89	1.73	1.72	1.93	2.09	1.81	0.143	2.00
Pentachlorophenol	10/01/11	9.00	7.87	6.74	7.46	7.39	5.78	6.73	7.34	6.80	0.644	2.00
Phenanthrene	10/01/11	3.00	2.33	2.02	2.06	2.00	1.98	2.10	2.25	2.09	0.124	2.00
Anthracene	10/01/11	3.00	2.07	1.80	1.89	1.80	1.75	1.94	2.00	1.84	0.110	2.00
Carbazole	10/01/11	3.00	2.16	1.86	1.93	1.89	1.70	2.00	2.13	1.96	0.148	2.00
Di-n-butylphthalate	10/01/11	3.00	5.46	5.20	5.32	5.26	5.10	5.31	5.38	5.20	0.114	2.00
Fluoranthene	10/01/11	3.00	2.20	1.86	1.99	1.88	1.80	1.97	2.15	1.87	0.144	2.00
Pyrene	10/01/11	3.00	2.33	2.04	2.10	2.04	1.95	2.08	2.35	2.17	0.142	2.00
Butylbenzylphthalate	10/01/11	5.00	5.44	5.22	5.50	6.03	5.61	5.52	5.44	5.55	0.230	2.00
Benzo(a)anthracene	10/01/11	3.00	2.38	2.07	2.18	2.09	1.90	2.18	2.29	2.13	0.145	2.00
3,3'-Dichlorobenzidine	10/01/11	3.00	5.56	5.25	5.30	5.24	5.15	5.28	5.34	5.22	0.122	2.00
Chrysene	10/01/11	3.00	2.24	2.03	2.10	1.98	1.87	2.05	2.17	2.15	0.117	2.00
bis(2-Ethylhexyl)phthalate	10/01/11	3.00	7.59	7.28	7.33	7.33	7.28	7.30	7.41	7.26	0.109	2.00
Di-n-octylphthalate	10/01/11	5.00	8.14	7.90	8.19	8.69	8.25	8.26	8.11	8.32	0.225	2.00
Benzo(b)fluoroanthene	10/01/11	3.00	2.45	2.23	2.36	2.18	2.09	2.30	2.47	2.30	0.130	2.00
Benzo(k)fluoranthene	10/01/11	3.00	2.38	2.17	2.30	2.11	2.11	2.24	2.41	2.36	0.121	2.00
Benzo(a)pyrene	10/01/11	3.00	2.20	1.96	2.05	1.90	1.85	2.02	2.08	1.98	0.109	2.00
Indeno(1,2,3-c,d)pyrene	10/01/11	3.00	2.95	2.42	2.67	2.43	2.38	2.54	2.73	2.62	0.192	2.00
Dibenzo(a,h)anthracene	10/01/11	3.00	2.81	2.38	2.49	2.35	2.35	2.47	2.67	2.62	0.168	2.00
Benzo(g,h,i)perylene	10/01/11	3.00	3.16	2.61	2.77	2.45	2.54	2.52	2.78	2.69	0.224	2.00

MDL FORM

ANALYSIS METHOD

SW9045C

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL ASL **ASL SDG#:** M2792

Project: RECON/Pfizer **Project #:** 473604.01.TS

With the exceptions noted as flags, footnotes, or detailed in the section below; standard operating procedures were followed in the analysis of the samples and no problems were encountered or anomalies observed.

All laboratory quality control samples were within established control limits, with any exceptions noted below, or in the associated QC summary forms.

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. For diluted samples, the reporting limits are adjusted for the dilution required.

Calculations are performed before rounding to minimize errors in calculated values.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the section below, or in the sample receipt documentation.

Method(s):
SW9045C

SAMPLE DATA SUMMARY

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 023-CH2M Run 010

SDG No.: M2792

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M279201

Percent Moisture: 100

Date Received: 09/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	12.6		pH	1	15 G	SW9045C	09/19/13

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 024-CH2M Run 011

SDG No.: M2792

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M279202

Percent Moisture: 100

Date Received: 09/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	12.5		pH	1	15 G	SW9045C	09/19/13

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 025-CH2M Run 012

SDG No.: M2792

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M279203

Percent Moisture: 100

Date Received: 09/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	12.6		pH	1	15 G	SW9045C	09/19/13

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

RECON ID 026-CH2M Run 013

SDG No.: M2792

Lab Name: CH2M HILL ASL

Matrix: SOIL

Lab Sample ID: M279204

Percent Moisture: 100

Date Received: 09/19/13

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
PH	pH	N/A	N/A	12.6		pH	1	15 G	SW9045C	09/19/13

QC SUMMARY

GENERAL CHEMISTRY CALIBRATION VERIFICATION DATA

SDG No.: M2792

Lab Name: CH2M HILL ASL

Analysis Method: SW9045C

Analytical Lot ID: 091913PH

Instrument Name: PH6

Concentration Units: pH Units

Initial Calibration ID: NONE

CCV #1 ID: CV1-0919 CCV #2 ID: CV2-0919 CCV #3 ID:

Analyte	Expected	Found	%D	Q	Expected	Found	%D	Q	Expected	Found	%D	Q
pH	7.00	7.03	0.4		7.00	7.08	1					

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW9045C LCS ID: BS1S0919

Initial Calibration ID: NONE Date Analyzed: 09/19/13

Matrix: (Soil/Water) SOIL Time Analyzed: 1602

Instrument: PH6 Concentration Units: pH Units

Analyte	Expected	Found	%R	QC Limits %R	Q
pH	4.00	4.06	102	80-120	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY ANALYTICAL SEQUENCE

SDG No.: M2792 Lab Name: CH2M HILL ASL

Analysis Method: SW9045C Lab Code: CVO

Instrument: PH6 Analytical Lot ID: 091913PH

	Field Sample ID	Lab Sample ID	Date Analyzed	Time Analyzed
1	CV1-0919	CV1-0919	09/19/13	1223
2	BS1S0919	BS1S0919	09/19/13	1602
3	RECON ID 023-CH2M Run 010	M279201	09/19/13	1605
4	RECON ID 024-CH2M Run 011	M279202	09/19/13	1608
5	RECON ID 025-CH2M Run 012	M279203	09/19/13	1609
6	RECON ID 026-CH2M Run 013	M279204	09/19/13	1612
7	CV2-0919	CV2-0919	09/19/13	1616

Comments:

CHAIN OF CUSTODY/SHIPPING DOCUMENTS

CH2MHILL
Applied Sciences Laboratory (ASL)

Tracking 8034 7580 8930

2.9°C Ice

1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Email: asl@ch2m.com
www.ch2mlab.com

CHAIN OF CUSTODY RECORD

Project # or Purchase Order #
Pfizer Tier IV S/S Treatability Study

Company Name
For American Cyanamid Superfund site Bridgewater, NJ

Project manager or Contact & Phone #
Richard Traver @ 215-640-9105

Report Copy to:
Richard.Traver@CH2M.com

Turnaround Time
☐24 hours ☐48 hours ☐72 hours
☐7 days ☐14 days ☐21 days

Drinking Water? Yes ☐ No ☐

Sample Disposal: Dispose ☐ Return ☐

Sampling		Type		Matrix				TOTAL # OF CONTAINERS	Requested Analytical Method #									THIS AREA FOR LAB USE ONLY
									9045 – same day TAT please	1312 – 8270C/820B								M2792
									Preservative									
Date	Time	COMP	GRAB	WATER	SOIL	AIR	CLIENT SAMPLE ID		UNPRES	UNPRES	HNO_3	HCl	NaOH	ZnAcNaOH	Ammonium chloride			EPA Tier QC Level 1 (Screening) 2 3 4
9-18-13	1700				x		RECON ID 023 – CH2M Run 010	2	2 2x4	x								No SPLP Metals
9-18-13	1700				x		RECON ID 024 – CH2M Run 011	2	2 2x4	x								PAC samples
9-18-13	1700				X		RECON ID 025 – CH2M Run 012	2	2 2x4	x								Remix Day 28 is 09-19-13
9-18-13	1700				X		RECON ID 026 – CH2M Run 013	2	2 2x4	x								Thermally Treated Material

1 2 3 4

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Volatile Contaminants/Odorous ☐ Biohazard ☐ Other _____

Sampled By and Title	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Glenn Knieriem – RECON Treatability Center Manager	9-18-13 @ 1700	FEDEX 8034 7580 8930	9-18-13 @ 1700
Received By (Please sign and print name)	**Date/Time**	**Relinquished By** (Please sign and print name)	**Date/Time**
[signature]	9/19/13 10:25		
Received By (Please sign and print name)	**Date/Time**	**Shipped Via** UPS Fed-Ex Other _____	**Tracking #** 8034 7580 8930

Special Instructions

Custody Seal # : 955 893

PLEASE PERFORM pH testing on 09-19-13 – Thank You if possible please start 1312 leaching on 09-19-13 09-19-13 is remix Day 28 for curing

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M2792 Date Received: 9/19/13

Client/Project: Pfizer Checked By: CC

Packing Material: (Ice) Blue Ice Box Bubble Wrap HD (circle all that apply) Checked By: _____

Shipping ID: _____ – or – (On File) COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD		✓	
Temp OK? (<6C) Therm ID TH173 Exp. 11/13 2.9 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER	✓		
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials