Final Semiannual Groundwater Monitoring Report Spring 2013

Palermo Wellfield Superfund Site,
Tumwater, Washington

for
Washington State Department of Transportation

January 2, 2014

GeoEngineers
Earth Science + Technology

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1.0 INTRODUCTION

This semiannual report was prepared to summarize Spring 2013 semiannual groundwater monitoring results at the Palermo Wellfield Superfund Site (Site) located in Tumwater, Washington (Figures 1 and 2). Prior to this monitoring event, semiannual groundwater monitoring was conducted by the United States Environmental Protection Agency (EPA) as part of the remedy selected for the Site as documented in the Record of Decision (ROD) dated November 16, 1999 (EPA, 1999). The EPA began monitoring groundwater semiannually for tetrachloroethylene (PCE) and trichloroethylene (TCE) as part of the long-term monitoring program.

In the spring of 1999, EPA began operating an air stripping treatment system at the Palermo Wellfield to remove TCE contamination from the water supply. Operation and maintenance of the groundwater treatment system is currently the responsibility of the City of Tumwater (City) based on an agreement with EPA. TCE and PCE also was detected in surface water samples from the base of the Palermo bluff where it ponded in the yards and crawl spaces of nearby homes. A subdrain system and treatment lagoon was constructed in 2000 to lower the local groundwater table at the base of the bluff and remove the TCE and PCE from the collected water. Following the construction and verification of subdrain and treatment lagoon performance, a maintenance program was established and implemented by the Washington State Department of Ecology (Ecology). Ecology monitored the subdrain and lagoon system performance between 2002 and 2008. In November 2009, EPA assumed the lead for the performance monitoring of the subdrain and treatment lagoon system.

The subdrain system includes a subgrade perforated piping network installed behind the seven southern-most houses west of Rainier Avenue. The main perforated pipe or "trunk drain" is aligned through the backyards of the houses. Groundwater collected by the perforated pipe is routed to an unperforated "tightline" pipe beneath Rainier Avenue and M Street. The tightline pipe drains to a treatment lagoon located at the City of Tumwater Municipal Golf Course. PCE and TCE are removed from the water by surface aeration before it is discharged to the Deschutes River by way of an existing water course.

For the past nine years, annual reports have been prepared for groundwater monitoring and subdrain and treatment lagoon monitoring programs. This document represents the first reporting period in accordance with the SOW outlined in the ASAOC between the EPA and Washington State Department of Transportation (WSDOT) dated July 2012.

2.0 SCOPE OF WORK

The following activities were completed for the Spring 2013 groundwater monitoring event, which was generally completed using procedures presented in the *Field Sampling and Analysis Plan – Semiannual Groundwater Monitoring, Palermo Wellfield Superfund Site (FSP),* and *Amendment Operation and Maintenance Manual Subdrain System* and *Treatment Lagoon Palermo Wellfield Superfund Site (SAP)* (GeoEngineers, 2013a and 2013b):

- Collected groundwater water samples from 53 groundwater monitoring locations (30 monitoring wells, 15 piezometers, three production wells, one air stripper and four seeps).

- Collected water samples from nine subdrain and treatment lagoon locations and measured sediment accumulation and discharge rate at 12 locations.
- Established three permanent seep monitoring stations along the bluff.

This semiannual report provides a summary of the groundwater data obtained from the Spring 2013 sampling event. An annual groundwater report for 2013 will be prepared and will provide information for both the Spring and Fall 2013 groundwater monitoring events in accordance with ASAOC SOW.

3.0 GROUNDWATER SAMPLING

This section describes the sampling methods used to perform the groundwater and subdrain monitoring in general accordance with the locations described in the FSP and subdrain system and treatment lagoon amendment (GeoEngineers, 2013a and 2013b). Attributes and water level elevations for the Spring 2013 sampling are presented in Tables 1 and 2 and Figure 3. Field forms associated with the groundwater sampling are provided in Appendix A.

3.1 Monitoring Wells

A total of 30 monitoring wells were sampled as identified in the FSP (GeoEngineers, 2013a). With the exception of one well location (MW-93-02), samples were collected using a portable Grundfos submersible pump. A peristaltic pump was used to collect the sample from MW-93-02 because an obstruction (stick) was present in the well casing that did not allow clearance for a submersible pump. Following the FSP, field parameter measurements were recorded using a Horiba XD22 multi-parameter water quality meter and an HF Scientific MicroTPW turbidimeter.

3.2 Wellfield Locations

Three production wells and one air stripper tower were sampled at the Palermo Wellfield. The second tower was not sampled because it was offline. Consistent with the FSP, no field parameters were collected for these locations.

3.3 Seeps

Three permanent seep monitoring stations along the Palermo Bluff (Seep 1, 2 and 4) were installed by hand augering a shallow depression in the surface soil to approximately 1.5 to 2 feet deep (Figure 2). A ¾-inch stainless steel drive-point piezometer with 1-foot stainless steel mesh screen and 2-foot extension tube was placed inside the depression. The area surrounding the piezometer was filled to the surface with 10/20 silica sand and the piezometers were closed using a screw cap. These locations were sampled using a peristaltic pump after three sets of field parameters were collected.

The fourth seep station (Seep 5) was located in a drainage ditch west of the Palermo Wellfield. A disposable ¾-inch PVC drive-point piezometer with 1-foot mesh screen was initially used to attempt to recreate field methods employed at this location in 2012 (Zavala, 2012). Because the mesh screen did not yield water inside the piezometer, it was removed and the seep sample was collected with a peristaltic pump directly from the drainage ditch after three sets of field parameters were collected.

4.0 PIEZOMETER SAMPLING

Fifteen piezometers in the Palermo Neighborhood and along the bluff were purged and sampled in accordance with the FSP and consistent with Section 3.1 with the exception of one location, PZ-709. This location did not yield sufficient water to purge until field parameters stabilized and was allowed to recharge for about an hour. Upon return, the piezometer yielded enough water for sample collection only so field parameter stabilization was not achieved due to lack of water. Field sampling forms for the piezometer sampling are included in Appendix A.

5.0 SUBDRAIN AND TREATMENT LAGOON

The purpose of the subdrain and lagoon system is to lower the groundwater elevation beneath the homes west of Rainier Avenue to at least 18 inches (1.5 feet) below the bottom of the crawl spaces. This reduction in water level elevation, as noted in the ROD, aimed at reducing the risk of vapor intrusion into the homes from shallow groundwater containing TCE and PCE. Shallow groundwater collected in the subdrain is conveyed via a tightline pipe and treated via surface aeration at the lagoon before discharging along an existing water course (Figure 2). System performance monitoring includes sediment accumulation, water level, and flow rate measurement. Property owner permission could not be obtained for cleanout CO-6 (357) so an alternate station was selected for monitoring, cleanout CO-7. The following sections describe the methods used to collect the data for the subdrain and treatment lagoon performance monitoring.

5.1 Sediment Accumulation Monitoring

Water level and total depth measurements were collected using a water level indicator from six of eight cleanouts (CO-1 through CO-5 and CO-7) and three catch basins (CB-1 through CB-3) in the subdrain system (Table 3). These measurements were collected to evaluate whether sediment is accumulating in the subdrain at depths that exceed the performance criteria for the system. General observations of the cleanouts and catch basins are presented in Table 3. The treatment lagoon performance is measured once a year and was not measured during the Spring 2013 monitoring event.

Sediment accumulation was observed in all of the cleanouts measured. The measured total depths differed, at the most, by 0.85 feet (in CO-7 near the head of the subdrain) from the original depths recorded in February 2001 (Table 3). Two locations, CO-4 and CO-7, exceeded the 0.5 foot threshold performance criteria for sediment accumulation established in the Subdrain O&M Manual (URS, 2002). Total depth measurements from the catch basins (CB-1, CB-2 and CB-3) were not significantly different (less than ±0.17 foot) from the baseline depths measured in February 2001. Since construction, cleanout CO-4 has consistently been at least 0.4 foot less than the original reported depth. This observation may suggest that sediment is still present in the sump or that the original depth measurement was not correct.

Sediment does not appear to be accumulating in the catch basins when compared to initial total depths in February 2001.

5.2 Water Level Elevation Monitoring

Depth to groundwater measured in the piezometers in the Palermo neighborhood are listed in Table 4, along with calculated groundwater elevations. Groundwater depth in the piezometers ranged from 0.93 feet above ground surface (artesian) to 4.44 feet below ground surface (bgs) in Spring 2013 (Figure 4). Lowering of the water table to the remediation goal of 1.5 feet below the bottom of the crawl spaces was not achieved in piezometers PZ-709, PZ-715, and PZ-722. The water level was above ground surface at PZ-722; therefore, it is assumed that the remediation goal was not met for the two most southern homes. Groundwater levels routinely continue to be the highest for these two homes.

PZ-709 is located upgradient of the subdrain and although the water level for this location did not meet the remediation goal for this monitoring period, the water depth in PZ-721 (2.69 feet bgs) did meet the goal. PZ-721 is located adjacent to the home closest to PZ-709 and is, therefore, most representative of the local water level in relation to the home. The decrease in groundwater elevation between PZ-709 and PZ-721 also indicates the subdrain is adequately reducing the groundwater level in this area of the Palermo Neighborhood.

Spring 2013 results indicate that groundwater elevations have been lowered 1.5 or more feet below the crawl spaces for the homes at the northern portion of the subdrain. However, the performance criteria do not appear to have been met for the five homes at the southern end of the subdrain.

5.3 Water Flow Rate Measurements

Flow rates were measured at six of the eight cleanout stations, three catch basins, and five outfalls. Flow rate at Stations 356, 362, CO-6 and CO-8 were not measured because no discharge was observed, access permission could not be obtained, or wide and slow conditions prevented accurate flow measurements. Flow velocities were used to calculate the flow volume at each station as shown in Table 5.

5.3.1 Subdrain and Tightline Outfall

Flow volumes from the south end of the subdrain (Alternate Station 357 [CO-7]) to the north end (Station 359) represent the cumulative net groundwater inflow to the perforated pipe and range from 22.54 gallons per minute (gpm) at Alternate Station 357 (CO-7) to 72.29 gpm at Station 359.

Flow volume at Station 360 (tightline pipe outfall), which represents the total net volume of the subdrain system, did not compare well with flow volume from Station 359 (north end of the perforated pipe). The flow volume at Station 360 was 200.75 gpm, as compared to the flow of 72.29 gpm at Station 359. Since subdrain monitoring began in December 2002, calculated flow volumes at Station 360 have varied from the calculated flow volumes at Station 359. This may result from differing velocity measurement locations between the two stations. Velocity at Station 359 is measured below ground from subdrain cleanout CO-1. Velocity measurements at Station 360 are measured from the end of the tightline pipe that drains into the lagoon. At times, it has been difficult to completely submerge the velocity probe head in the shallow flow from the drain pipe.

5.3.2 Other Inflows to Lagoon

The flow volume at Station 350 (M Street storm drain outfall) was 76.48 gpm. Station 362, which is usually dry, had no flow during this monitoring event. At Station 356 (upstream of lagoon), water was present and a single flow rate could not be measured because the stream has become too wide and overgrown with vegetation to access safely. As in previous monitoring events, flow rates at Station 356 were not measured. Since the installation of the lagoon, water flow in the watercourse at this location is wide and slow, which makes an accurate flow measurement difficult.

5.3.3 Lagoon Effluent

Observations of the lagoon effluent indicate that Station 361 has been modified. The station includes a single 24-inch high-density polyethylene (HDPE) pipe to convey water from the treatment lagoon to a pond north of the Valley Athletic Club building. The modification appears to be recent because the surrounding area appears to have been recently disturbed. It is unknown whether any storm drainage from the parking lot conveys to this area. Flow volume from this new pipe was calculated to be 7,890.86 gpm.

5.3.4 Point of Compliance

A new grate has been placed over the opening of the culvert located at Station 364, the compliance point at the Deschutes River discharge. A gap of approximately 6 to 8 inches between the grate and culvert was observed. The grate and gap allows surface water through and around the grate. The grate appeared to be covered with wood, grasses and other vegetation. Because of the obstructions, a flow measurement could not be collected on the upgradient portion of the culvert. A downgradient flow measurement was obtained of approximately 13,335.70 gpm at the outfall to the Deschutes River. In later discussions, the City indicated the grate had been installed recently to keep the beavers from damming the culvert.

6.0 ANALYTICAL RESULTS

This section describes the results of the laboratory analysis completed for the Spring 2013 sampling event. Analytical results are provided in Appendix B. The data validation report and accompanying analytical reports are presented in Appendix C. Table 6 and Figures 5 and 6 summarize PCE and TCE concentrations in groundwater samples from monitoring wells, piezometers, stripper towers, production wells and seeps. Table 5 summarizes results for the subdrain locations.

6.1 Groundwater Results

6.1.1 Monitoring Wells

Consistent with historical sampling results, the volatile organic compounds (VOCs) detected in groundwater samples collected during the Spring 2013 sampling event were primarily PCE and TCE. For this sampling event, the maximum concentration of PCE detected in a groundwater sample from a monitoring well was 44 micrograms per liter (µg/L) at MW-ES-04. The maximum concentration of TCE detected was 120 µg/L in the groundwater sample from MW-ES-09. A majority of the concentrations detected in monitoring wells were above the ROD groundwater remediation goal of 5 µg/L.

Additional compounds detected in samples from monitoring wells included cis-1,2-Dichloroethene (cis-1,2-DCE) at an estimated concentration of 0.34 J µg/L at MW-UI and naphthalene at an estimated concentration of 1.8 J µg/L at both MW-ES-03 and MW-ES-04.

6.1.2 Wellfield Locations

TCE was detected at one of the three water supply wells at 1.7 µg/L at TW-4m which was below the ROD cleanup goal. PCE and TCE were not detected in the effluent sample collected from Stripper Tower ST-2. No additional compounds were detected at the wellfield locations.

6.1.3 Seeps

PCE and TCE were not detected at the four seeps locations, however, Seep 3 contained 15 µg/L toluene.

6.2 Piezometers

The Spring 2013 results represent the second comprehensive collection of piezometer analytical data. One detection of PCE was noted at PZ-720 at a concentration of 0.38 µg/L. TCE was detected more prevalently across the neighborhood at seven of the 15 piezometers at concentrations ranging from 0.6 µg/L at RPZ-731 to 32 µg/L at PZ-724.

Four additional compounds were detected in samples from four piezometers. Groundwater samples from PZ-724 and PZ-728 contained cis-1,2-DCE at 1.2 µg/L and 0.31 µg/L, respectively. PZ-728 also contained estimated concentrations of ethylbenzene (0.39 J µg/L) and toluene (0.84 J µg/L). Lastly, two of the three locations along the bluff contained concentrations of 1,3-dichlorobenzene of 0.38 µg/L at PZ-709 and 0.65 µg/L at PZ-715.

6.3 Subdrain and Treatment Lagoon

The subdrain and treatment lagoon analytical results were observed to be generally similar to the previous reporting period (Table 5). Results discussion is further divided below.

6.3.1 Subdrain and Tightline Outfall

PCE and TCE concentrations continue to be the highest in groundwater samples from Alternate Station 357 (CO-7); and Stations 358 (CO-4), 359 (CO-1) and 360 located within the subdrain (Figure 7). Permission to access and sample CO-6 could not be obtained; therefore, the upgradient cleanout (CO-7) was sampled during this event. The highest concentrations of PCE and TCE was at Station 358 (CO-4) at 10 µg/L and 16 µg/L, respectively. Water flow into the treatment lagoon is measured at three stations (350, 356 and 362). PCE was not detected in the samples from Station 350 or 356. However, TCE was detected in the sample from Station 350 at 1.1 µg/L. Station 362 (M Street terminus catch basin outfall) was not sampled in Spring 2013 because there was no flowing water. This station was last sampled in June 2008.

6.3.2 Lagoon Effluent

PCE was not detected in the sample from Station 361 (lagoon effluent) but TCE was detected in the lagoon effluent at 0.83 µg/L, which is below the ROD remediation goal and 2006 water quality criteria for TCE of 2.7 µg/L and 2.5 µg/L, respectively.

6.3.3 Point of Compliance – Deschutes River

Station 364 was added to the monitoring network in 2003 to allow further evaluation of the remediation goals. This station is located where the treated water discharges to the Deschutes River, approximately 2,000 feet downstream from the treatment lagoon. For the Spring 2013 monitoring event, both PCE and TCE were not detected above the reporting limit of 1 µg/L in the sample from this location. The reporting limit is 1.0 µg/L for PCE, as presented in the Subdrain QAPP; however, this reporting limit is higher than the remediation goal of 0.8 µg/L and 2006 water quality criteria of 0.69 µg/L. Overall, concentrations at Station 364 have been consistently below the remediation goals of 0.8 µg/L for PCE and 2.7 µg/L for TCE.

7.0 DATA QUALITY ASSESSMENT

This section describes the results of the data quality assessment for laboratory and field quality control. Laboratory data were validated and the resultant validation report is included with the data set (Appendix C).

All VOC data are considered to be valid and useable for groundwater assessment activities. A small percentage of the analytical results were qualified with a "UJ" flag indicating the result was an estimate because of individual exceedances of accuracy criteria, primarily percent recoveries. The laboratory met the quantitation limits required in the QAPP for all VOC analyses.

None of the rinsate samples collected during the Spring 2013 monitoring event contained detected concentrations of VOCs indicating adequate decontamination of reusable equipment. VOC data are considered to be useable as described in the data validation report included in Appendix C. Field data quality is described in the following section.

7.1 Field Quality Control

Field data quality was assessed by comparing actual data collection procedures to QAPP protocols (GeoEngineers, 2013a and 2013b). Deviations for this sampling event were documented in respective field notebooks and applicable field data sheets and include:

- MW-93-02: Sampled with a peristaltic pump rather than Grundfos because a stick was present in the well casing which did not allow for a larger pump.
- MW-96-15 and MW-96-16: Wells contained a QED Micropurge pump which was removed and replaced after sampling was finished.
- MW-96-17: Hand pump permanently affixed to top of casing was used to draw groundwater from screen. Flow was significantly higher and could not be consistently maintained due to the construction of the hand pump.
- PZ-709: Not enough groundwater to complete purge, sample collected after first set of field parameters.
- Seep 5: Collected directly from the surface water drainage channel without a screen because the screen would not allow water to penetrate through it.
- Stripper Tower 1 (ST-1): Sample not collected because tower was offline.

- Cleanout CO-7: Measured and sampled as an alternate location for Cleanout CO-6. Access to Cleanout CO-6 could not be obtained from the occupant.
- Cleanout CO-8: Not measured because the ground in the back yard was extremely soft and standing water was observed surrounding the cleanout. This may have made it unsafe to remove the cleanout lid. The backyard also contained multiple shallow trench excavations which appear to be used for draining the area to two separate locations north and south of the house. One week following subdrain monitoring, the occupant indicated that flooding had occurred in the converted garage in October 2012, and that the owner had excavated the trenches and installed the drainage pipes in the backyard to help alleviate the flooding.

Deviations presented above were reported to the Project Manager and the GeoEngineers Quality Assurance Technical Leader.

8.0 CONCLUSIONS

The following conclusions are based on the results of the Spring 2013 semiannual groundwater monitoring results, subdrain and treatment lagoon results, and review of historical groundwater data.

8.1 Groundwater

Groundwater flow beneath the site generally appears to be toward the east to northeast as measured on March 4, 2013 (Figure 3). The groundwater elevations and flow direction are consistent with those documented during spring monitoring events from 2004 through 2012.

8.1.1 Monitoring Wells

TCE and PCE in monitoring wells appears to be generally consistent with past monitoring events. Maximum concentrations of PCE were observed at 44 µg/L at MW-ES-04 while the highest TCE concentrations were observed at 120 µg/L at MW-ES-09. Most of the locations detecting PCE and/or TCE in the groundwater were above the ROD groundwater remediation goal of 5 µg/L. Overall, the majority of PCE was observed at two wells, one at O'Reilly Auto Parts (MW-ES-06) one at Brewery City Pizza (MW-ES-04). TCE was observed throughout the site with levels more than six times the ROD remediation goal at three of the 30 monitoring wells. The highest TCE concentrations were observed east of Capitol Boulevard at the top of the bluff (MW-ES-02) and into the Palermo neighborhood (MW-ES-09 and MW-ES-10). The highest observed TCE concentration located at MW-ES-09, exceeded the ROD remediation goal by 24 times at a concentration of 120 µg/L.

Naphthalene was detected in groundwater samples collected from monitoring wells MW-ES-03 and MW-ES-04, both at an estimated concentration of 1.8 J µg/L, which represents the first occurrence of naphthalene in groundwater samples at both monitoring wells. One location (MW-UI) also detected cis-1,2-DCE at an estimated concentration of 0.34 J µg/L.

8.1.2 Wellfield Locations

Of the three production wells sampled at the Palermo Wellfield, only TW-4 detected TCE in groundwater at a concentration of 1.7 µg/L. This concentration is below the 5 µg/L ROD remediation

goal. The other locations did not detect TCE or PCE in the groundwater, nor were other contaminants detected.

Water extracted from the Palermo Wellfield is treated via an air stripper treatment system. The post-treatment sample collected at ST-2 indicates that the remedy selected for treating groundwater at the Palermo Wellfield is working to protect the drinking water distributed to the City customers.

8.1.3 Seeps

TCE and PCE were not detected in seep samples collected during this effort, however, 15 µg/L toluene was detected at Seep 3.

8.2 Piezometers

Water level elevation ranged from 114.27 feet at PZ-709 at the base of the Palermo bluff to 103.897 feet at RPZ-730 at the northeastern corner of the site. Of the 15 piezometers, only PZ-722 exhibited artesian conditions with a water level nearing 1 foot above ground surface.

Two compounds that were not associated with the project's chemicals of concern (toluene and ethylbenzene) were detected in the groundwater sample collected from PZ-72 8J at estimated concentrations of 0.84 J µg/L and 0.39 J µg/L, respectively.

PCE and TCE were both detected in piezometers in the Palermo Neighborhood at PZ-720 at an estimated concentration of 0.38 J µg/L and 5 µg/L, respectively. At the remaining six locations, TCE was detected between 1.6 µg/L at PZ-719 and 32 µg/L at PZ-724.

Three detections of TCE above the ROD remediation goal were observed near the intersection of Rainier Avenue and N Street. Because PCE and TCE were historically common in ponding shallow groundwater, a subdrain system was installed to facilitate reduction in water levels to reduce human health risks associated with exposure to these compounds in indoor air. Water level reduction is monitored by the three southern-most piezometers along Rainier Avenue. Section 3.2 of the O&M Manual (URS, 2002) describes reducing the water level by 1.5 feet below the crawl spaces of the seven southern-most homes along Rainier Avenue. Water levels from the three piezometers along the Palermo bluff were compared against water levels from the three southern-most piezometers along Rainier Avenue. Assuming each home's crawl space was approximately 1.5 feet in depth, a total of 3 feet reduction in the piezometers along Rainier Avenue represents the compliance point. Only the northern-most piezometer along Rainier Avenue (PZ-720) met the 3 feet reduction in water level described in Table 7. As a result, the performance criteria were not met for the five southern-most homes along Rainier Avenue. Even though the water level reduction performance criterion was not met for PZ-721 it does indicate that the subdrain is reducing the groundwater level in this area of the Palermo neighborhood.

8.3 Subdrain and Treatment Lagoon

Constructed during 2000 and completed in 2001, the subdrain and treatment lagoon has continued to remove and treat PCE and TCE in shallow groundwater. Operational conclusions for each of the elements are presented below.

8.3.1 Subdrain Cleanouts

At each of the seven subdrain cleanouts, measured total depths were close to the original depths recorded in February 2001 with the exception of Station 358 (CO-4) and Alternate Station 357 (CO-7), which exceeded the 0.5 foot threshold performance criteria for sediment accumulation (Table 7). Tree roots were observed growing in Station 358 (CO-4) and CO-5 where moderate to slow flow was noted in these locations. At Cleanout CO-8, the tenant's caretaker indicated hand dug trenches and drainage pipes were installed in the back yard by the owner to alleviate flooding that had occurred in the converted garage in October 2012.

PCE and TCE concentrations continue to be the highest in groundwater samples from alternate Station 357 (CO-7), 358 (CO-4), 359 (CO-1), and 360, located within the subdrain (Figure 7). The highest concentrations of PCE and TCE were at Station 358 (CO-4) at 10 µg/L and 16 µg/L, respectively. Overall, results since December 2002 indicated that groundwater elevation have been lowered 1.5 or more feet below crawl spaces for the homes at the northern portion of the subdrain. However, the performance criteria do not appear to have been met for the five homes at the central and southern end of the subdrain.

8.3.2 Subdrain Tightline

Downgradient of the cleanouts in the tightline portion of the subdrain, sediment does not appear to be accumulating in the catch basins when compared to initial total depths obtained in February 2001. In terms of performance, the tightline portion of the subdrain meets the sediment accumulation criterion. However, some discrepancies in terms of flow volumes between the north end of the perforated pipe (Station 359) and the tightline pipe outfall (Station 360) seem to exist. Flow rates calculated at Station 359 (72.29 gpm) did not compare well with the flow volume calculated at Station 360 (200.75 gpm). These volumes are within the operating parameters for this portion of the treatment system according to Table 3-2 of the O&M Manual (URS, 2002). It should be noted however, that a discrepancy of approximately 128 gpm was observed between the two locations.

Samples collected from the water flowing into the treatment lagoon did not detect PCE at Station 350 or 356; however, TCE was detected at Station 350 at 1.1 µg/L. Station 362 (M Street terminus catch basin outfall) was not sampled in Spring 2013 because there was no flowing water. This station was last sampled in June 2008.

8.3.3 Treatment Lagoon

As described above, the treatment lagoon receives water from three outfalls in addition to the upgradient watercourse. Although Station 361 exceeded the ROD remediation goal for PCE, the point of compliance (Station 364) located approximately 2,000 feet downstream at the Deschutes River outfall did meet the remediation goals of 0.8 µg/L for PCE and 2.7 µg/L for TCE. Overall, the subdrain and treatment lagoon appear to be continuously operating and treating PCE and TCE containing groundwater that meets discharge requirements prior to entering the Deschutes River.

9.0 LIMITATIONS

We have prepared this groundwater monitoring report for use by WSDOT as part of their evaluation of environmental conditions at the Site. WSDOT may distribute copies of this report to their authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty or other conditions, express or implied, should be understood. This report was prepared based, in part, on previous investigations and data collected by others. GeoEngineers is not responsible for any data that were inaccurately reported by others and reproduced here.

Please refer to Appendix D titled "Report Limitations and Guidelines for Use" for important additional information pertaining to the use of this report.

10.0 REFERENCES

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Table 1

Well Construction Summary

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Well or Piezometer	Well Location [1,2]		Measuring Point (TOC) Elevation [3]	Screen Interval Depth (feet bgs)		Geologic Unit of Screen Interval	Approximate Screen Interval Elevation	
	Northing	Easting		Top	Bottom		Top	Bottom
Bluff Area								
MW-UI	616967.53	1038149.35	178.82	17.7	27.7	unknown	161.1	151.1
WDOT-MW-1	617640.30	1038503.60	166.94	30.0	39.5	SP--dense to medium dense, olive green, fine sand	136.9	127.4
WDOT-MW-2	617572.60	1038517.40	165.45	30.0	39.5	SP--very dense, olive green to orange, fine to medium sand	135.5	126.0
MW-100	616814.53	1037366.22	177.70	20.0	30.0	SP-medium dense, brown, fine to coarse sand	157.7	147.7
MW-101A	617197.00	1038150.00	176.25	65.0	75.0	SP-loose, gray, fine to medium sand	111.3	101.3
MW-101B	617236.76	1038149.35	176.19	25.0	35.0	SP-loose to medium dense, light brown, fine to medium sand	151.2	141.2
MW-102	617465.24	1038134.22	166.94	16.0	26.0	SP-loose to medium dense, gray, fine to medium sand	150.9	140.9
MW-103	617768.90	1038225.10	163.74	11.0	21.0	SP-loose to medium dense, gray, fine to medium sand	152.7	142.7
MW-104A	617861.70	1039673.00	170.64	119.0	129.0	SP-medium dense to dense, brown, fine sand	51.6	41.6
MW-104B	617866.01	1039675.67	170.51	65.0	75.0	SP-medium dense, brown, fine grained sand	105.5	95.5
MW-109	617312.79	1038552.35	168.89	64.5	74.5	SP-medium dense to dense, brown, fine to coarse sand	104.4	94.4
MW-111	617663.43	1038824.43	165.41	30.0	40.0	SP-medium dense, brown, fine to medium sand	135.4	125.4
MW-ES-01[4]	617877.2	1039204.0	173.50	90.0	100.0	SP-outwash sands with silt	83.5	73.5
MW-ES-02	617664.68	1039666.61	174.65	95.0	105.0	SM-silty sand	79.7	69.7
MW-ES-03	617546.79	1039463.97	175.07	113.0	123.0	SP to SP-SM-sand with silt	62.1	52.1
MW-ES-04	617548.74	1039477.60	175.11	50.0	60.0	SM/ML/SM-silty sand, sandy silt, silty sand	125.1	115.1
MW-ES-05	617517.36	1039178.92	175.05	86.0	96.0	SP-SM-fine sand with silt	89.1	79.1
MW-ES-06	617517.59	1039200.03	173.30	46.0	56.0	SP-SM-sand +/- silt	127.3	117.3
MW-ES-07	617139.20	1037976.58	177.89	25.0	35.0	SP-sand SP-sand with gravel	152.9	142.9
MW-ES-08	617163.60	1037049.22	177.17	25.0	35.0	SP-SM-sand +/- silt	152.2	142.2
MW-ES-11	617586.81	1038492.29	166.28	80.0	90.0	SW, well graded sand	86.3	76.3
MW-96-15	617157.91	1038938.73	170.39	69.0	79.0	medium fine sand	101.4	91.4
MW-96-16	616836.42	1039704.25	181.00	50.5	60.5	fine medium sand	130.5	120.5
MW-96-17	616767.70	1039839.20	179.66	45.5	55.5	fine brown sand	134.2	124.2
Deschutes Valley Area								
MW-4A	617599.92	1040464.0	109.86	100	110	silty sand and gravel	9.9	-0.1
MW-4B	617599.9	1040464.0	109.85	80	90	silty sand	29.9	19.9
MW-ES-09	617754.43	1040021.9	108.33	20	30	SP-poorly graded sand with silty sand interbed	88.3	78.3
MW-ES-10	617761.34	1040013.1	108.25	82	92	unknown (no description)	26.3	16.3
MW-107	617052.39	1041164.92	114.66	25.0	35.0	ML-very hard, moist, gray silt SP-loose to medium dense, brown, medium to coarse sand	89.7	79.7
MW-110	618032.42	1041013.21	101.93	30.0	40.0	SP-loose to medium dense, gray, fine to medium sand	71.9	61.9
MW-93-02	617159.33	1040344.31	112.76	6.0	11.0	fine silty blue sand brown clay	106.8	101.8
PZ-704	618088.1	1039827.2	110.61	5	7.5	fine to coarse sand with cobbles and boulders	105.6	103.1
PZ-709	617880	1039819.2	114.27	5	7.5	fine to coarse sand with cobbles and boulders	109.3	106.8
PZ-715	617683.4	1039815.4	117.79	5	7.5	fine to coarse sand with cobbles and boulders	112.8	110.3
PZ-719	618200.7	1039999.7	107.13	7	10	fine to medium sand	100.1	97.1
PZ-720	618026.5	1039992.8	107.95	7	10	fine to medium sand	101.0	98.0
PZ-721	617873.9	1039991.1	108.32	7	10	fine to medium sand	101.3	98.3
PZ-722	617664.1	1039983.3	108.82	7	10	fine to medium sand	101.8	98.8
PZ-723	618244	1040200.4	106.45	7	10	fine to medium sand	99.5	96.5
PZ-724	617976.1	1040198.2	106.56	7	10	fine to medium sand	99.6	96.6
PZ-725	617741.3	1040220.1	108.31	7	10	fine to medium sand	101.3	98.3
PZ-726	618186	1040452.6	105.39	7	10	fine to medium sand	98.4	95.4
PZ-728	617851.61	1040464.0	105.33	7	10	fine to medium sand	98.3	95.3
RPZ-730	618243.76	1040685.0	103.90	4.13	9.13	log not on file	99.8	94.8
RPZ-731	617996.36	1040745.1	105.09	4.75	9.75	log not on file	100.3	95.3
RPZ-732	617731.13	1040684.1	105.69	4.63	9.63	log not on file	101.1	96.1
Palermo Wellfield								
TW-4	617494.23	1040658.29	105.49	60	90	large gravel and sand	45.5	15.5
TW-5	617552.37	1040588.15	107.97	82	115	sand and gravel blue clay at 114 feet	26.0	-7.0
TW-8	617396.92	1040445.80	106.48	70	90	log not on file	36.5	16.5

Notes:

[1] Existing well locations and TOC elevations were obtained from previous explorations (Parametrix 2012, URS 1999 and personal communications with EPA 2013).

[2] Horizontal Datum: NAD83 WA State Plane North.

[3] NGVD = National Geodetic Vertical Datum 1929

[4] MW-ES-01 no longer exists (abandoned).

bgs = below ground surface

TOC = Top of casing

Table 2

Water Level Elevations

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Location	Top-of-Casing/Measuring Point Elevation (feet NGVD)	Depth-to-Water (feet)	Water Level Elevation (feet NGVD)
Monitoring Wells			
MW-4A	109.86	7.67	102.19
MW-4B	109.85	7.56	102.29
MW-93-02	112.76	4.18	108.58
MW-96-15[1]	165.608	24.88	140.728
MW-96-16[1]	177.525	46.81	130.715
MW-96-17[1,2]	176.255	48.30	127.955
MW-100	177.70	16.17	161.53
MW-101A	176.25	19.10	157.15
MW-101B	176.19	18.92	157.27
MW-102	166.94	9.77	157.17
MW-103	163.74	6.32	157.42
MW-104A	170.64	51.96	118.68
MW-104B	170.51	49.43	121.08
MW-107	114.66	7.96	106.70
MW-109	168.89	18.92	149.97
MW-110	101.93	2.36	99.57
MW-111	165.41	25.29	140.12
MW-ES-02	174.65	52.46	122.19
MW-ES-03	175.07	47.63	127.44
MW-ES-04	175.11	48.00	127.11
MW-ES-05	175.05	42.75	132.30
MW-ES-06	173.3	43.22	130.08
MW-ES-07	177.89	19.61	158.28
MW-ES-08	177.17	15.89	161.28
MW-ES-09	108.33	-0.13	108.46
MW-ES-10	108.25	-1.67	109.92
MW-ES-11	166.28	14.86	151.42
MW-UI	178.82	18.81	160.01
WDOT-MW-1	166.94	18.66	148.28
WDOT-MW-2	165.45	15.13	150.32
Piezometers			
PZ-704	110.61	4.42	106.19
PZ-709	114.27	2.92	111.35
PZ-715	117.79	4.08	113.71
PZ-719	107.13	2.06	105.07
PZ-720	107.95	3.10	104.85
PZ-721	108.32	2.55	105.77
PZ-722	108.82	-0.93	109.75
PZ-723	106.45	2.41	104.04
PZ-724	106.56	1.06	105.50
PZ-725	108.31	2.25	106.06
PZ-726	105.39	2.82	102.57
PZ-728	105.33	2.29	103.04
RPZ-730	103.86	2.92	100.94
RPZ-731	105.05	3.72	101.33
RPZ-732	105.65	4.44	101.21
Production Wells			
TW-4	105.49	24.15	81.34
TW-5	107.97	55.40	52.57
TW-8	106.48	35.00	71.48
Subdrain Clean Outs			
CO-1 (359)	108.39	5.87	102.52
CO-2	108.04	5.42	102.62
CO-3	107.96	5.18	102.78
CO-4 (358))	108.73	5.90	102.83
CO-5	109.32	6.32	103.00
CO-7[3] (Alternate 357)	110.73	6.73	104.00

Notes:

[1] City datum corrected to NGVD (formerly NAVD 88) measuring point also corrected.

[2] Water level measured through top of hand pump.

[3] CO-7 was used as an alternate location for measurement and sampling because permission to access CO-6 could not be obtained.

NGVD = National Geodetic Vertical Datum 1929

Groundwater depth-to-water measurements were collected from monitoring wells on March 4 and 6, 2013.

Subdrain depth-to-water measurements were collected on March 8, 2013.

Table 3

Sediment Accumulation in Catch Basins and Cleanouts in Subdrain System

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Location	Depth to Water (feet)	Groundwater Elevation (feet)	Original Depth (February 2001) (feet)	Total Depth (March 2013) (feet)	Net Change (feet)	Catch Basin and Subdrain Cleanout Observations
CB-1	5.06	N/A	7.78	7.95	-0.17	No debris, moderate flow, difficult to measure because catch basin neck not positioned over tightline pipe inlet to catch basin.
CB-2	6.59	N/A	8.78	8.8	-0.02	
CB-3	6.10	N/A	8.81	8.98	-0.17	
CO-1 (359)	5.87	102.52	7.82	7.82	0	Free of debris, moderate flow.
CO-2	5.42	102.62	7.10	7.94	-0.84	Free of debris, visually flowing but too slow to measure, gray sheen on water in cleanout.
CO-3	5.18	102.78	6.84	6.80	0.04	Free of debris, moderate flow.
CO-4 (358)	5.90	102.83	7.84	7.21	0.63	Grasses/tree roots present in cleanout flowing from south to north, moderate to slow flow.
CO-5	6.32	103.00	7.84	7.45	0.39	Tree roots present in cleanout flowing from south to north, moderate to slow flow.
CO-6	NM	NM	NM	NM	NM	Unable to access, could not gain property owner permission.
CO-7 (Alt 357)	6.73	104.00	7.89	7.04	0.85	Free of debris, slow flow.
CO-8	NM	NM	NM	NM	NM	Unable to access because thick layer of mud covered lid, back yard contained hand dug trenches filled with stagnant water, water was conveyed along the south side of the house to disperse or to the north side of house to the storm drain.

Notes:

Exceeds 0.5 foot accumulated sediment (Section 4.2.1 Trunk Drain, O&M Manual, URS 2002)

N/A = Not applicable

NM = Not measured

NGVD = National Geodetic Vertical Datum 1929

Table 4

Neighborhood Piezometer Elevations

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Location	Top-of-Casing Elevation (feet NGVD) [1]	Ground Surface Elevation (feet NGVD) [1]	Depth to Water March 4, 2013 (feet BTOC)	Groundwater Elevation (feet NGVD)
Bluff and Rainier Avenue Piezometers				
PZ-704	110.61	108.43	4.42	106.19
PZ-709	114.27	112.01	2.92	111.35
PZ-715	117.79	115.51	4.08	113.71
PZ-720	107.95	108.22	3.10	104.85
PZ-721	108.32	108.57	2.55	105.77
PZ-722	108.82	109.21	-0.93	109.75
Other Neighborhood Piezometers				
PZ-719	107.13	107.37	2.06	105.07
PZ-723	106.45	106.80	2.41	104.04
PZ-724	106.56	106.88	1.06	105.50
PZ-725	108.31	108.58	2.25	106.06
PZ-726	105.39	105.61	2.82	102.57
PZ-728	105.33	105.84	2.29	103.04
RPZ-730	103.90	*	2.92	100.98
RPZ-731	105.09	*	3.72	101.37
RPZ-732	105.69	*	4.44	101.25

Notes:

BTOC = Below top of casing

[1]Elevations surveyed by White Shield for URS, January 5, 2000, Vertical Datum: NGVD 29

*Ground surface not surveyed. A ground surface elevation survey is expected to take place in 2014.

NGVD = National Geodetic Vertical Datum 1929

Table 5

Discharge Volume and Analytical Results - Subdrain and Lagoon

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Location	Sample Date	Volume (GPM) Units	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)
Flow in Sub-Drain System				
Alternate 357 (CO-7)	3/8/2013	22.54	**7.5**	1.0 U
358	3/8/2013	27.05	**10**	**16**
359	3/8/2013	72.29	**6.5**	**13**
360	3/8/2013	200.75	**5.3**	**11**
Treatment Lagoon Inflows (Non-Sub-Drain)				
350	3/8/2013	76.48	1.0 U	**1.1**
356	3/8/2013	NC	1.0 U	1.0 U
362	3/8/2013	NF	NS	NS
Treatment Lagoon Effluent				
361	3/8/2013	7,890.86	1.0 U	**0.83 J**
Lagoon Watercourse Discharge to the Deschutes River				
364	3/8/2013	13,335.70	1.0 U*	1.0 U
		ROD Surface Water Discharge Remediation Goal	**0.8**	**2.7**
		2006 National Water Quality Criteria	**0.69**	**2.5**

Notes:

GPM = gallons per minute
µg/L = microgram per liter
NG = no remediation goal
NS = not sampled due to no flow
NF = no flow; not calculated
NC = not calculated because flow was too slow to measure
J = estimated results above the method detection limit and below the reporting limit
U = parameter not detected above the reporting limit
Bold font type indicates analyte was detected
*Quantitation limit above site remedial goal
Samples were also initially analyzed for 1,1-DCE, trans-1,2-DCE, cis-1,2-Dichloroethene and vinyl chloride but were not detected.

Table 6

TCE and PCE Detected in Groundwater and Seep Samples

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

	Analyte	Tetrachloroethene	Trichloroethene
	ROD Remediation Goal	5	5
Location ID	Date	(µg/L)	(µg/L)
MW-100	5/12/2004	0.5 U	0.5 U
MW-100	9/21/2004	1 U	0.5 U
MW-100	4/26/2005	0.5 U	0.5 U
MW-100	10/5/2005	0.5 U	0.5 U
MW-100	3/16/2006	**1.5**	1 U
MW-100	10/30/2006	1 U	1 U
MW-100	6/6/2007	1 U	1 U
MW-100	11/12/2007	1 U	1 U
MW-100	5/19/2008	0.5 U	0.5 U
MW-100	10/27/2008	1 U	1 U
MW-100	4/27/2009	0.5 U	0.5 U
MW-100	11/9/2009	0.5 U	0.5 U
MW-100	5/19/2010	0.5 U	0.5 U
MW-100	10/19/2010	0.5 U	0.5 U
MW-100	5/23/2011	0.5 U	0.5 U
MW-100	11/8/2011	0.5 U	0.5 U
MW-100	5/29/2012	0.5 U	0.5 U
MW-100	3/5/2013	1 U	1 U
MW-101A	3/17/2006	1 U	1 U
MW-101A	5/29/2012	0.5 U	0.5 U
MW-101A	3/6/2013	1 U	1 U
MW-101B	3/17/2006	**0.1 J**	**14**
MW-101B	10/31/2006	1 U	**6.2**
MW-101B	6/6/2007	1 U	**5.5**
MW-101B	11/13/2007	1 U	**5.7**
MW-101B	5/20/2008	0.5 U	**6.2**
MW-101B	10/28/2008	1 U	**3.9**
MW-101B	4/28/2009	0.5 U	**17**
MW-101B	11/10/2009	0.5 U	**2.2**
MW-101B (dup)	5/19/2010	0.5 U	**3.5**
MW-101B	5/19/2010	0.5 U	**3.6**
MW-101B (dup)	10/21/2010	0.5 U	**3.3**
MW-101B	10/21/2010	0.5 U	**3.3**
MW-101B	5/24/2011	0.5 U	**2.2**
MW-101B	11/8/2011	0.5 U	**3.7**
MW-101B	5/29/2012	0.5 U	**2.7**
MW-101B	3/5/2013	1 U	**3**
MW-102 (dup)	6/4/2012	0.5 U	0.5 U
MW-102	6/4/2012	0.5 U	0.5 U
MW-102	3/5/2013	1 U	1 U
MW-103	6/4/2012	0.5 U	0.5 U
MW-103	3/6/2013	1 U	1 U
MW-104A	3/17/2006	1 U	**6.6**
MW-104A	10/31/2006	**1.7**	1 U
MW-104A	6/4/2012	0.5 U	**5.3**
MW-104A	3/7/2013	1 U	**8**
MW-104B	5/11/2004	**1.9**	**0.26 J**
MW-104B	9/21/2004	**1.6**	0.5 U
MW-104B	4/26/2005	**0.97**	0.5 U
MW-104B	10/6/2005	**1.4**	0.5 U
MW-104B	10/31/2006	1 U	**11**
MW-104B	6/7/2007	**1.9**	1 U
MW-104B	11/13/2007	**2.4**	1 U
MW-104B	5/20/2008	**1.3**	0.5 U
MW-104B	10/28/2008	**1.6**	1 U
MW-104B	4/29/2009	5 U	5 U
MW-104B	11/11/2009	**0.87**	0.5 U
MW-104B	5/20/2010	**1.4**	**0.057 J**
MW-104B	10/22/2010	**1.8**	0.5 U
MW-104B	5/26/2011	**0.95**	0.5 U
MW-104B	11/9/2011	**1.6**	0.5 U
MW-104B	6/4/2012	**1.3**	0.5 U
MW-104B	3/11/2013	**1.4**	1 U
MW-107	6/7/2012	0.5 U	0.5 U
MW-107	3/6/2013	1 U	1 U
MW-109	5/12/2004	0.5 U	**31**
MW-109	9/21/2004	1 U	**32**
MW-109	4/26/2005	0.5 U	**15**
MW-109	10/5/2005	0.5 U	**22**
MW-109	3/20/2006	1 U	**27**
MW-109 (dup)	11/1/2006	1 U	**25**
MW-109	11/1/2006	1 U	**25**
MW-109	6/7/2007	1 U	**22**
MW-109	11/13/2007	1 U	**22**
MW-109 (dup)	5/20/2008	0.5 U	**22 J**
MW-109	5/20/2008	0.5 U	**10**
MW-109	10/28/2008	1 U	**20**
MW-109	4/28/2009	0.5 U	**17**
MW-109	11/10/2009	0.5 U	**8.3**
MW-109	5/19/2010	0.5 U	**16**
MW-109	10/21/2010	0.5 U	**17**
MW-109	5/24/2011	0.5 U	**13**
MW-109	11/8/2011	0.5 U	**19**
MW-109	5/30/2012	0.5 U	**13**
MW-109	3/5/2013	1 U	**15**

	Analyte	Tetrachloroethene	Trichloroethene
	ROD Remediation Goal	5	5
Location ID	Date	(µg/L)	(µg/L)
MW-110	5/12/2004	0.5 U	0.5 U
MW-110	9/21/2004	1 U	0.5 U
MW-110	4/26/2005	0.5 U	0.5 U
MW-110	10/5/2005	0.5 U	0.5 U
MW-110	3/20/2006	1 U	**26**
MW-110	10/31/2006	1 U	1 U
MW-110	6/6/2007	1 U	1 U
MW-110	11/12/2007	1 U	1 U
MW-110	5/20/2008	0.5 U	0.5 U
MW-110	10/28/2008	1 U	1 U
MW-110	4/28/2009	0.5 U	0.5 U
MW-110	11/10/2009	0.5 U	0.5 U
MW-110	5/19/2010	0.5 U	0.5 U
MW-110	10/20/2010	0.5 U	0.5 U
MW-110	5/24/2011	0.5 U	0.5 U
MW-110	11/8/2011	0.5 U	0.5 U
MW-110 (dup)	6/7/2012	0.5 U	0.5 U
MW-110	6/7/2012	0.5 U	0.5 U
MW-110 (dup)	3/6/2013	1 U	1 U
MW-110	3/6/2013	1 U	1 U
MW-111	5/12/2004	0.5 U	**22**
MW-111	9/21/2004	1 U	**17**
MW-111	4/26/2005	0.5 U	0.5 U
MW-111	10/5/2005	0.5 U	**12**
MW-111	3/17/2006	1 U	**20**
MW-111	11/1/2006	1 U	**16**
MW-111	6/6/2007	1 U	**18**
MW-111 (dup)	11/13/2007	1 U	**18**
MW-111	11/13/2007	1 U	**16**
MW-111	5/20/2008	0.5 U	**14**
MW-111 (dup)	10/28/2008	1 U	**16**
MW-111	10/28/2008	1 U	**17**
MW-111	4/28/2009	0.5 U	**11**
MW-111	11/10/2009	0.5 U	**5.8**
MW-111	5/19/2010	0.5 U	**12**
MW-111	10/21/2010	0.5 U	**11**
MW-111	5/24/2011	0.5 U	**12**
MW-111 (dup)	5/24/2011	0.5 U	**11**
MW-111	11/8/2011	0.5 U	**13**
MW-111	5/30/2012	0.5 U	**12**
MW-111	3/7/2013	1 U	**9.1**
MW-4A	3/20/2006	1 U	1 U
MW-4A	6/5/2012	0.5 U	0.5 U
MW-4A	3/12/2013	1 U	1 U
MW-4B	3/20/2006	1 U	1 U
MW-4B	6/5/2012	0.5 U	0.5 U
MW-4B	3/12/2013	1 U	1 U
MW-93-02	6/5/2012	0.5 U	0.5 U
MW-93-02	3/12/2013	1 U	1 U
MW-96-15	5/30/2012	0.5 U	0.5 U
MW-96-15	3/7/2013	1 U	1 U
MW-96-16	6/5/2012	0.5 U	0.5 U
MW-96-16	3/6/2013	1 U	1 U
MW-96-17	6/5/2012	0.5 U	0.5 U
MW-96-17	3/6/2013	1 U	1 U
MW-ES-02	3/22/2006	1 U	**56**
MW-ES-02 (dup)	11/1/2006	1 U	**69**
MW-ES-02	11/1/2006	1 U	**68**
MW-ES-02	6/7/2007	1 U	**66**
MW-ES-02 (dup)	11/14/2007	1 U	**62**
MW-ES-02	11/14/2007	1 U	**66**
MW-ES-02	5/20/2008	0.5 U	**47**
MW-ES-02	10/29/2008	1 U	**50**
MW-ES-02	4/29/2009	5 U	**43**
MW-ES-02	11/11/2009	0.5 U	**29**
MW-ES-02	5/20/2010	0.5 U	**53**
MW-ES-02	10/22/2010	0.5 U	**58**
MW-ES-02	5/26/2011	0.5 U	**46**
MW-ES-02	11/8/2011	0.5 U	**51**
MW-ES-02 (dup)	11/8/2011	0.5 U	**50**
MW-ES-02 (dup)	5/31/2012	0.5 U	**50**
MW-ES-02	5/31/2012	0.5 U	**47**
MW-ES-02	3/7/2013	1 U	**38**
MW-ES-03 (dup)	5/11/2004	0.5 U	**37**
MW-ES-03	5/11/2004	0.5 U	**37**
MW-ES-03 (dup)	9/22/2004	1 U	**40**
MW-ES-03	9/22/2004	1 U	**42**
MW-ES-03 (dup)	4/27/2005	0.5 U	**18**
MW-ES-03	4/27/2005	0.5 U	**22**
MW-ES-03 (dup)	10/6/2005	**0.13 J**	**22**
MW-ES-03	10/6/2005	**1.4**	0.5 U
MW-ES-03	3/20/2006	1 U	**27**
MW-ES-03	11/1/2006	1 U	**22**
MW-ES-03	6/7/2007	1 U	**26**
MW-ES-03	11/14/2007	1 U	**26**
MW-ES-03	5/21/2008	0.5 U	**24**
MW-ES-03	10/29/2008	1 U	**25**
MW-ES-03	4/29/2009	5 U	**16**
MW-ES-03	11/12/2009	0.5 U	**12**
MW-ES-03	5/20/2010	0.5 U	**21**
MW-ES-03	10/21/2010	0.5 U	**25**
MW-ES-03	5/25/2011	0.5 U	**21**
MW-ES-03	11/9/2011	0.5 U	**27**
MW-ES-03	6/4/2012	0.5 U	**21**
MW-ES-03 (dup)	3/7/2013	1 U	**20**
MW-ES-03	3/7/2013	1 U	**17**

	Analyte	Tetrachloroethene	Trichloroethene
	ROD Remediation Goal	5	5
Location ID	Date	(µg/L)	(µg/L)
MW-ES-04	5/11/2004	58	0.52
MW-ES-04	9/22/2004	52	0.44 J
MW-ES-04	4/27/2005	51	0.35 J
MW-ES-04	10/6/2005	38	0.24 J
MW-ES-04	3/20/2006	48	0.8 J
MW-ES-04	11/1/2006	43	1.2
MW-ES-04	6/7/2007	35	1.2
MW-ES-04	11/14/2007	38	1.7
MW-ES-04	5/21/2008	49	1.8
MW-ES-04	10/29/2008	25	1.1
MW-ES-04	4/29/2009	21	0.56 J
MW-ES-04	11/12/2009	16	0.38 J
MW-ES-04	5/20/2010	42	0.64 J
MW-ES-04	10/21/2010	34	0.6
MW-ES-04	5/25/2011	23	0.52
MW-ES-04	11/9/2011	26	0.75
MW-ES-04	6/4/2012	31	0.82
MW-ES-04	3/8/2013	44	0.56 J
MW-ES-05	5/11/2004	0.5 U	46 J
MW-ES-05	9/22/2004	1 U	44
MW-ES-05	4/26/2005	0.5 U	52
MW-ES-05	10/5/2005	0.5 U	37
MW-ES-05	3/21/2006	1 U	42
MW-ES-05	11/1/2006	1 U	58
MW-ES-05	6/7/2007	1 U	54
MW-ES-05	11/13/2007	1 U	53
MW-ES-05 (dup)	5/21/2008	0.5 U	56 J
MW-ES-05	5/21/2008	0.21 J	58
MW-ES-05	10/29/2008	1 U	41
MW-ES-05	4/29/2009	5 U	27
MW-ES-05	11/11/2009	0.5 U	16
MW-ES-05	5/20/2010	0.5 U	33
MW-ES-05	10/22/2010	0.5 U	36
MW-ES-05	5/25/2011	0.5 U	30
MW-ES-05	11/9/2011	0.5 U	35
MW-ES-05	5/30/2012	0.5 U	32
MW-ES-05	3/8/2013	1 U	27
MW-ES-06	5/11/2004	31	11
MW-ES-06	9/22/2004	26	11
MW-ES-06	4/26/2005	15	4.6
MW-ES-06	10/5/2005	19	11
MW-ES-06	3/21/2006	25	16
MW-ES-06	11/1/2006	34	12
MW-ES-06	6/7/2007	49	6.1
MW-ES-06	11/13/2007	40	6.9
MW-ES-06	5/21/2008	16	4.7
MW-ES-06	10/29/2008	18	5.7
MW-ES-06 (dup)	4/29/2009	18	3.5 J
MW-ES-06	4/29/2009	16	5 U
MW-ES-06	11/11/2009	11	2.3
MW-ES-06	5/20/2010	18	3.1
MW-ES-06	10/22/2010	14	2.7
MW-ES-06	5/25/2011	26	1.2
MW-ES-06	11/9/2011	36	1.6
MW-ES-06	5/30/2012	34	1.2
MW-ES-06	3/8/2013	23	0.97 J
MW-ES-07	3/20/2006	0.1 J	7.8
MW-ES-07	10/31/2006	1 U	11
MW-ES-07	6/6/2007	1 U	10
MW-ES-07	11/13/2007	1 U	11
MW-ES-07	5/20/2008	0.5 U	8.6
MW-ES-07	10/28/2008	1 U	6.9
MW-ES-07	4/28/2009	0.5 U	4.7
MW-ES-07	11/10/2009	0.5 U	3.6
MW-ES-07	5/19/2010	0.5 U	4.8
MW-ES-07	10/21/2010	0.5 U	5.1
MW-ES-07	5/24/2011	0.5 U	4.5
MW-ES-07	11/8/2011	0.5 U	9.7
MW-ES-07	5/29/2012	0.5 U	4.4
MW-ES-07	3/5/2013	1 U	3.9
MW-ES-08	5/29/2012	0.5 U	0.5 U
MW-ES-08	3/5/2013	1 U	1 U
MW-ES-09	5/11/2004	0.5 U	220
MW-ES-09	9/22/2004	1 U	200
MW-ES-09	4/27/2005	0.5 U	300
MW-ES-09	10/6/2005	0.5 U	120
MW-ES-09	3/22/2006	1 U	176
MW-ES-09	11/2/2006	1 U	170
MW-ES-09	6/8/2007	1 U	169
MW-ES-09	11/14/2007	1 U	160
MW-ES-09	5/21/2008	0.5 U	150
MW-ES-09 (dup)	10/29/2008	1 U	150
MW-ES-09	10/29/2008	1 U	150
MW-ES-09	4/30/2009	5 U	140
MW-ES-09 (dup)	11/11/2009	0.5 U	70
MW-ES-09	11/11/2009	0.5 U	73
MW-ES-09 (dup)	5/21/2010	0.5 U	150
MW-ES-09	5/21/2010	0.5 U	150
MW-ES-09	10/22/2010	0.5 U	130
MW-ES-09	5/26/2011	0.5 U	120
MW-ES-09 (dup)	5/26/2011	0.5 U	120
MW-ES-09	11/9/2011	0.5 U	150
MW-ES-09	6/5/2012	0.5 U	150 J
MW-ES-09	3/11/2013	1 U	120

	Analyte	Tetrachloroethene	Trichloroethene
	ROD Remediation Goal	5	5
Location ID	Date	(µg/L)	(µg/L)
MW-ES-10	5/11/2004	0.5 U	83
MW-ES-10	9/22/2004	1 U	83
MW-ES-10	4/27/2005	0.5 U	78
MW-ES-10	10/6/2005	0.5 U	75
MW-ES-10	3/22/2006	1 U	65
MW-ES-10	11/2/2006	1 U	68
MW-ES-10	6/8/2007	1 U	63
MW-ES-10	11/14/2007	1 U	61
MW-ES-10	5/21/2008	0.5 U	46
MW-ES-10	10/29/2008	1 U	52
MW-ES-10 (dup)	4/30/2009	5 U	46
MW-ES-10	4/30/2009	5 U	34
MW-ES-10	11/11/2009	0.5 U	29
MW-ES-10	5/21/2010	0.5 U	53
MW-ES-10 (dup)	10/22/2010	0.5 U	54
MW-ES-10	10/22/2010	0.5 U	52
MW-ES-10	5/26/2011	0.5 U	36
MW-ES-10	11/9/2011	0.5 U	53
MW-ES-10 (dup)	11/9/2011	0.5 U	54
MW-ES-10	6/5/2012	0.5 U	67 J
MW-ES-10	3/11/2013	1 U	37
MW-ES-11	5/31/2012	0.5 U	0.5 U
MW-ES-11	3/6/2013	1 U	1 U
MW-UI	5/12/2004	0.5 U	21 J
MW-UI	9/21/2004	1 U	17
MW-UI	4/26/2005	0.5 U	8.8
MW-UI	10/5/2005	0.5 U	3.6
MW-UI	3/17/2006	1 U	5.2
MW-UI	10/31/2006	1 U	12
MW-UI	6/6/2007	1 U	23
MW-UI	11/12/2007	1 U	28
MW-UI	5/19/2008	0.5 U	16
MW-UI	10/28/2008	1 U	8.3
MW-UI	4/27/2009	0.5 U	7.9
MW-UI	11/10/2009	0.5 U	3.8
MW-UI	5/19/2010	0.5 U	7.8
MW-UI	10/19/2010	0.5 U	8.1
MW-UI	5/24/2011	0.5 U	11
MW-UI	11/8/2011	0.5 U	11
MW-UI	5/29/2012	0.5 U	9.3
MW-UI	3/5/2013	1 U	8.1
PZ-704	6/6/2012	0.5 U	0.5 U
PZ-704	3/13/2013	1 U	1 U
PZ-709	6/6/2012	0.5 U	0.5 U
PZ-709	3/13/2013	1 U	1 U
PZ-715	6/6/2012	0.5 U	0.5 U
PZ-715	3/13/2013	1 U	1 U
PZ-719	6/6/2012	0.5 U	1.7
PZ-719 (dup)	3/14/2013	1 U	1.5
PZ-719	3/14/2013	1 U	1.6
PZ-720	2/1/2004	1.1	17
PZ-720	6/6/2012	0.5 U	6.6 J
PZ-720	3/14/2013	0.38 J	5
PZ-721	2/1/2004	0.79	98
PZ-721	11/2/2006	0.69 J	59
PZ-721	6/5/2007	1 U	35
PZ-721	11/14/2007	0.53 J	52
PZ-721	5/21/2008	0.39 J	41
PZ-721	10/27/2008	1 U	19
PZ-721	4/30/2009	5 U	35
PZ-721	11/11/2009	0.5 U	27
PZ-721	5/19/2010	0.2 J	41
PZ-721	10/20/2010	0.5 U	48
PZ-721	5/26/2011	0.5 U	30
PZ-721	6/6/2012	0.5 U	38
PZ-721	3/14/2013	1 U	30
PZ-722	6/6/2012	0.5 U	0.5 U
PZ-722	3/14/2013	1 U	1 U
PZ-723 (dup)	6/6/2012	0.5 U	0.5 U
PZ-723	6/6/2012	0.5 U	0.5 U
PZ-723	3/14/2013	1 U	1 U
PZ-724	2/1/2004	0.45 J	39
PZ-724	11/2/2006	1 U	37
PZ-724	6/5/2007	1 U	15
PZ-724	11/14/2007	1 U	32
PZ-724	5/21/2008	0.22 J	87
PZ-724	10/27/2008	1 U	44
PZ-724	4/30/2009	5 U	35
PZ-724	11/11/2009	0.5 U	28
PZ-724	5/19/2010	0.5 U	34
PZ-724	10/20/2010	0.5 U	43
PZ-724	5/26/2011	0.5 U	30
PZ-724	6/7/2012	0.5 U	13
PZ-724	3/14/2013	1 U	32
PZ-725	2/1/2004	0.5 U	0.35 J
PZ-725	6/8/2012	0.5 U	0.5 U
PZ-725	3/14/2013	1 U	1 U
PZ-726	2/1/2004	0.5 U	3.1
PZ-726	6/8/2012	0.5 U	3.4 J
PZ-726	3/12/2013	1 U	2.7

	Analyte	Tetrachloroethene	Trichloroethene
	ROD Remediation Goal	5	5
Location ID	Date	(µg/L)	(µg/L)
PZ-728	2/1/2004	0.5 U	**31**
PZ-728	11/2/2006	1 U	**16**
PZ-728	6/5/2007	1 U	**18**
PZ-728	11/14/2007	1 U	**21**
PZ-728	5/21/2008	0.5 U	**14**
PZ-728	10/27/2008	1 U	**51**
PZ-728	4/30/2009	5 U	**9.1**
PZ-728	11/11/2009	0.5 U	**8.2**
PZ-728	5/19/2010	0.5 U	**10**
PZ-728	10/20/2010	0.5 U	**12**
PZ-728	5/26/2011	0.5 U	**6**
PZ-728	6/8/2012	0.5 U	**4.5 J**
PZ-728	3/7/2013	1 U	**4.7**
RPZ-730	6/4/2012	0.5 U	0.5 U
RPZ-730	3/13/2013	1 U	1 U
RPZ-731	6/4/2012	0.5 U	**0.61**
RPZ-731	3/13/2013	1 U	**0.6 J**
RPZ-732	6/5/2012	0.5 U	0.5 U
RPZ-732	3/12/2013	1 U	1 U
ST-1	5/21/2008	0.5 U	0.5 U
ST-1	5/23/2011	0.5 U	0.5 U
ST-1	11/7/2011	0.5 U	0.5 U
ST-2	5/21/2008	0.5 U	0.5 U
ST-2	4/29/2009	0.5 U	0.5 U
ST-2	11/10/2009	0.5 U	0.5 U
ST-2	5/18/2010	0.5 U	0.5 U
ST-2	10/20/2010	0.5 U	0.5 U
TW-2	11/2/2006	1 U	**10**
TW-2	6/5/2007	1 U	**14**
TW-2	11/14/2007	1 U	**8.9**
TW-2	5/21/2008	0.5 U	**5**
TW-2	10/29/2008	1 U	**6.3**
TW-2	4/29/2009	0.5 U	**9**
TW-2	11/10/2009	0.5 U	**6.5**
TW-2	5/18/2010	0.5 U	**14**
TW-2	10/20/2010	0.5 U	**10**
TW-2	5/23/2011	0.5 U	**8.3**
TW-2	11/7/2011	0.5 U	**12**
TW-4	11/2/2006	1 U	**2.1**
TW-4	6/4/2007	1 U	**3.3**
TW-4	11/14/2007	1 U	**2.2**
TW-4	5/21/2008	0.5 U	**0.61**
TW-4	10/29/2008	1 U	**1.3**
TW-4	4/30/2009	0.5 U	**1.3**
TW-4	11/10/2009	0.5 U	**0.85**
TW-4	5/18/2010	0.5 U	**1.1**
TW-4	10/20/2010	0.5 U	**0.76**
TW-4	5/23/2011	0.5 U	0.5 U
TW-4	11/7/2011	0.5 U	0.5 U
TW-4	6/11/2012	0.5 U	**0.71 J**
TW-4	3/7/2013	1 U	**1.7**
TW-5	11/2/2006	1 U	**6.5**
TW-5	6/5/2007	1 U	**10**
TW-5	11/14/2007	1 U	**8.4**
TW-5	5/21/2008	0.5 U	**3.8**
TW-5	10/29/2008	1 U	**3.7**
TW-5	4/29/2009	0.5 U	**2.5**
TW-5	11/10/2009	0.5 U	**1.1**
TW-5	5/18/2010	0.5 U	**1.2**
TW-5	10/20/2010	0.5 U	0.5 U
TW-5	5/23/2011	0.5 U	0.5 U
TW-5	11/7/2011	0.5 U	0.5 U
TW-5	6/11/2012	0.5 U	0.5 U
TW-5	3/7/2013	1 U	1 U
TW-8	6/11/2012	0.5 U	0.5 U
TW-8	3/7/2013	1 U	1 U
WDOT-MW-1	5/31/2012	0.5 U	0.5 U
WDOT-MW-1	3/7/2013	1 U	1 U
WDOT-MW-2	5/31/2012	0.5 U	0.5 U
WDOT-MW-2	3/6/2013	1 U	1 U
Seep 1	5/30/2012	0.5 U	0.5 U
Seep 1	3/19/2013	1 U	1 U
Seep 2	5/30/2012	0.5 U	0.5 U
Seep 2	3/19/2013	1 U	1 U
Seep 3	5/31/2012	0.5 U	0.5 U
Seep 3	3/19/2013	1 U	1 U
Seep 5	5/31/2012	0.5 U	0.5 U
Seep 5 (dup)	5/31/2012	0.5 U	0.5 U
Seep 5	3/19/2013	1 U	1 U
Seep 5 (dup)	3/19/2013	1 U	1 U

Notes:

µg/L = microgram per liter

J = detected above the method detection limit but below the reporting limit

dup = field duplicate sample

U = not detected at or above the reporting limit

Bold font type indicates the analyte was detected above the reporting limit.

Gray shading indicates the analyte was detected above the ROD Remediation Goal.

Samples were also initially analyzed for 1,1-DCE, trans-1,2-DCE, cis-1,2-DCE and vinyl chloride.

Table 7

Subdrain Performance

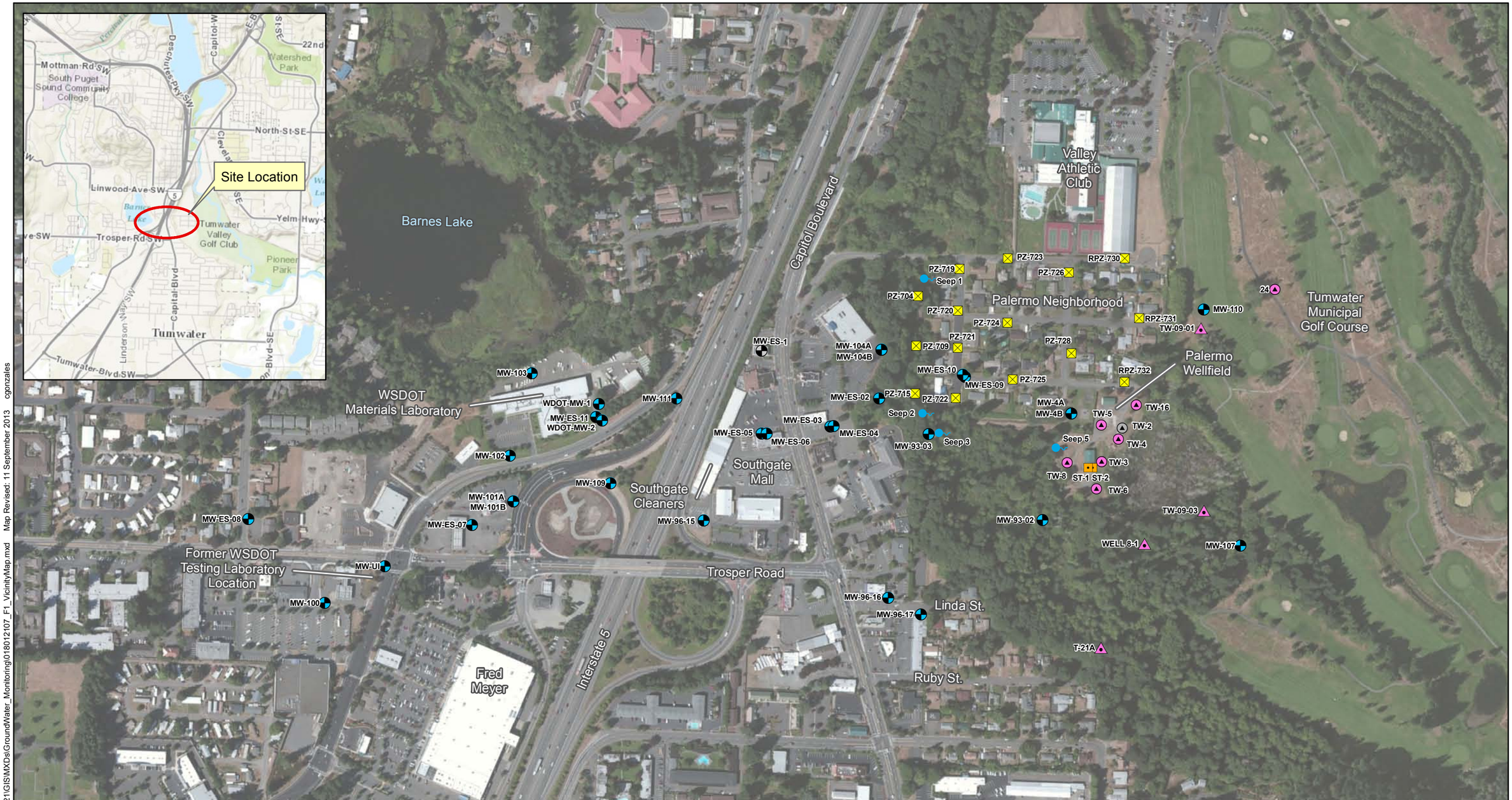
Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Upgradient Station	Upgradient Ground Surface Elevation [1] (feet)	Upgradient Groundwater Elevation (feet)	Compliance Station	Compliance Ground Surface Elevation [1] (feet)	Compliance Groundwater Elevation (feet)	Depth to Water from Ground Surface (feet) [2]	3 Foot Elevation Reduction Met
PZ-704	108.43	106.19	PZ-720	108.22	104.85	3.37	Yes
PZ-709	112.01	111.35	PZ-721	108.57	105.77	2.80	No
PZ-715	115.51	113.71	PZ-722	109.21	109.75	-0.54	No

Notes:

[1] Elevations in NGVD 29. Surveyed by White Shield for URS January 5, 2000

[2] Compliance ground surface minus compliance groundwater elevation



Data: Long-term monitoring locations provided by Parametrix 2012.
Imagery from ESRI 2013.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. TW-16 is installed but not operating. TW-5 is inactive.

- Monitoring well and identifier
- Piezometer and identifier
- Groundwater seep and identifier
- Stripper towers and identifier
- City production well and identifier
- City test well and identifier
- Former city production well and identifier
- Former monitoring well and identifier

N W E S

400 0 400
Feet

Site Plan

Palermo Wellfield Superfund Site

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Figure 1

Office: TAC Path: \\TAC\projects\0\0180121\GIS\MXDs\GroundWater_Monitoring\0180121\07_F1_VicinityMap.mxd Map Revised: 11 September 2013 cgonzales

Data: Long-term monitoring locations from Parametrix 2012.
Subdrain layout provided by URS 2000, Imagery from ESRI 2013.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. TW-16 is installed but not operating. TW-5 is inactive.

- Monitoring well and identifier
- Piezometer and identifier
- Groundwater seep and identifier
- City production well and identifier
- City test well and identifier
- Stripper towers and identifier
- Former city production well and identifier
- Catch basin and identifier
- Subdrain cleanout sampling station and identifier
- Treatment lagoon sampling station and identifier
- Cleanout location and identifier
- Subdrain tightline pipe
- Subdrain perforated pipe

N W E S

120 0 120
Feet

Subdrain System and Treatment Lagoon
Palermo Neighborhood

Palermo Wellfield Superfund Site

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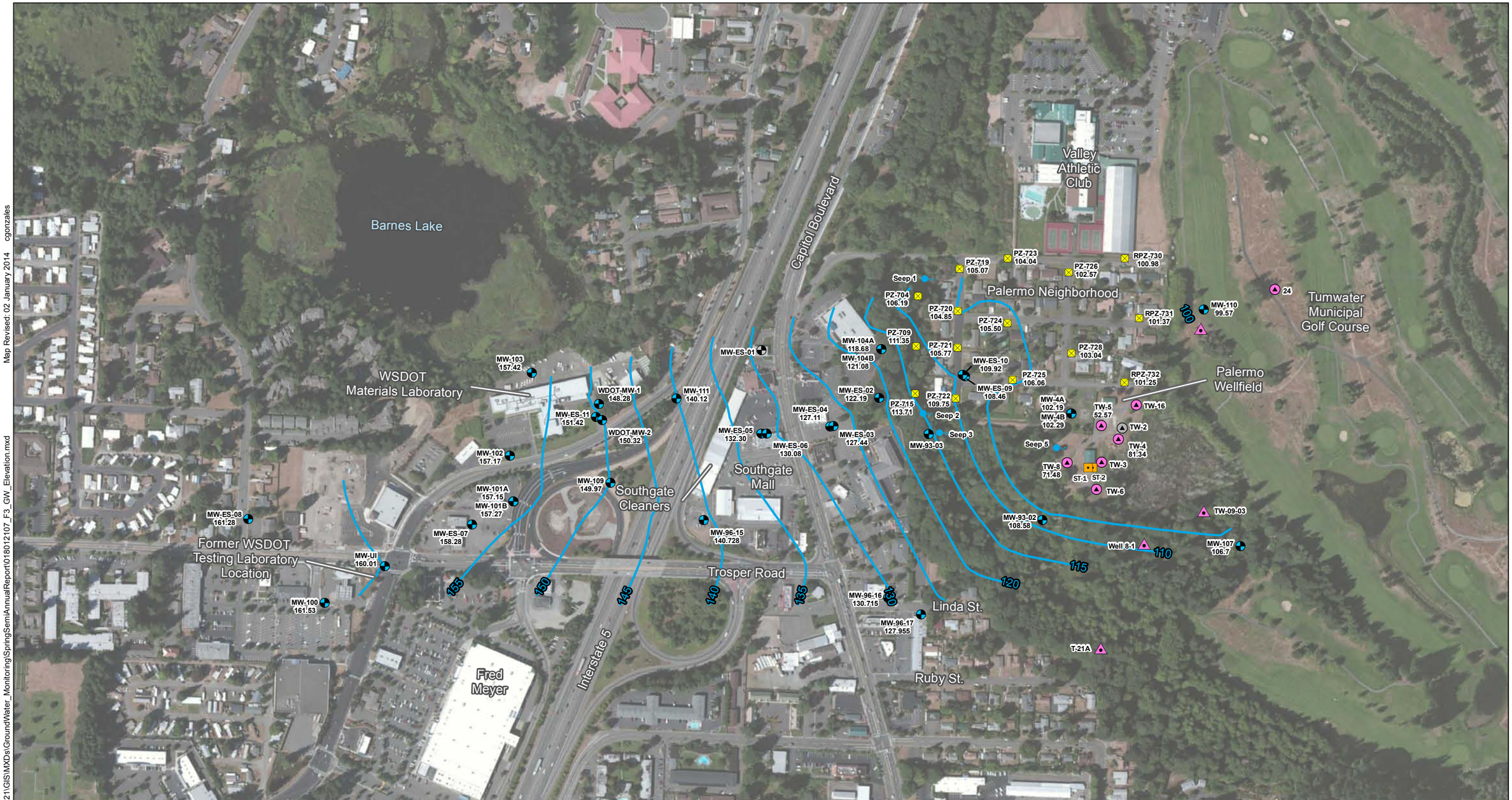
Figure 2

Office: TAC Path: \\TAC\projects\0\0180121\GIS\MXDs\GroundWater_Monitoring\018012107_F2_NeighborhoodSubdrain.mxd Map Revised: 13 September 2013 cgonzales



Data: Long-term monitoring locations provided by Parametrix 2012.
Imagery from ESRI 2013.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc.and will serve as the official record of this communication.
3. TW-16 is installed but not operating. TW-5 is inactive.
4. Groundwater elevations collected March 4, 2013.
5. Groundwater elevation estimated using Surfer (Golden Software) 8.0 contouring software using the Natural Neighbor gridding method.
6. Groundwater elevations are relative to NGVD 29 datum.

- Monitoring well, identifier, and groundwater elevation
- Piezometer and identifier
- Groundwater seep and identifier
- Stripper towers and identifier
- City production well and identifier
- City test well and identifier
- Former city production well and identifier
- Former monitoring well and identifier
- Estimated groundwater elevation (100)

N W E S

400 0 400
Feet

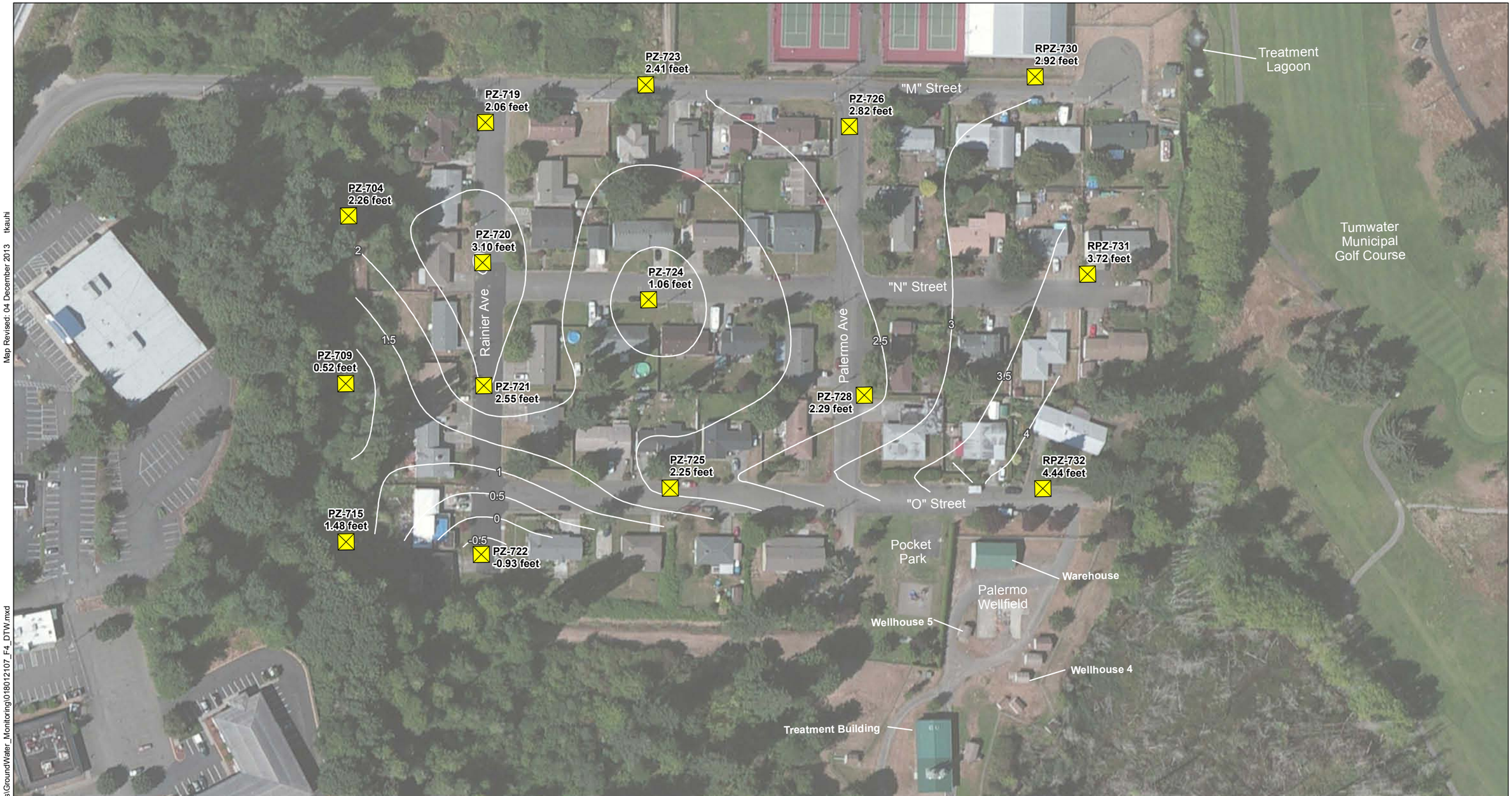
Spring 2013
Groundwater Elevations

Palermo Wellfield Superfund Site
Tumwater, Washington

GEOENGINEERS

Figure 3

Office: SEA Path: \\TAC\projects\0\0180121\GIS\MXDs\GroundWater_Monitoring\SpringSemiAnnualReport\018012107_F3_GW_Elevation.mxd Map Revised: 02 January 2014 cgonzales



Sources: Elevation Datum Reference: NGVD 29. Imagery From ESRI 2013.
Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Notes:
1. Depth to water measurements were made on March 4, 2013.
2. The locations of all features shown are approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
4. Contours were generated using Surfer 8.0 (Golden Software) contouring software using the natural neighbor gridding method.
5. Depth to water measurements at RPZ-730, RPZ-731, and RPZ-732 are calculated from the tops-of-casings, which are slightly below the flush-mounted monument.

Piezometer, identifier, and depth to groundwater

Estimated or inferred groundwater depth-to-water contours (piezometers)

N
W E
S

120 0 120
Feet

Palermo Neighborhood
Estimated Depth to Groundwater
Spring 2013

Palermo Wellfield Superfund Site

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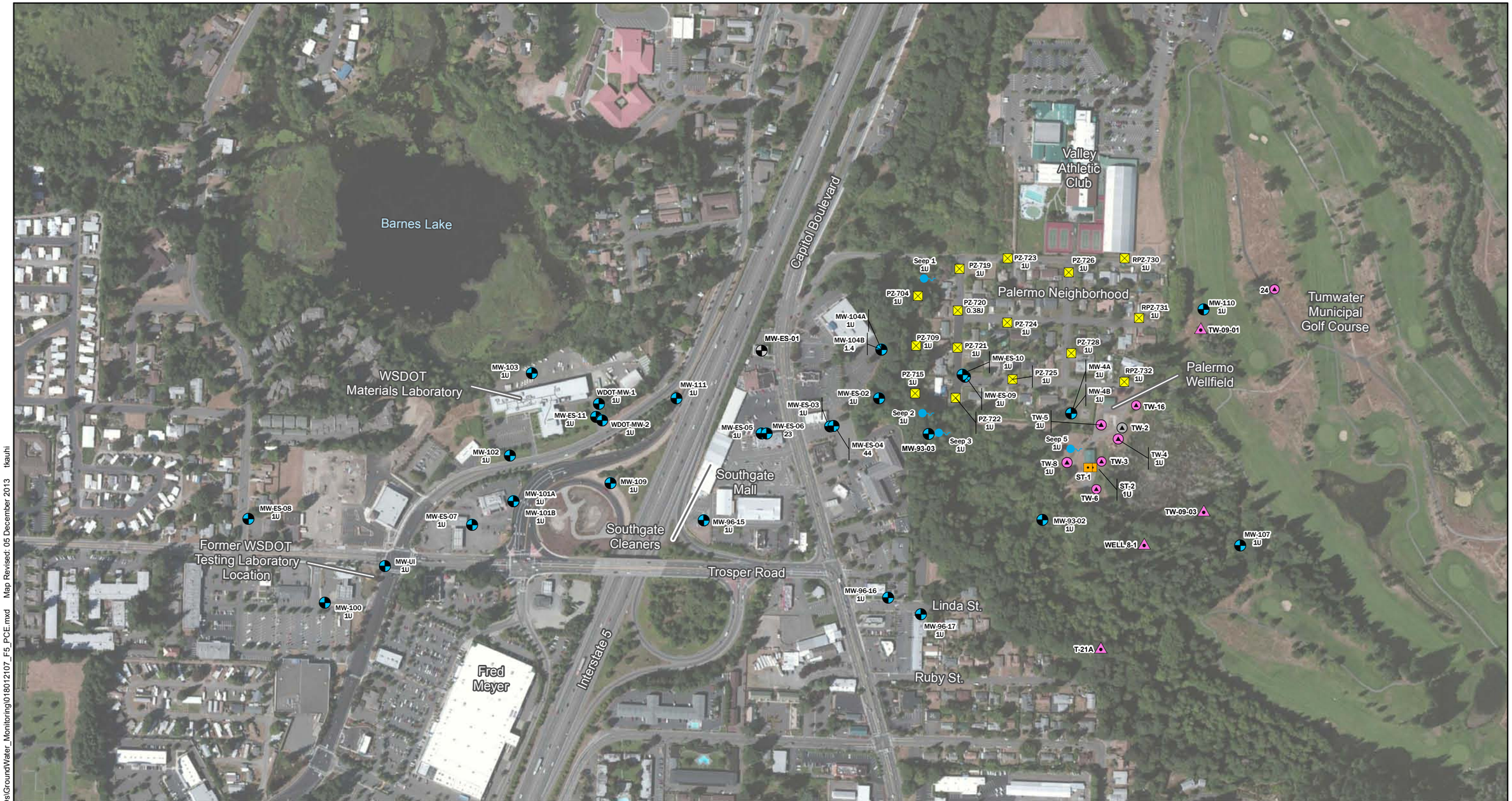
Figure 4

Map Revised: 04 December 2013 tkauhi

Path: P:\0\0180121\GIS\MXDs\GroundWater_Monitoring\018012107_F4_DTW.mxd

Office: TAC



Data: Long-term monitoring locations provided by Parametrix 2012.
Imagery from ESRI 2013.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Notes:
1. Concentrations presented in µg/L
2. The locations of all features shown are approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
4. TW-16 is installed but not operating. TW-5 is inactive.
5. Groundwater samples collected from March 5 to 19, 2013.

- Monitoring well and identifier
- Piezometer and identifier
- Groundwater seep and identifier
- Stripper tower and identifier
- City production well and identifier
- City test well and identifier
- Former city production well and identifier
- Former monitoring well and identifier
- U — Compound not detected at the reporting limit
- J — Estimated concentration

N W E S

400 0 400
Feet

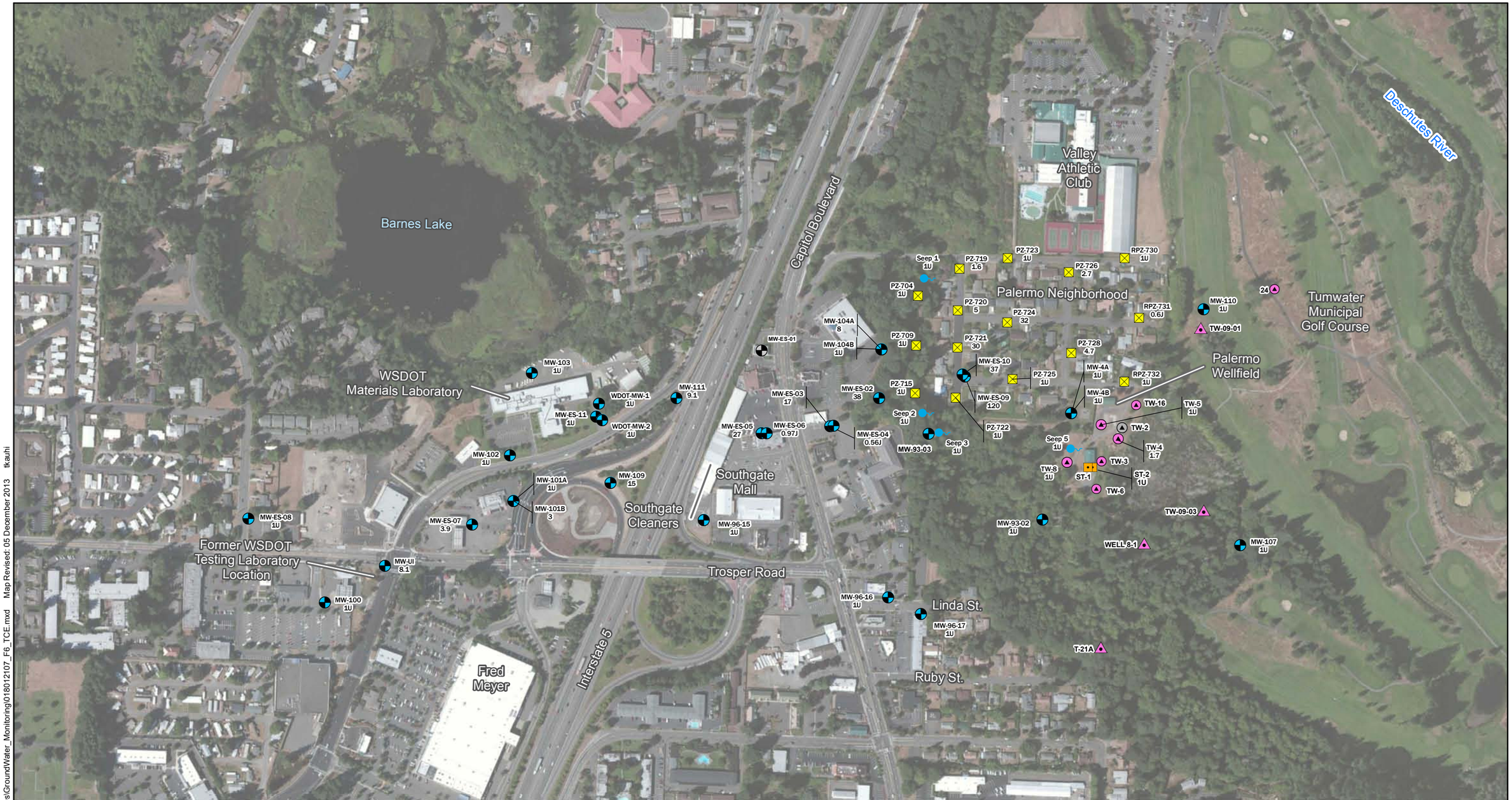
Spring 2013
PCE Concentrations in Groundwater (µg/L)

Palermo Wellfield Superfund Site

GeoEngineers

Figure 5

Office: TAC Path: P:\0\0180121\GIS\MXDs\GroundWater_Monitoring\018012107_F5_PCE.mxd Map Revised: 05 December 2013 tkauhi



Data: Long-term monitoring locations provided by Parametrix 2012.
Imagery from ESRI 2013.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Notes:
1. Concentrations presented in µg/L.
2. The locations of all features shown are approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
4. TW-16 installed but not operating. TW-5 is inactive.
5. Groundwater samples were collected from March 5 to 19, 2013.

- Monitoring well and identifier
- Piezometer and identifier
- Groundwater seep and identifier
- Stripper tower and identifier
- City production well and identifier
- City test well and identifier
- Former city production well and identifier
- Former monitoring well and identifier
- U — Compound not detected at the reporting limit
- J — Estimated concentration

400 0 400
Feet

Spring 2013
TCE Concentrations in Groundwater (µg/L)

Palermo Wellfield Superfund Site

GeoEngineers

Figure 6

Office: TAC Path: P:\0\0180121\GIS\MXDs\GroundWater_Monitoring\018012107_F6_TCE.mxd Map Revised: 05 December 2013 tkauhi

Data: Long-term monitoring locations from Parametrix 2012.
Subdrain layout provided by URS 2000, Imagery from ESRI 2013.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. TW-16 is installed but not operating. TW-5 is inactive.
4. Subdrain and lagoon samples were collected on March 5 to 19 2013.

- Monitoring well and identifier
- Piezometer and identifier
- Groundwater seep and identifier
- City production well and identifier
- City test well and identifier
- Stripper towers and identifier
- Former city production well and identifier
- Catch basin and identifier
- Subdrain cleanout sampling station and identifier
- Treatment lagoon sampling station and identifier
- Cleanout location and identifier
- U Compound not detected at the reporting limit
- J Estimated concentration
- NC Not calculated
- Subdrain tightline pipe
- Subdrain perforated pipe

N W E S

120 0 120
Feet

Spring 2013
Subdrain and Treatment Lagoon Monitoring Results
Palermo Neighborhood

Palermo Wellfield Superfund Site

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Figure 7

Office: TAC Path: P:\0\0180121\GIS\MXDs\GroundWater_Monitoring\018012107_F7_PCE_TCE.mxd Map Revised: 05 December 2013 tkauhi

APPENDIX A
Field Sampling Forms

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector JCD/LMC Sample ID MW-ES-08 130305

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage bolts bent, replaced lock, water in monument

(Padlock brand and number) Master No 7 Key P493

Depth to Water (from top of well casing) ~~34.2~~ 15.93

Depth to Base of Well 34.27 Height of Water Column 18.34'

Well Casing Type/Diameter 2" Sch 40 PVC

One Casing Volume (gal.) ~~15.9~~ 3.12

Purge Method low flow Pump (type) Grundfos Bailer (type) N/A

Gallons Purged ~375 gal

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal subdrain CB-3

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/5/13

Sample Location and Depth MW-ES-08 ~30 ft Time Collected 1030

Tidal Cycle NA [X] High Tide at Low Tide at Weather Cloudy

Sample type (Groundwater, Product, Other) GW

Sample Collected with [ ] Bailer [X] Pump [ ] Other Grundfos

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure Decon tubes - alconox wash, distilled rinse, dedicated tubing

Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Flow		
0958	15.94	~0.5	5.98	0.113	104.0	7.18	12.20	196			
1002	15.93	~0.75	5.92	0.110	54.7	6.68	12.93	184			
1006	15.93	~1.25	5.88	0.112	37.8	6.82	13.30	176			
1010	15.93	~1.75	5.86	0.110	28.3	6.82	13.50	175			
1014	15.93	~2.25	5.84	0.105	18.7	6.80	13.57	174	0.3xx ml/min		
1018	15.93	~2.75	5.82	0.100	14.3	6.81	13.66	174			
1022	15.93	~3.25	5.82	0.097	11.7	6.82	13.79	173			
1026	15.93	~3.75	5.79	0.097	11.2	6.84	13.72	174			

Meters Used for Measurement Horiba U-22

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterra WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance

Analyses, Number and Volume of Sample Containers Proj list VOCs, 9-40ml ~~AG~~ VOAs w/ HCl

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.) flow rate: 300 ml/min

MS/MSD collected

Signature [signature] Date 3/5/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector JCD/LML Sample ID MW-100 130305

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage 2 bolts broken off, 2 bolt holes assaulted over
(Padlock brand and number) Master lock No 7 Key P493 Water in monument w/ sheen, replaced lock
Depth to Water (from top of well casing) 16.20
Depth to Base of Well 26.54 Height of Water Column 10.34
Well Casing Type/Diameter 2" Sch 40 PVC
One Casing Volume (gal.) 1.76
Purge Method LF Pump (type) Grundfos Bailer (type) N/A
Gallons Purged ~6 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Subdrain CB-3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/5/13
Sample Location and Depth MW-100 - bottom half of screen ~22 ft Time Collected 1210
Tidal Cycle NA [X] High Tide at Low Tide at Weather Cloudy
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Decon tubes - alconox wash / distilled rinse, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1115	16.35	~0.5	5.72	0.143	>1000	5.81	12.90	197			
1119	16.38	~1.0	5.60	0.144	>1000	3.69	13.74	187			
1123	16.35	~1.5	5.59	0.149	800	2.49	14.40	183			
1128	16.35	~2.0	5.58	0.152	435.0	1.84	14.67	177			
1133	16.36	~2.5	5.59	0.154	305.0	1.64	14.75	176			
1137	16.36	~3.0	5.59	0.155	222.0	1.41	14.82	177			
1141	16.36	~3.5	5.59	0.155	125.0	1.27	14.93	179			
1145	16.35	~4.0	5.56	0.156	88.0	1.19	14.87	180			
1150	16.35	~4.5	5.60	0.156	48.7	1.13	14.92	181			
1155	16.35	~5.0	5.60	0.156	15.7	1.08	15.02	183			
1200	16.35	~5.5	5.63	0.156	14.3	1.08	15.06	181			
1205	16.35	~6.0	5.64	0.155	12.6	1.08	15.04	187			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterra U53

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance
Analyses, Number and Volume of Sample Containers proj list VOCs, 3-40 ml ~~AG~~ VOAs w/ HCl

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) flow rate: 425 ml/min

Signature [signature] Date 3/5/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LML/JCD Sample ID MW-UI 130305

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage ~~MISSIN~~ bolts stripped, replaced lock
(Padlock brand and number) Master lock No 7 Key P493
Depth to Water (from top of well casing) 18.80
Depth to Base of Well 27.73 Height of Water Column 8.93
Well Casing Type/Diameter 2"
One Casing Volume (gal.) ~~0.17~~ 9.1
Purge Method LF Pump (type) Grundfos Bailer (type) N/A
Gallons Purged ~3.75 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Subdrain CB-3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/5/13
Sample Location and Depth MW-UI 25 ft, bottom half of screen Time Collected 1440
Tidal Cycle NA [X] High Tide at Low Tide at Weather Cloudy
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure decon tubes - alconox wash/distilled rinse, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1346	18.83	~0.25	5.53	0.102	609	8.58	11.87	291			
1352	18.81	~0.75	5.53	0.103	331	7.93	~~12.29~~ 12.29	273			
1356	18.82	~0.90	5.40	0.102	380	8.64	13.46	256	lost flow		
1400	18.82	~1.20	5.37	0.099	143	8.25	15.02	242			
1404	18.83	~1.50	5.37	0.098	102	8.27	14.73	245			
1408	18.83	~1.90	5.39	0.099	81.4	8.23	14.50	245			
1412	18.83	~2.20	5.41	0.097	64.9	8.14	14.45	245			
1416	18.82	~2.50	5.42	0.100	56.2	8.07	14.39	243			
1420	18.82	~2.75	5.42	0.101	38.3	8.02	14.52	239			
1424	18.83	~3.00	5.43	0.097	33.8	7.99	14.45	236			
1428	18.82	~3.25	5.42	0.098	31.3	7.96	14.46	232			
1432	18.82	~3.50	5.47	0.097	27.5	7.88	14.18	230			
1436	18.83	~3.75	5.49	0.098	21.0	7.82	13.89	230			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterra WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance
Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCl), proj list VOCs

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) flow rate: 200 ml/min

Signature [signature] Date 3/5/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID MW-ES-07 130305

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage Bolts on well box stripped
(Padlock brand and number)

Depth to Water (from top of well casing) 19.63
Depth to Base of Well 33.88 Height of Water Column 14.25
Well Casing Type/Diameter 2"
One Casing Volume (gal.) 2.42
Purge Method Pump (type) Grundfos Rediflow Bailer (type)
Gallons Purged (7.26) ~3 gallons
(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal Subdrain manhole at intersection of Palermo & MS street
(Drum identification, sample analysis, sample results, storage location, etc.) V. Lt. brown, No odor or sheen

SAMPLING DATA

Date Collected (mo/dy/yr) 03/05/13
Sample Location and Depth lower 1/3rd at ~30' btoc Time Collected 1050
Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast 40°F Lt. breeze
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox water wash Distilled water rinse of pump, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, Colorless, No Hc odor or sheen

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1000	19.90	~0.25	5.96	0.130	4.1	5.59	20.36	212			
1006		~0.75	5.68	0.124	3.8	5.87	—	—			
—	—	—	—	—	—	—	—	—	—	—	—
1020	19.94	~1.5	5.52	0.107	4.4	6.99	19.46	204			
1026	19.94	2.0	5.53	0.106	3.9	7.06	18.95	205			
1032	19.94	2.5	5.52	0.106	4.0	7.00	18.60	207			
1038	19.92	3.0	5.52	0.106	4.0	7.04	18.14	205			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 100'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 350 ml/min at 107 Hz Initial 300ml/min 106.4 Hz
Analyses, Number and Volume of Sample Containers 9- 40ml VOA Ambers w/ ~~[illegible]~~ HCl

Duplicate Sample Number(s) MS/MSD (6- VOAs)
Comments: (Filtered, Not Filtered, Calculations, etc.) Generator ran out of fuel after the first round of measurement and before the second round was complete.

Signature Date 3/5/2013 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project 0180-121-08 WSDOT Palermo Job No. 0180-121-08 Collector Aww Sample ID MW-101A 130306

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage no bolts J-plug locked
(Padlock brand and number)

Depth to Water (from top of well casing) 19.16
Depth to Base of Well 73.66 Height of Water Column 54.50
Well Casing Type/Diameter 2"
One Casing Volume (gal.) 9.26
Purge Method Pump (type) Grundfos Redi-flo Bailer (type)
Gallons Purged ~5 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Onsite Subdrain manhole at Palermo and M street
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/6/13
Sample Location and Depth approx. lower 1/3rd @ ~70' Time Collected 1005
Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast 40°F Lt. Rain
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Dedicated tubing Alconox water wash, Distilled water rinse for pump
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, Colorless, no odor or sheen

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
0926	19.53	1.0	6.15	0.162	31.7	0.78	6.21	2			
0932	19.51	1.5	6.43	0.178	11.0	0.53	6.64	-41			
0938	19.51	2.0	6.52	0.184	7.7	0.50	6.44	-50			
0944	19.42	2.5	6.57	0.189	7.0	0.48	6.21	-57			
0950	19.44	3.0	6.66	0.194	7.4	0.47	5.99	-65			
0956	19.43	4.0	6.69	0.199	8.0	0.48	5.76	-66			
1002	19.44	4.5	6.70	0.201	9.0	0.51	5.56	-66			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300 ml/min at ~10 Hz
Analyses, Number and Volume of Sample Containers 3- 40ml Amber VOAs w/ HCl

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID MW-101B 130305

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage missing bolts J-Plug locked through
(Padlock brand and number)

Depth to Water (from top of well casing) 18.94
Depth to Base of Well 30.11 Height of Water Column 11.17
Well Casing Type/Diameter 2" Sch 40 PVC
One Casing Volume (gal.) 1.9 gal
Purge Method Pump (type) Grundfos Redi Flo Bailer (type)
Gallons Purged 4.5 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Subdrain manhole at Palermo & M Street.
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/5/13
Sample Location and Depth Lower Third ~ 26.5' bTOC Time Collected 1615
Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast 40°F Lt. breeze Lt. rain
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Dedicated Tubing, Alconox wash / Distilled water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear No color No odor or sheen

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1526	18.94	~0.5 gal	5.51	0.163	50.1	4.34	17.07	208			
1530	18.95	1.0 gal	5.41	0.163	39.3	4.50	15.44	207			
1536	18.96	1.5 gal	5.39	0.160	20.7	4.67	18.26	191			
1542	18.98	2.0 gal	5.31	0.161	10.5	4.96	17.00	200			
1548	18.98	2.5 gal	5.30	0.171	7.0	5.59	14.28	202			
1554	18.94	3.0 gal	5.27	0.182	5.9	6.23	11.74	205			
1600	18.95	3.5 gal	5.27	0.190	5.5	6.67	10.30	208			
1606	18.97	4.0 gal	5.20	0.188	5.0	6.60	10.31	209			
1612	18.97	4.5 gal	5.21	0.188	5.1	6.66	10.33	211			

Meters Used for Measurement Horiba U-20
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 300ml/min
Analyses, Number and Volume of Sample Containers 3-40ml Amber VOAs

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/5/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID MW-102 130305

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage NO BOLTS, J-plug locked though.
(Padlock brand and number)

Depth to Water (from top of well casing) 9.73'
Depth to Base of Well 23.86 Height of Water Column 14.13
Well Casing Type/Diameter 2" sch 40 pvc
One Casing Volume (gal.) 2.4 gal
Purge Method Pump (type) Grundfos Redi-Flo Bailer (type)
Gallons Purged 4 gallons
(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal Onsite Subdrain manhole at Palermo and M Street
(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 3/5/13 Time Collected 1320
Sample Location and Depth Lower Yard @ ~ 20' bTOC Weather Overcast 40°F Lt. breeze
Tidal Cycle NA [X] High Tide at Low Tide at
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Dedicated Tubing Alconox water wash, Distilled water rinse of Pump
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, v. lt. brown, No sheen or odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1240	9.86	~½	5.39	0.114	373	7.58	15.53	228			
1246	9.90	1.0	5.20	0.117	360	7.08	15.94	234			
1252	9.91	1.5	5.14	0.120	254	6.79	15.82	231			
1258	9.91	2.0	5.12	0.122	190	6.54	15.65	231			
1304	9.90	2.5	5.10	0.126	114	6.25	15.52	228			
1310	9.87	3.0	5.09	0.128	99.6	6.09	15.58	230			
1316	9.88	3.5	5.09	0.132	61.2	5.92	15.53	232			
1320	9.86	4.0	5.06	0.134	51.8	5.81	15.67	234			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Calibrated 2001

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300 ml/min @ ~ 76 Hz
Analyses, Number and Volume of Sample Containers 3-40ml Amber VOAs w/ HCl

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) Parameter Stabilization was achieved for all parameters except Turbidity which was decreasing at time of sample collection.

Signature [signature] Date 3/5/13 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-02 Collector AMW Sample ID MW-103 130306

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage no bolts
(Padlock brand and number)
Depth to Water (from top of well casing) 6.32
Depth to Base of Well 16.39 Height of Water Column
Well Casing Type/Diameter 2" sch 40 PVC
One Casing Volume (gal.) 1.7 gal
Purge Method Pump (type) Grundfos-Rediflo Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Onsite Subdrain manhole at Palermo and M Street
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/6/13
Sample Location and Depth lower 1/2rd to mid screen @ ~ ~~15~~ 12' Time Collected 1320
Tidal Cycle NA [ ] High Tide at Low Tide at Weather Overcast, 40°F Lt. Rain
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Dedicated Tubing, Alconox water wash, Distilled water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1150	6.27	0 gal	5.60	0.051	891	2.02	4.54	139			
1156	6.29	0.5	5.08	0.050	515	0.49	4.96	155			
1202	6.26	1.0	5.00	0.050	413	0.51	5.00	161			
1208	6.26	1.5	4.98	0.049	384	0.63	5.09	163			
1214	6.24	2.0	4.93	0.049	336	0.59	4.84	168			
1220	6.25	2.5	4.91	0.048	287	0.53	4.74	170			
1226	6.23	3.0	4.92	0.048	389	0.51	4.33	168			
1232	6.22	3.5	4.95	0.049	247	0.54	3.91	168			
*1258	6.41	4.0	4.51	0.047	128	10.61	3.10	196			
1304	6.32	4.5	4.69	0.047	76.3	0.62	2.96	186			
1310	6.31	5.0	4.69	0.047	78.0	0.48	2.96	186			
1316	6.31	5.5	4.68	0.047	72.2	0.45	2.95	187			

Meters Used for Measurement Horiba U-20
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300ml/min at 64.3Hz
Analyses, Number and Volume of Sample Containers 3-40ml

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.) Tagged bottom at ~16.4' not 21'. setting pump at ~12' possible Tree roots or silt. * Hose barb on pump came loose and stopped flowing. Pulled pump and reset barb. began pumping again at 12:55. Removed 3 well volumes and parameters are stabilized. Collecting sample

Signature Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID MW-ES-11 130306

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage No bolts Locked J-Plug
(Padlock brand and number)

Depth to Water (from top of well casing) 14.88

Depth to Base of Well 90.00' Height of Water Column 75.12

Well Casing Type/Diameter 2" sch 40 PVC

One Casing Volume (gal.) 12.8

Purge Method Pump (type) Grand Fos Bailer (type)

Gallons Purged 4 gallons
(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal onsite Subdrain manhole at Palermo & M Street
(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 3/6/13

Sample Location and Depth 85' mid column Time Collected 15:10

Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast 40°F Lt. Rain

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure Dedicated Tubing, Alconox water wash, Distilled water rinse

Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no color, No sheen or odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1440	14.99	1.5	6.03	0.151	26.0	9.11	3.08	183			
1446	14.99	2.0	6.05	0.151	20.2	9.57	3.01	169			
1452	15.01	2.5	6.05	0.156	11.9	9.91	2.64	170			
1458	15.02	3.0	6.05	0.158	7.5	10.04	2.48	175			
1504	15.02	3.5	6.05	0.159	2.5	10.24	2.42	177			
1510	1501	4.0	6.05	0.161	1.9	10.25	2.37	176			

Meters Used for Measurement Horiba U-22

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 300ml/min at 91.5 Hz

Analyses, Number and Volume of Sample Containers 3-40ml Amber VOAs w/ HCl

Duplicate Sample Number(s)

Comments: (Filtered, Not Filtered, Calculations, etc.) ~~[illegible]~~

Signature [signature] Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID WDOT-MW-1 130307

PURGE DATA

Well Condition: Secure [ ] Yes [ ] No Describe Damage

(Padlock brand and number)

Depth to Water (from top of well casing) 18.71

Depth to Base of Well 40.17 Height of Water Column 21.46

Well Casing Type/Diameter 2" sch 40 PVC

One Casing Volume (gal.) 3.69 gal

Purge Method Pump (type) Grundfos Redi Flo Bailer (type)

Gallons Purged 9 gal

(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal onsite subdrain manhole at Palermo and M St.

(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13

Sample Location and Depth midcolumn ~35' bTOC Time Collected 1250

Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast, lt. breeze 40°F

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure Dedicated Tubing, Alconox water wash, Distilled water rinse

Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, No color, No sheen or odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1108	18.85	1.0	5.93	0.207	256.6	1.63	12.1	-2			
1114	18.81	1.5	5.91	0.247	187.0	1.06	12.0	-6			
1120	18.86	2.0	5.84	0.253	144.9	1.12	12.9	-6			
1126	18.86	2.5	5.84	0.264	69.92	1.06	13.5	-9			
1132	18.88	3.0	5.82	0.273	41.78	0.88	13.6	-10			
1138	18.88	3.5	5.83	0.276	29.70	0.79	13.6	-11			
1144	18.93	4.0	5.79	0.279	21.77	0.70	13.6	-12			
1150	18.79	4.5	5.85	0.282	69.48	0.63	13.2	-17			
1156	18.82	5.0	5.85	0.285	16.94	0.68	12.8	-14			
1202	18.79	5.5	5.85	0.284	11.99	0.74	12.7	-15			
1208	18.82	6.0	5.83	0.286	13.83	0.78	13.0	-19			
1214	18.79	6.5	5.92	0.290	10.06	0.80	12.9	-20			
1220	18.78	7.0	5.92	0.293	9.60	0.81	12.7	-20			

Meters Used for Measurement Horiba U-22 microTPW Turbidimeter, Oakton Temp Probe

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300 ml/min at 101 Hz

Analyses, Number and Volume of Sample Containers 3-40 ml Amber VOAs w/ HCl

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature Date 3/7/13 Page 1 of 2

Check if additional information on back [X]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo WSDOT Job No. 0180-121-08 Collector AMW Sample ID WDOT-MW-1 [illegible]

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1226	18.79	7.5	5.96	0.295	7.28	0.84	12.6	-17			
1232	18.76	8.0	5.93	0.296	7.39	0.90	12.5	-19			
1238	18.77	8.5	5.93	0.295	6.12	1.06	12.5	-19			
1244	18.75	9.0	5.92	0.292	5.79	1.50	12.3	-16			

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0150-121-00 Collector AMW Sample ID WDOT-MW-2 130306

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage No bolts, J-Plug was locked
(Padlock brand and number)

Depth to Water (from top of well casing) 15.36
Depth to Base of Well 40.17 Height of Water Column 24.81
Well Casing Type/Diameter 2"
One Casing Volume (gal.) 4.2 gal
Purge Method Pump (type) Grundfos Bailer (type)
Gallons Purged ~6 gallons
(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal onsite subdrain manhole at Palermo and M Street
(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 03/06/13 Time Collected 1655
Sample Location and Depth set @ mid-screen ~35' Weather overcast 40°F Lt. Rain
Tidal Cycle NA [X] High Tide at Low Tide at
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Dedicated Tubing, Alconox water wash, Distilled water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1542	16.61	0.5	5.65	0.195	64.7	0.72	5.28	39			
1548	16.00	1.0	5.67	0.199	74.5	0.50	2.57	23			
1554	16.00	1.5	5.66	0.203	108	0.52	2.19	17			
1600	16.00	2.0	5.64	0.207	63.5	0.55	1.77	16			
1606	16.11	2.5	5.60	0.213	38.0	0.51	1.20	15			
1612	16.18	3.0	5.60	0.215	31.1	0.48	0.78*	14			
1618	16.23	3.5	5.60	0.221	27.9	0.46	0.04	12			
1624	16.26	4.0	5.59	0.223	25.0	0.49	—	11			
1630	15.89	4.5	5.62	0.229	19.0	0.49	—	4			
1636	15.89	5.0	5.66	0.228	19.7	0.50	—	5			
1642	15.89	5.5	5.68	0.230	20.0	0.49	—	3			
1648	15.89	6.0	5.67	0.231	19.1	0.49	—	2			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300 ml/min at 96.5 Hz
Analyses, Number and Volume of Sample Containers 3-40ml VOAs w/ HCl

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) * Temp meter appears to be malfunctioning. Will correct tomorrow

Signature [signature] Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

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GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LML/JCD Sample ID MW-109 DUP 130305

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage Good, replaced lock

(Padlock brand and number) master No. 77 Key P493

Depth to Water (from top of well casing) 18.96

Depth to Base of Well 71.39 Height of Water Column 52.43

Well Casing Type/Diameter 2" Sch 40 PVC

One Casing Volume (gal.) 8.91

Purge Method LF Pump (type) Grundfos Bailer (type) N/A

Gallons Purged ~45 gal

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal 3/6/13 ~~manhole~~ sanitary manhole - CB-3

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/5/13

Sample Location and Depth MW-109, bottom half of screen ~65 ft Time Collected 1625

Tidal Cycle NA [X] High Tide at Low Tide at Weather Raining

Sample type (Groundwater, Product, Other) GW

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure decon tubes - alconox wash / distilled rinse, dedicated tubing

Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1549	18.99	~0.50	5.90	0.167	283	5.20	11.67	238			
1553	18.97	~1.00	5.94	0.167	170.	4.12	11.96	171			
1557	18.97	~1.50	5.94	0.167	139	3.88	12.28	156			
1600	18.97	~2.00	5.95	0.166	111	3.72	12.53	150			
1605	18.98	~2.50	6.00	0.166	69.3	3.61	12.68	149			
1609	18.98	~3.00	6.03	0.167	25.8	3.57	12.72	150			
1614	18.98	~3.50	6.06	0.166	7.8	3.52	12.74	151			
1618	18.98	~4.00	6.07	0.166	0.0	3.50	12.70	152			
1622	18.98	~4.50	6.07	0.166	0.0	3.49	12.73	152			

Meters Used for Measurement Horiba U-22

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Geotech WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance

Analyses, Number and Volume of Sample Containers 3 - 40ml AG VOAs (HCl), proj list VOCs

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.) flow rate 300 ml/min

Signature [signature] Date 3/5/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0980-121-08 Collector AMW Sample ID MW-111 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage

(Padlock brand and number)

Depth to Water (from top of well casing) 25.31

Depth to Base of Well 39.24 Silty Bottom Height of Water Column 13.93

Well Casing Type/Diameter 2" sch40 PVC

One Casing Volume (gal.) 2.4gal

Purge Method Pump (type) Grundfos Rediflo Bailer (type)

Gallons Purged

(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal onsite Subdrain manhole at Palermo & M Street

(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13

Sample Location and Depth Mid screen ~35' BTOC Time Collected 14:30

Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast 40°F Lt. breeze

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure Dedicated Tubing, Alconox water wash, Distilled water rinse

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1354	25.41	0.5	5.65	0.167	48.84	6.67	12.5	197			
1400	25.43	1.0	5.43	0.179	20.62	6.97	13.1	222			
1406	25.43	1.5	5.41	0.184	5.85	7.05	14.2	229			
1412	25.43	2.0	5.37	0.187	1.47	7.70	14.4	240			
1418	25.43	2.5	5.33	0.188	0.95	7.97	14.4	244			
1424	25.43	3.0	5.37	0.188	0.41	8.16	14.5	244			

Meters Used for Measurement Horiba U-22, Micro TPW Turbidimeter, Oakton Temp Probe

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300ml/min at 116.2 Hz

Analyses, Number and Volume of Sample Containers 3-40 ml Amber VOAs w/ HCl

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.) Temp Probe built on Horiba, using oakton pen probe for Temperature readings

Signature Date 3/7/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector UML/JCD Sample ID MW-96-15 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage missing 1 bolt, did not put lock on since well is City's.
(Padlock brand and number) No lock QED pump in well, City well
Depth to Water (from top of well casing) 24.94
Depth to Base of Well 78.25 Height of Water Column 53.13
Well Casing Type/Diameter 2" Sch 40 PVC
One Casing Volume (gal.) 9.06
Purge Method LF Pump (type) Grundfos Bailer (type)
Gallons Purged ~10.5 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Subdrain catch basin 3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13
Sample Location and Depth MW-96-15 ~74 ft, bottom half of screen Time Collected 1130
Tidal Cycle NA [X] High Tide at Low Tide at Weather mc/showers Low 40's
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure decon tubes - alconox wash/distilled rinse, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Conv DTW 26.50		
1010	24.94	~0.75	6.40	0.153	49.5	7.04	11.96	164	26.59		
1014	–	~1.25	6.41	0.150	36.5	6.69	12.24	149	26.60		
1018	–	~1.50	6.43	0.152	40.3	6.25	12.68	146	26.60		
1022	–	~1.75	6.45	0.151	42.14	7.22	12.83	146	26.60		
1026	–	~2.25	6.46	0.150	36.45	6.70	12.88	146	26.60		
1030	—	~3.0	6.46	0.149	33.49	6.24	12.96	146	26.60		
1034	—	~3.75	6.47	0.149	28.12	5.71	13.08	146	26.60		
1038	—	~4.50	6.46	0.148	25.76	5.30	13.06	148	—		
1042	—	~5.00	6.47	0.147	18.91	4.92	13.11	148	26.60		
1046	—	~5.5	6.47	0.147	17.99	4.50	13.13	147	26.60		
1050	—	~6.0	6.48	0.148	13.14	4.24	13.19	148	26.60		
1054	—	~6.5	6.48	0.147	~~13.19~~ 10.36	4.05	13.18	148	26.60		
1058	—	~7.0	6.48	0.146	8.80	3.86	13.22	149	26.60		

Meters Used for Measurement Hyoiba 4-52, HF Scientific Turbidimeter
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Water 100'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance
Analyses, Number and Volume of Sample Containers 3-40 ml VOA (HCl) VOC's 8260

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) ~400 ml/min, flow cell leaking from bottom gasket, 1.5 gal purge water collected in separate bucket from leaking flow cell

Signature [signature] Date 3/7/13 Page 1 of 1

Check if additional information on back [X]

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LML/JCD Sample ID MW-96-15 130307

PURGE DATA

Well Condition: Secure [ ] Yes [ ] No Describe Damage
(Padlock brand and number)
Depth to Water (from top of well casing)
Depth to Base of Well Height of Water Column
Well Casing Type/Diameter
One Casing Volume (gal.)
Purge Method Pump (type) Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr)
Sample Location and Depth Time Collected
Tidal Cycle NA [ ] High Tide at Low Tide at Weather
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [ ] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (µS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Conv. DTW 26.50		
1102	—	~7.5	6.48	0.147	7.78	3.69	13.27	149	26.60		
1106	—										
1111	—	~9.0	6.48	0.145	5.22	3.45	13.34	150	26.60		
1115	—	~9.5	6.49	0.146	3.90	3.40	13.32	150	26.59		
1119	—	~10.0	6.48	0.145	3.88	3.31	13.42	150	26.57		
1123	—	~10.5	6.48	0.145	3.59	3.26	13.43	151	26.58		

Meters Used for Measurement
pH/Con./DO Instrument Calibration [ ] Yes [ ] No E-Tape

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance
Analyses, Number and Volume of Sample Containers

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature Date Page of
Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 018D-121-08 Collector AMW Sample ID MW-ES-05 130308

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage loose penta bolts, J-plug locked
(Padlock brand and number)

Depth to Water (from top of well casing) 42.80
Depth to Base of Well 95.43 Height of Water Column 52.63
Well Casing Type/Diameter 2" sch 40 PVC
One Casing Volume (gal.) 8.9 gal
Purge Method Pump (type) Grundfos Rediflo Bailer (type)
Gallons Purged ~3 gallons
(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal On Site Subdrain System manhole at Palermo & 4th Street
(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 03/08/13 Time Collected 1450
Sample Location and Depth middle column at ~90'
Tidal Cycle NA [X] High Tide at Low Tide at Weather partly sunny, 40's lt. breeze
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Dedicated Tubing, Alconox water wash, Distilled water rinse
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, No Color, No Sheen or Odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1415	42.81	0	6.29	0.245	3.42	0.16	11.8	216			
1421	42.83	0.75	6.00	0.255	1.91	12.50	11.8	198			
1427	42.83	1.5	5.95	0.255	0.99	12.85	12.2	193			
1433	42.83	2.0	5.94	0.253	1.05	13.02	12.6	194			
1439	42.83	2.5	5.94	0.254	0.06	13.23	13.1	196			

Meters Used for Measurement Horiba U-22, microTPW Turbidimeter, Oakton Temperature Probe
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300ml/min at 150.1 H_2
Analyses, Number and Volume of Sample Containers 3-40 ml Amber VOAs w/ HCl

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/8/13 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID MW-ES-06 130308

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage

(Padlock brand and number)

Depth to Water (from top of well casing) 43.22

Depth to Base of Well ~~95.43~~ 56.24 Height of Water Column 13.02

Well Casing Type/Diameter 2" sch 40 PVC

One Casing Volume (gal.) 2.4

Purge Method Pump (type) Grundfos Redi Flo Bailer (type)

Gallons Purged 7.2

(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal Lagoon onsite Sabbrain manhole at Palermo & M Street

(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 3/08/13

Sample Location and Depth mid Column Time Collected 13:35

Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast 40°F Lt. breeze

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure Dedicated Tubing, Alconox Water Wash, Distilled Water Wash

Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, No color, No Sheen or odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
12:50	43.25	0.5	6.01	0.231	24.30	18.66	11.7	237			
1256	43.24	1.0	5.84	0.257	7.74	19.99	12.2	210			
1302	43.26	1.5	5.76	0.240	4.79	19.99	13.9	207			
1308	43.29	2.0	5.74	0.235	2.58	19.99	14.9	208			
1314	43.26	2.5	5.70	0.237	1.18	19.99	15.6	210			
1320	43.26	3.0	5.68	0.243	0.96	19.99	15.8	213			
1326	43.26	3.5	5.68	0.249	0.17	19.99	15.9	215			
1332	43.26	4.0	5.67	0.53	0.21	19.99	15.9	217			
	collect sample										

Meters Used for Measurement Horiba U-22, Micro TPW Turbidimeter, Oakton Temp probe

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Approx 300mL/minute, 148.50 Hz

Analyses, Number and Volume of Sample Containers 3-40ml VOAs w/ HCl

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature Date 3/8/13 Page 1 of

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID MW-ES-03 130307

PURGE DATA

w/ DUP2 130307

Well Condition: Secure [ ] Yes [X] No Describe Damage Bolts Stripped, J-Plug Locked

(Padlock brand and number)

Depth to Water (from top of well casing) 47.65

Depth to Base of Well 123.29 Height of Water Column 75.64

Well Casing Type/Diameter 2" Sch 40 PVC

One Casing Volume (gal.) 12.9 gal

Purge Method Pump (type) Grundfos Rediflo Bailer (type)

Gallons Purged ~5.5

(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal onsite Subdrain manhole at Palermo & M Street

(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13

Sample Location and Depth mid screen at ~118' bTOC Time Collected 1025

Tidal Cycle NA [X] High Tide at Low Tide at Weather 40°F Partly Sunny w/ Lt. Rain

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure Dedicated Tubing, Alconox Water wash and Distilled water rinse

Sample Description (color, free product thickness, odor, turbidity, etc.) Clear No sheen or odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
0928	47.96	0.75	6.36	0.203	19.91	5.35	12.4	203			
0934	47.95	1.25	6.41	0.196	72.99	5.42	12.7	170			
0940	48.00	1.75	6.37	0.192	9.29	5.59	12.8	157			
0946	48.02	2.25	6.33	0.189	4.59	5.70	12.9	156			
0952	47.65	2.75	6.40	0.193	~~5.88~~ 16.19	5.88	13.1	153			
0958	47.78	3.25	6.32	0.200	2.84	6.33	12.6	162			
1004	47.78	3.75	6.34	0.200	2.45	6.39	12.7	161			
1010	47.78	4.25	6.30	0.205	1.97	6.64	12.8	158			
1016	47.76	4.75	6.29	0.207	1.53	6.76	12.6	154			
1022	47.76	5.25	6.31	0.207	1.57	6.78	12.6	154			

Meters Used for Measurement Horiba U-22, Micro TPW Turbidimeter, PC Testr 35 Temp Probe

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300 ml/min at 156.8 ft

Analyses, Number and Volume of Sample Containers 3-40 ml VOAs w/ HCl w/ additional 3 for duplicate

Duplicate Sample Number(s) Yes DUP2 130307

Comments: (Filtered, Not Filtered, Calculations, etc.) Temp Probe on Horiba malfunctioning using Oakton Decon Probe for this parameter

Signature Date 3/7/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 018D-121-08 Collector AMW Sample ID MW-ES-04 130308

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage Stripped bolts and locked J-plug
(Padlock brand and number)

Depth to Water (from top of well casing) 48.02
Depth to Base of Well 59.15 Height of Water Column 11.13
Well Casing Type/Diameter 2" Sch 40 PVC
One Casing Volume (gal.) 1.9
Purge Method Pump (type) Grundfos Rediflo Bailer (type)
Gallons Purged ~9 gallons
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal On Site Subdrain manhole at Palermo and M Street
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/8/13
Sample Location and Depth mid column ~54' BTOC Time Collected 10:50
Tidal Cycle NA [X] High Tide at Low Tide at Weather Overcast x 40°F V. Lt breeze
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure Dedicated Tubing, Alconox water wash, Distilled water Wash
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, No Color, No Hc odor or sheen

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
0844	48.29	0.0	5.72	~~0.003~~	98.97	Overrange	11.5	218			
0850	48.12	0.5	5.95	0.250 0.285	57.97	19.92	11.3	193			
~~0856~~	'	~~1.0~~	Pump stopped pulled out to check								
0920	48.32	1.0	6.07	0.257	126.1	Overrange	12.6	174			
0926	48.17	1.5	5.88	0.255	70.83	OR	14.2	172			
0932	48.28	2.0	5.76	0.253	94.02	OR	14.5	196			
0938	48.37	2.5	5.83	0.254	68.70	OR	15.5	200			
0944	48.33	3.0	5.78	0.253	64.96	OR	15.6	201			
0950	48.38	3.5	5.75	0.252	53.80	OR	15.3	179			
0956	48.35	4.0	5.74	0.247	91.64	OR	16.5	187			
1002	48.39	4.5	5.68	0.248	71.38	OR	17.0	193			
1008	48.39	5.0	5.67	0.250	49.67	OR	17.0	207			
1014	48.51	5.5	5.55	0.252	26.95	OR	17.3	215			

Meters Used for Measurement Horiba U-22, microTPW Turbidimeter, Oakton Temperature Probe
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300ml/min 156.4 Hz
Analyses, Number and Volume of Sample Containers 3-40 ml Amber VOAs w/ HCl

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) This well needs developed to get proper stabilization in the future.

Signature Date 3/8/13 Page 1 of 2

Check if additional information on back [X]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0880-121-08 Collector AMW Sample ID MW-ES-4 130308

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1020	48.53	6.0	5.58	0.254	21.02	OR	16.9	214			
1026	48.53	6.5	5.58	0.254	15.77	OR	16.8	214			
1032	48.52	7.0	5.59	0.255	10.14	OR	16.6	216			
1038	48.41	7.5	5.64	0.258	7.17	OR	16.5	217			
1044	48.41	8.0	5.65	0.257	5.05	OR	16.4	214			
1050	48.02	8.5	5.62	0.259	4.46	OR	16.8	214			

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LML/JCD Sample ID MW-96-16 130306

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage Needs extension
(Padlock brand and number) Master #2 - City of Tumwater key
Depth to Water (from top of well casing) 46.81
Depth to Base of Well 60.46 Height of Water Column 13.65
Well Casing Type/Diameter 2" Sch 40 PVC
One Casing Volume (gal.) 2.32 ft
Purge Method LF Pump (type) Grundfos Bailer (type)
Gallons Purged ~4 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal ~~decon tubes~~ Subdrain catch basin 3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/6/13
Sample Location and Depth MW-96-16 55 ft, bottom half of screen Time Collected 1440
Tidal Cycle NA [X] High Tide at Low Tide at Weather Rainy
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure decon tubes - Alconox wash/ distilled rinse, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Conv. DTW		
1400	48.80	~0.50	6.36	0.357	71.1	10.96	11.71	182	49.04		
1405	—	~0.75	6.25	0.331	35.6	10.47	12.16	170	—		
1409	—	~1.25	6.20	0.309	7.7	10.36	13.47	160	49.03		
1414	—	~1.75	6.17	0.286	0	10.63	14.83	153	49.03		
1418	—	~2.25	6.17	0.279	0	10.23	15.26	153	49.03		
1422	—	~2.75	6.16	0.281	0	10.58	15.32	153	49.03		
1426	—	~3.25	6.18	0.275	0	11.00	~~11.00~~ 15.55	154	49.03		
~~1500~~ 1430	—	~3.75	6.16	0.274	0	11.02	15.72	155	49.03		
1434	—	~4.00	6.18	0.270	0	11.01	15.80	154	49.03		

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterra WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Grab
Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCl), project list VOCs

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) 400 ml/min flow rate, removed QED dedicated pump to sample by Grundfos, replaced QED pump when finished

Signature [signature] Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LML/JCD Sample ID MW-96-17 130306

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage dirty ~~outlet~~ tube
(Padlock brand and number) Master No 2 / (City Key) QED pump in well
Depth to Water (from top of well casing) 48.30 from top of hand pump
* Depth to Base of Well N/A - pump in way Height of Water Column ~12.2
Well Casing Type/Diameter 2" Sch 40 PVC
One Casing Volume (gal.) 12.074
Purge Method Pump (type) Hand Bailer (type)
Gallons Purged ~12 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Sinbrain catch basin 3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/6/13
Sample Location and Depth MW-96-17 depth: unknown Time Collected 1535
Tidal Cycle NA [X] High Tide at Low Tide at Weather Rainy
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [ ] Pump [X] Other hand pump - dedicated downhole
Made of [ ] Stainless Steel [X] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure N/A
Sample Description (color, free product thickness, odor, turbidity, etc.) slightly turbid, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1514	–	~1.00	6.04	0.128	34.6	11.32	10.91	150			
1517	–	~4.00	6.40	0.123	153.0	11.51	11.70	151			
1521	–	~6.00	6.32	0.124	137	11.54	11.90	165			
1524	–	~9.50	6.31	0.119	92.7	11.23	12.20	166			
1528	–	~11.50	6.24	0.118	134.0	11.47	12.10	174			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterra WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~~N/A Grab~~
Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCL), project list VOCs

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) No control over flow or volume, purge 3 casings before collecting sample, cannot get parameters to stabilize

Signature [signature] Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

* log TD = 60.5

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0150-121-88 Collector LML/JCD Sample ID MW-ES-02 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage 2 bolts missing, monument damaged - hit by snow plow, replaced lock
(Padlock brand and number) Master No 7 Key # P443
Depth to Water (from top of well casing) 52.52
Depth to Base of Well 104.14 Height of Water Column 51.62
Well Casing Type/Diameter 2" Sch40PVC
One Casing Volume (gal.) 8.78
Purge Method LF Pump (type) Grundfos Bailer (type)
Gallons Purged ~4.5 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Subdrain catchbasin 3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13
Sample Location and Depth ~~MW-ES-02 ~100 ft~~ ~100 ft, bottom half of screen Time Collected 1405
Tidal Cycle NA [X] High Tide at Low Tide at Weather Cloudy ~5mph wind
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure decon tubes - Alconox wash/distilled rinse, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1325	53.62	~1.00	6.29	0.189	~~229~~ 135.8	3.54	11.96	174			
1329	53.53	~1.50	6.22	0.186	78.91	3.47	11.97	166			
1333	53.49	~2.00	6.21	0.186	104.6	3.31	12.34	156			
1337	53.46	~2.5	6.19	0.187	61.26	3.06	12.97	151			
1341	53.44	~3.0	6.18	0.188	45.82	2.93	13.24	150			
1345	53.40	~3.50	6.18	0.188	39.97	2.90	13.27	150			
1349	53.40	~3.75	6.18	0.188	36.93	2.86	13.36	150			
1353	53.31	~4.00	6.11	0.188	41.22	2.84	13.41	154			
1357	53.32	~4.25	6.20	0.188	38.36	2.80	13.44	148			
1401	53.30	~4.50	6.19	0.188	40.22	2.81	13.50	148			

Meters Used for Measurement Horiba U-52, HF Scientific turbidity meter
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterra WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance N/A
Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCl) VOCs 8260

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) 500 ml/min
Rinsate sample collected RIN-1 130307 @ 1425

Signature [signature] Date 3/7/13 Page 1 of

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AMW Sample ID MW-104A 130307

PURGE DATA

Well Condition: Secure [ ] Yes [ ] No Describe Damage

(Padlock brand and number)

Depth to Water (from top of well casing) 51.95

Depth to Base of Well 126.36 Height of Water Column 74.41

Well Casing Type/Diameter 2" sch 40 PVC

One Casing Volume (gal.) 12.6

Purge Method Pump (type) Grundfos Rediflo Bailer (type)

Gallons Purged

(Remove minimum of 3 well volumes or until field parameters stabilize)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

Purge Water Storage/Disposal On Site Subdrain Manhole at Palermo & M St.

(Drum identification, sample analysis, sample results, storage location, etc.)

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13

Sample Location and Depth mid column ~121'

Time Collected 16:00

Tidal Cycle NA [X] High Tide at Low Tide at

Weather Partly Sunny 40°sf Lt. breeze

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure Dedicated Tubing, Alconox/water wash, Distilled water rinse

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1518	52.11	0.0	6.18	0.167	5.72	9.82	12.9	232			
1524	52.11	0.5	6.03	0.190	38.94	11.89	12.9	210			
1530	52.10	1.0	5.99	0.195	33.50	12.40	12.8	194			
1536	52.06	1.5	5.89	0.196	28.03	12.45	12.8	192			
1542	52.07	2.0	5.90	0.197	26.24	12.60	12.8	187			
1548	52.08	2.5	5.87	0.200	29.08	12.88	12.8	187			
1554	52.05	3.0	5.88	0.203	33.38	12.99	12.8	185			

Meters Used for Measurement Horiba U-22, Micro TPW Turbidimeter, Oakton Temp Probe

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Solinst 200'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~300 ml/min at 163.3 Hz

Analyses, Number and Volume of Sample Containers 3-40ml Amber VOAs w/ HCl

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.) Temp probe quit on Horiba, using Oakton Pen Probe for that parameter.

Signature [signature] Date 3/7/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID MW-104B 130311

PURGE DATA

Well Condition: Secure [ ] Yes [✓] No Describe Damage No bolts, J-plug locked
(Padlock brand and number)

Depth to Water (from top of well casing) 49.41
Depth to Base of Well 58.00 Height of Water Column 8.59
Well Casing Type/Diameter 2" sch 40
One Casing Volume (gal.) 1.46
Purge Method Pump (type) grundfos Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Underdrain on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/11/13
Sample Location and Depth middle column at ~54'
Time Collected 11:30
Tidal Cycle NA [✓] High Tide at Low Tide at Weather overcast, 40's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [✓] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
10:24	50.06	0	5.72	0.135	94.00	9.07	12.59	105	Lots of sediment in tubing		
10:28	50.06	1.5	6.21	0.119	91.30	9.19	15.14	99			
10:32	50.05	2.0	6.31	0.118	87.34	9.22	15.71	106			
10:36	50.06	2.5	6.37	0.117	116.0	9.23	15.97	107			
10:40	49.97	3.0	6.41	0.118	95.28	9.18	15.87	114			
10:44	49.93	3.5	6.43	0.118	77.78	9.16	15.94	115			
10:48	49.93	4.0	6.43	0.118	53.61	9.12	16.16	120			
10:52	49.93	4.5	6.44	0.118	50.99	9.07	16.37	124			
10:56	49.92	5.0	6.45	0.118	35.45	9.10	16.44	128			
11:00	49.92	5.5	6.44	0.118	22.88	9.06	16.53	132			
11:04	49.92	6.0	6.45	0.118	20.50	9.03	16.57	136			
11:08	49.92	6.5	6.46	0.118	15.38	9.00	16.59	137			
11:12	49.92	7.0	6.46	0.118	11.80	9.00	16.62	139			

Meters Used for Measurement Grundfos, Horiba Water quality Monitor
pH/Con./DO Instrument Calibration [✓] Yes [ ] No Micro TPW Turbidity meter E-Tape Solinst Water level meter model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 400 mL/min @ 159.30 Hz
Analyses, Number and Volume of Sample Containers 3 40 mL VOA's MW-104B 130311 (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 2

Check if additional information on back [✓]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID MW-104B 130311

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
11:16	49.92	7.5	6.46	0.118	11.60	8.97	16.67	140			
11:20	49.92	8.0	6.46	0.118	11.58	8.96	16.68	141			

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JLD Sample ID MW-ES-09 130311

PURGE DATA

Well Condition: Secure [ ] Yes [✓] No Describe Damage loose penta bolts, J-plug lo

(Padlock brand and number)

Depth to Water (from top of well casing) 0, water @ top of casing

Depth to Base of Well 31.14 below 2.13 ext. → 29.01 Height of Water Column 29.01

Well Casing Type/Diameter 2"

One Casing Volume (gal.) 4.93

Purge Method Pump (type) Grundfos Bailer (type)

Gallons Purged 16.0

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal on site underdrain

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/11/13

Sample Location and Depth set at mid-screen @ ~25' Time Collected 15:30

Tidal Cycle NA [✓] High Tide at Low Tide at Weather cloudy, slight wind, 40's

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [✓] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other

Sampler Decon Procedure Alginox wash and DI rinse

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1423	0	0	6.67	0.184	364.7	0.13	16.90	131	clear		
1425	0.42	0.5		~~0.1~~		~~0.00~~	↑		orange	water w/ chunks	
1427	0.42	1.0	6.51	0.183	253.0	0.00	11.25	127			
1431	0.42	1.5	6.47	0.182	169.6	0.00	11.52	123			
1435	0.42	2.0	6.46	0.181	138.9	0.00	11.63	122			
1439	0.43	2.5	6.46	0.181	132.9	0.00	11.67	121			
1443	0.43	3.0	6.46	0.181	112.4	0.00	11.71	119			
1447	0.43	3.5	6.46	0.181	116.1	0.00	11.75	119			
1451	0.43	~4.0	6.46	0.181	104.5	0.00	11.75	119			
1455	0.43	~4.25	6.47	0.181	102.9	0.00	11.78	119			
1500	0.43	~4.50	6.47	0.181	95.04	0.00	11.77	120			
1504	0.43	~4.75	6.48	0.181	86.38	0.00	11.79	120			
1508	0.43	~5.0	6.48	0.181	72.39	0.00	11.82	122			

Meters Used for Measurement Horiba

pH/Con./DO Instrument Calibration [✓] Yes [ ] No Turbidity MicroTPW E-Tape Solinst model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 300 mL/min @ ~34 ft

Analyses, Number and Volume of Sample Containers 3 x 40 mL VOA's (HCl)

Duplicate Sample Number(s)

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 2

Check if additional information on back [X]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID MW-ES-09 130311

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1512	0.44	~5.5	6.47	0.181	76.08	0.00	11.82	122			
1516	0.44	~5.75	6.48	0.180	74.45	0.00	11.82	122			
1520	0.44	~6.0	6.48	0.181	83.04	0.00	11.83	123			

Page 2 of 2

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-12-D8 Collector JCD Sample ID MW-ES-10 130311

PURGE DATA

Well Condition: Secure [ ] Yes [✓] No Describe Damage loose penta bolts J-plug locked
(Padlock brand and number)
Depth to Water (from top of well casing) 0.49 from top of casing + 2.13' extension = +1.64
Depth to Base of Well 95.67-2.13 = Height of Water Column 96.16
Well Casing Type/Diameter 2" sch 40
One Casing Volume (gal.)
Purge Method Pump (type) Grundfos Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal on site underdrain
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/11/13
Sample Location and Depth mid screen at ~ 90' Time Collected 13:55
Tidal Cycle NA [✓] High Tide at Low Tide at Weather cloudy, 40's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [✓] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	* taken from 2.13' extension Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
13:20	0.66 +1.47	1.0	6.81	0.132	21.28	3.34	11.08	126			
13:24	0.65 +1.48	1.5	6.85	0.132	17.36	2.59	11.07	106			
13:28	0.65 +1.48	2.0	6.86	0.132	13.32	2.21	11.09	102			
13:32	0.65 +1.48	2.5	6.87	0.132	9.14	1.80	11.13	100			
13:36	0.66 +1.47	2.75	6.87	0.132	6.06	1.50	11.15	99			
13:40	0.66 +1.47	3.0	6.87	0.132	4.52	1.30	11.17	98			
13:44	0.66 +1.47	3.25	6.87	0.132	3.21	0.99	11.20	99			
13:48	0.67 +1.46	3.75	6.88	0.132	1.95	0.62	11.22	100			

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [✓] Yes [ ] No Turbidity MicroTPW E-Tape Solinst model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at 300 mL/min @ 26.80 Hz
Analyses, Number and Volume of Sample Containers 3x 40 mL VOA's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID MW-4A 130312

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage bollard was locked w/ city keys
(Padlock brand and number)

Depth to Water (from top of well casing) 5.40
Depth to Base of Well 112.31 Height of Water Column 106.91
Well Casing Type/Diameter 2" sch 40 PVC
One Casing Volume (gal.) 18.1
Purge Method Pump (type) Grundfos Bailer (type)
Gallons Purged 54.5
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal ~~Drs~~ Lagoon septic system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
(2)	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/12/13 Time Collected 11:30
Sample Location and Depth middle screen at ~108' Weather overcast, 50's
Tidal Cycle NA [X] High Tide at Low Tide at
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash & DI rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1034	5.29	0	7.19	0.103	5.44	6.09	11.23	142			
1038	5.27	0.75	7.18	0.104	17.17	3.52	11.17	43			
1042	5.26	~~2.0~~ ~1.5	7.16	0.111	80.24	1.22	11.20	-11			
1046	5.26	~2.25	7.14	0.113	77.56	0.00	11.24	-18			
1050	5.25	2.5	7.15	0.114	59.88	0.00	11.26	-22	350 mL/min		
1054	5.25	3.0	7.16	0.116	40.53	0.00	11.30	-25			
1058	5.24	3.5	7.17	0.117	33.01	0.00	11.32	-27			
1102	5.25	3.75	7.17	0.117	27.71	0.00	11.33	-27			
1106	5.22	3.75	7.17	0.118	23.46	0.00	11.33	-27			
1110	5.22	4.0	7.18	0.118	18.57	0.00	11.34	-29			
1114	5.20	~4.5	7.15	0.119	14.62	0.00	11.30	-29			
1118	5.19	~4.6	7.16	0.119	11.10	0.00	11.29	-29			
1122	5.19	~5.0	7.16	0.119	11.65	0.00	11.28	-28			

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidimeter Micro TPW E-Tape Solinst model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at 300 mL/min @ 47.2 Hz
Analyses, Number and Volume of Sample Containers

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.) 3x 40 mL VOA's (HCl)

Signature [signature] Date 3/18/13 Page 1 of 2

Check if additional information on back [X]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 131-121-08 Collector JCD Sample ID MW-4A 130312

PURGE DATA

Well Condition: Secure [y] Yes [ ] No Describe Damage

(Padlock brand and number)

Depth to Water (from top of well casing)

Depth to Base of Well Height of Water Column

Well Casing Type/Diameter

One Casing Volume (gal.)

Purge Method Pump (type) Bailer (type)

Gallons Purged

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr)

Sample Location and Depth

Tidal Cycle NA [ ] High Tide at Low Tide at Time Collected 11:30

Weather

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [ ] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other

Sampler Decon Procedure

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1126	5.19	5.25	7.16	0.119	11.53	0.00	11.28	-29			

Meters Used for Measurement

pH/Con./DO Instrument Calibration [ ] Yes [ ] No E-Tape

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance

Analyses, Number and Volume of Sample Containers

Duplicate Sample Number(s)

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature Date Page 2 of 2

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID MW-4B 130312

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage ballard locked w/city key
(Padlock brand and number)

Depth to Water (from top of well casing) 7.71
Depth to Base of Well 93.28 Height of Water Column 85.5
Well Casing Type/Diameter 2" sch 40
One Casing Volume (gal.) 14.5
Purge Method Pump (type) Grundfos Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Lagoon septic system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/12/13
Sample Location and Depth middle screen @ ~ 88' Time Collected 10:05
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast mid 50s
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
0923	7.75	0	6.27	0.118	14.78	5.12	11.11	240	clear		
0927	7.76	1.0	6.65	0.119	71.27	2.21	10.98	194			
0931	7.76	1.25	6.69	0.119	39.71	0.94	11.01	173	flow slowed to 200 mL/min		
0935	7.75	1.3	6.76	0.122	28.49	1.05	10.96	152			
0939	7.49	1.75	6.70	0.120	19.18	0.67	11.11	117	back to 350 mL/min		
0943	6.9985	2.5	6.86	0.120	4.39	0.51	11.25	94			
0947	6.854	3.0	6.83	0.121	3.28	0.34	11.53	92	flow increased - well		
0951	6.19	3.5	6.91	0.121	2.57	0.01	11.54	92	field? 800 mL/min		
0955	6.04	~4.0	6.92	0.121	5.28	0.20	11.40	93	turn pump down		
0959	5.87	~4.2	6.94	0.121	13.51	0.16	11.45	87	returned to 300 at 0951		

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [✓] Yes [ ] No Turbidimeter MicroTPW E-Tape Solinst model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow 300 mL/min @ 59.5 Hz at 0932, upped Hz to 61.0 Hz
Analyses, Number and Volume of Sample Containers 3x 40 mL VOA's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

✓

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID MW-93-02 130318

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage tree stuck in casing
(Padlock brand and number)

Depth to Water (from top of well casing) 4.00'

Depth to Base of Well unknown cannot reach bottom Height of Water Column unknown

Well Casing Type/Diameter

One Casing Volume (gal.)

Purge Method Pump (type) Bailer (type)

Gallons Purged

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal underdrain on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/12/13

Sample Location and Depth roughly 12' → as far down as would sit Time Collected 1410

Tidal Cycle NA [X] High Tide at Low Tide at Weather raining, 50's

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [✓] Pump [ ] Other peristaltic pump

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other

Sampler Decon Procedure Alconox wash and DI rinse, disposable tubing

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1341	4.16	0.25	6.58	0.147	59.11	1.81	9.62	86	Flow at	325mL/min	
1345	4.15	0.5	6.43	0.147	52.55	0.20	9.57	80			
1349	4.15	1.0	6.37	0.147	50.55	0.00	9.55	78			
1353	4.16	1.25	6.34	0.147	36.12	0.00	9.54	84			
1357	4.16	1.5	6.34	0.147	35.19	0.00	9.52	89			
1401	4.16	1.8	6.33	0.148	29.96	0.00	9.57	88			
1405	4.16	2.5	6.34	0.148	32.49	0.00	9.63	84			

Meters Used for Measurement Horiba

pH/Con./DO Instrument Calibration [✓] Yes [ ] No MicroTPW turbidimeter E-Tape solinst model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at ~325mL/min

Analyses, Number and Volume of Sample Containers 3x 40mL VOA's (HCl)

Duplicate Sample Number(s)

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

✓

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LML/JCD Sample ID MW-107 130306

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage replaced lock
(Padlock brand and number) Master No 7 Key #P493
Depth to Water (from top of well casing) 7.96
Depth to Base of Well 37.53 Height of Water Column 29.57
Well Casing Type/Diameter 2" Sch 40 PVC
One Casing Volume (gal.) 5.03
Purge Method LF Pump (type) Grundfos Bailer (type)
Gallons Purged ~4.25
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal SWdrain Catch basin 3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/6/13
Sample Location and Depth MW-107 ~32 ft, bottom half of screen Time Collected 1215
Tidal Cycle NA [X] High Tide at Low Tide at Weather Raining
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure decon tubes - Alconox wash / distilled rinse, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1149	8.02	~2 gal	6.61	0.164	89.4	8.64	10.52	101			
1153	8.02	~2.25	6.55	0.164	15.3	7.70	10.66	109			
1157	8.02	~2.75	6.47	0.164	1.0	7.41	10.74	118			
1201	8.02	~3.25	6.45	0.164	~	7.33	10.78	122			
1205	8.02	~3.75	6.44	0.163	~	7.25	10.33	127			
1209	8.02	~4.25	6.42	0.163	~	7.24	10.82	130			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterman 105-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance
Analyses, Number and Volume of Sample Containers 3-40ml AG VOAs (HM), proj list VOCs

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) 400ml/min - flow rate

Signature [signature] Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LML/JCD Sample ID MW-110 130306

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage Good, replaced lock
(Padlock brand and number) Master No 7 Key # P493
Depth to Water (from top of well casing) 2.35
Depth to Base of Well 38.13 Height of Water Column 35.78
Well Casing Type/Diameter 2", Sch 40 PVC
One Casing Volume (gal.) 6.08
Purge Method LF Pump (type) Grundfos Bailer (type) N/A
Gallons Purged ~6.5 gal
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal subdrain catch basin 3
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/6/13
Sample Location and Depth MW-110 33 ft, bottom half of screen Time Collected 1050
Tidal Cycle NA [X] High Tide at Low Tide at Weather rain
Sample type (Groundwater, Product, Other) GW
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [X] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other
Sampler Decon Procedure decon tubes - alconox wash/ distilled rinse, dedicated tubing
Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
0953	—	~0.75	6.35	0.152	155.0	0.41	11.11	-51			
0957	2.46	~1.50	6.44	0.152	132.0	0.0	11.36	-70			
1004	2.44	~2.25	6.56	0.152	83.4	0.0	11.57	-86			
1008	2.44	~2.25	6.61	0.153	63.1	0.0	11.60	-91			
1012	2.45	~3.25	6.64	0.154	55.7	0.0	11.54	-95			
1016	2.44	~3.50	6.67	0.154	46.9	0.0	11.47	-98			
1022	2.44	~3.75	6.71	0.154	36.5	0.0	11.40	-98			
1026	2.44	~4.25	6.72	0.153	32.2	0.0	11.29	-98			
1030	2.44	~4.75	6.75	0.153	25.4	0.0	11.42	-99			
1034	2.44	~5.25	6.72	0.153	23.0	0.0	11.34	-98			
1040	2.44	~5.75	6.79	0.153	20.1	0.0	11.43	-98			
1044	2.44	~6.25	6.80	0.153	19.6	0.0	11.42	-99			

Meters Used for Measurement Horiba U-22
pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Waterva WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance ~~Grab~~
Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCl), project list VOCs

Duplicate Sample Number(s) DUP-1 130306, collected @ 1100 on 3/6/13, no time on COC
Comments: (Filtered, Not Filtered, Calculations, etc.) 300 ml/min flow rate

Signature [signature] Date 3/6/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-704 (north) 130313

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage none
(Padlock brand and number)
Depth to Water (from top of well casing) ~~4.20~~ 4.35
Depth to Base of Well 7.48 stickup 2.16 Height of Water Column ~~3.28~~
Well Casing Type/Diameter 1"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged 3.0
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Underdrain on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/13/13 Time Collected 12:15
Sample Location and Depth middle column @ 6.5' Weather Rainy, 50's
Tidal Cycle NA [✓] High Tide at Low Tide at
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [✓] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash, DI rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (uS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1146	5.13	0	8.55	0.198	OR	0.00	10.11	-164	purged	brown sludge	
1150	5.19	0.75	~~6.54~~	0.137	150.4	0.00	9.53	-39	sheen	in bucket	
1154	5.19	1.25	~~6.39~~ 6.14	0.138	229.1	0.00	9.44	-10	hydrogen	sulfide odor	
1158	5.20	1.5	6.01	0.127	148.5	0.00	9.43	10	(light)		
1202	5.21	1.75	5.80	0.125	121.5	0.00	9.44	16			
1206	5.23	2.5	5.70	0.123	85.31	0.00	9.44	18			
1210	5.24	3.0	5.62	0.122	99.59	0.00	9.45	19			
									collect	sample	

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [✓] Yes [ ] No Turbidity MicroTPW E-Tape Westerna WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow rate = 300mL/min
Analyses, Number and Volume of Sample Containers 3 x 40mL VOA's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

7.48
4.20
3.28

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-709 (middle) 130313

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage

(Padlock brand and number)

Depth to Water (from top of well casing) 2.79

Depth to Base of Well 6.76 stick up 2.40 Height of Water Column 3.97

Well Casing Type/Diameter 1"

One Casing Volume (gal.)

Purge Method Pump (type) Bailer (type)

Gallons Purged 0.5

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal underdrain on site

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/13/13 Time Collected 1225

Sample Location and Depth middle screen @ ~6'

Tidal Cycle NA [X] High Tide at Low Tide at Weather Rainy, 50's

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other

Sampler Decon Procedure Alconox wash and DI rinse

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1124	6.19	0	10.37	0.169		0.00	9.33	-132	200 mL/min		
1126		0.5							pump stopped - well dry		
									return for sampling in		
									hour		
									collect sample at		
									1225 when water		
									returned. Flow		
									intermittant		

Meters Used for Measurement Horiba

pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity TPW E-Tape used tape WS-2 ~~calibrated~~

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance

Analyses, Number and Volume of Sample Containers 3 x 40 mL VOA's (HCl)

Duplicate Sample Number(s)

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

6.76
2.79
3.97

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo – WSDOT Job No. 0180-121-08 Collector JCD Sample ID PZ-715 (south) 130313

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage

(Padlock brand and number)

Depth to Water (from top of well casing) 4.20

Depth to Base of Well 9.72 stickup 2.60 Height of Water Column 5.52

Well Casing Type/Diameter 1"

One Casing Volume (gal.) –

Purge Method Pump (type) peristaltic Bailer (type)

Gallons Purged 1.25

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal underdrain onsite

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr)

Sample Location and Depth middle screen @ ~9' Time Collected 1105

Tidal Cycle NA [X] High Tide at Low Tide at Weather Rainy, 50's

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other

Sampler Decon Procedure Alconox wash and DI rinse

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1030	6.20	0	6.31	0.238	591.4	5.76	10.01	-66	very slow, turbid flow		
1034	6.55	0.25	6.30	0.228	611.9	12.02	10.21	-65			
1038	6.42	0.3	6.36	0.220		9.30	10.26	-64			
1043									restart pump & tubing		
1044	6.20	0.3	6.53	0.196		6.09	10.26	-18	at lower depth 9'		
1048	9.48	0.5	6.27	0.196	161.5	5.18	10.06	-2			
1052	9.58	0.75	6.44	0.183	435.2	8.69	10.30	23			
1056	9.61	1.0	6.42	0.181	472.9	8.31	10.39	27			
1100	9.61	1.25	6.41	0.180	465.2	8.40	10.40	29			
									collect sample		

Meters Used for Measurement Horiba

pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity MicroTPW E-Tape Waterra WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow = 25mL/min

Analyses, Number and Volume of Sample Containers 3 x 40mL VOA's (HCl)

Duplicate Sample Number(s)

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

9.72
4.20
5.52

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT-Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-719 130314

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage stripped bolts
(Padlock brand and number)

Depth to Water (from top of well casing) 1.90'
Depth to Base of Well ~~9.68~~ wrong → PZ-724 6.82 Height of Water Column 4.92
Well Casing Type/Diameter 1/2" OD
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal onsite underdrain system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/14/13
Sample Location and Depth middle screen at ~ Time Collected 1145
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alquinox wash and DI rinse. disposable tubing
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1121	1.90	0	6.43	0.155	94.13	2.20	11.71	-39	350mL/min		
1125	—	0.5	6.45	0.154	14.99	0.00	11.05	-56			
1129	—	0.75	6.51	0.154	5.21	0.00	11.03	-61			
1133	—	1.0	6.54	0.153	3.89	0.00	11.04	-64			
1137	—	1.5	6.63	0.153	3.85	0.00	11.04	-68			
1141	—	2.0	6.62	0.153	3.25	0.00	11.03	-71			
	1.91										

Meters Used for Measurement Horiba water quality meter
pH/Con./DO Instrument Calibration [X] Yes [ ] No" Turbidity MicroTPW E-Tape solinst model 102M

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at ~ 350mL/min
Analyses, Number and Volume of Sample Containers

Duplicate Sample Number(s) DUP-4-130314 3 x 40 mL VOA's (HCL)
Comments: (Filtered, Not Filtered, Calculations, etc.) 3 x 40mL VOA's (HCL)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

6.82
1.90
4.92

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-720 130314

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage stripped bolts
(Padlock brand and number)

Depth to Water (from top of well casing) 3.02
Depth to Base of Well 9.41 Height of Water Column 6.39
Well Casing Type/Diameter 1/2"
One Casing Volume (gal.)
Purge Method Pump (type) Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal on site underdrain system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/
Sample Location and Depth Time Collected 1250
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alquinox wash and DI rinse. disposable
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1220	—	0	6.51	0.133	32.13	6.08	10.01	73	300mL/min		
1224	—	0.5	6.32	0.133	10.86	2.14	9.71	100			
1228	—	~0.5	6.22	0.132	3.85	2.22	9.64	121			
1232	—	1.0	6.18	0.085	1.81	1.32	9.63	132			
1236	—	1.5	6.16	0.131	1.48	1.26	9.63	138			
1240	—	2.5	6.16	0.131	2.22	1.26	9.63	142			
1244	—	3.0	6.16	0.130	0.62	1.35	9.61	144			
	3.02								collect	sample	

Meters Used for Measurement Honba water quality meter
pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity Micro TPW E-Tape solinst model 102M

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow ≈ ~300mL/min
Analyses, Number and Volume of Sample Containers 3 x 40mL VOAs (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

9.41
3.02
6.39

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-721 130314

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage no bolts, no J-plug, water in well box
(Padlock brand and number)

Depth to Water (from top of well casing) 2.47
Depth to Base of Well 8.98 Height of Water Column 6.51
Well Casing Type/Diameter 1/2"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/14/13
Sample Location and Depth set at mid-screen ~ 8' Time Collected 1425
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash & DI rinse disposable tubing
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1356	—	0	6.43	0.134	8.44	1.40	10.39	144	~350mL/min		
1400	—	0.5	6.21	0.137	3.30	0.23	10.26	156			
1404	—	1.0	6.18	0.138	2.60	0.00	10.22	162			
1408	—	1.5	6.16	0.139	1.77	0.00	10.20	166			
1412	—	2.0	6.16	0.139	1.41	0.98	10.18	171			
1416	—	2.5	6.18	0.139	2.18	0.81	10.18	173			
1420	—	3.0	6.21	0.140	2.36	0.60	10.18	180			
	2.54										

Meters Used for Measurement Horiba water quality meter
pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity MicroTPW E-Tape solinst model 102M

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance
Analyses, Number and Volume of Sample Containers 3 x 40mL VOA's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

8.98
2.47
6.51

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-722 130314

PURGE DATA

Well Condition: Secure [ ] Yes [ ] No Describe Damage
(Padlock brand and number)
Depth to Water (from top of well casing) 2.13 from top of 3.06' extension
Depth to Base of Well 9.73 from original Height of Water Column 11.86
Well Casing Type/Diameter 1/2"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal on site underdrain system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/14/13
Sample Location and Depth middle screen at ~ ~~9'~~ tubing stuck on joint, set to ~ Time Collected 1330
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse, disposable tubing
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1308	—	0	6.45	0.125	11.71	5.00	11.66	105	375 mL/min		
1312	—	0.5	6.54	0.125	4.40	1.24	11.79	107			
1316	—	1.0	6.54	0.125	3.74	1.01	11.79	116			
1320	—	1.5	6.57	0.125	3.04	0.96	11.80	117			
1324	—	2.0	6.62	0.125	0.41	0.92	11.79	117			
1328	—	2.5	6.61	0.125	0.46	0.80	11.77	122			
	~~1.90~~ 2.19								collect sample		

Meters Used for Measurement Horiba water quality meter
pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity Micro TPW E-Tape solinst model 102M

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at ~375 mL/min
Analyses, Number and Volume of Sample Containers

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.) 3 x 40mL VOA's (HCl)

Signature Date 3/18/13 Page 1 of

Check if additional information on back [ ]

9.73
2.13
11.86

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-723 130314

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage no bolts, J-plug locked, Water infiltration to casing
(Padlock brand and number)

Depth to Water (from top of well casing) 2.32
Depth to Base of Well 6.75 Height of Water Column 4.43
Well Casing Type/Diameter 1/4" OD
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal on site underdrain system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/14/13
Sample Location and Depth middle ~~column~~ screen at ~ 6' Time Collected 1000
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [Y] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure ~~on site~~ Alquinox wash and DI water. disposable tubing
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
0938	cannot measure	0	5.42	0.147	7.88	2.08	8.61	19	Flow	at ~ 300	mL/min
0942	water level	0.25	5.75	0.113	3.74	0.25	8.38	31			
0946	in 1/4 casing	0.5	5.82	0.103	1.79	0.00	8.29	-13			
0950		1.0	5.82	0.099	1.43	0.00	8.25	-15			
0954	2.32	~~1.5~~ 2.0	5.84	0.097	1.29	0.00	8.22	-18			

Meters Used for Measurement Horiba water quality meter
pH/Con./DO Instrument Calibration [Y] Yes [ ] No Turbidity MicroTPW E-Tape Solinst mini model 122M

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at ~300 mL/min
Analyses, Number and Volume of Sample Containers 3 x 40 mL VOA'S (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

6.75
2.32
4.43

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo - WSDOT Job No. 0180-121-08 Collector JCD Sample ID PZ-724 130314

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage stripped bolts
(Padlock brand and number)

Depth to Water (from top of well casing) 6.95 * not accurately

Depth to Base of Well ~~6.78~~ 9.68 * not as previously recorded Height of Water Column ?

Well Casing Type/Diameter 1/2" casing

One Casing Volume (gal.)

Purge Method Pump (type) peristaltic Bailer (type)

Gallons Purged

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal on site underdrain system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/14/13

Sample Location and Depth middle screen at ~ 9' Time Collected 1055

Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other

Sampler Decon Procedure Alquinox wash & DI water rinse, disposable tubing

Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1020	—	0	6.02	0.141	98.61	7.14	9.88	64	water came up quickly -		
1024	—	0.5	6.01	0.152	34.26	0.46	9.85	105	water shallower than 6'		
1028	—	1.0	5.95	0.156	10.90	6.04	9.86	121			
1032	—	~1.5	6.00	0.156	4.36	0.00	9.85	129			
1036	—	~2.0	6.03	0.156	5.49	0.00	9.87	131			
1040	—	~2.5	6.05	0.156	3.24	0.00	9.88	140			
1044	—	~3.0	6.06	0.156	2.86	0.00	9.86	146			
1048	2.31	~3.5	6.07	0.156	3.57	0.00	9.88	149			

Meters Used for Measurement Horiba water quality meter

pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity Micro TPW E-Tape solinst Model 102M

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow ~ 300 mL/min

Analyses, Number and Volume of Sample Containers 3 x 40 mL voa's (HCl)

Duplicate Sample Number(s)

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ-725 130314

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage no bolts, under immobile truck.
(Padlock brand and number) 2.49
Depth to Water (from top of well casing) 2.49
Depth to Base of Well 9.71 Height of Water Column 7.22
Well Casing Type/Diameter 1/2"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal on site underdrain system
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/14/13
Sample Location and Depth middle screen at ~ 8' Time Collected 1510
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1448	~~0.25~~	0.25	6.47	0.168	13.72	2.60	10.73	-77	~375 mL/min		
1452	—	0.5	6.77	0.169	2.15	0.00	10.63	-99			
1456	—	1.5	6.77	0.169	0.86	0.00	10.61	-100			
1500	—	2.0	6.94	0.169	1.02	0.00	10.60	-109			
1504	—	2.5	6.98	0.169	0.65	0.00	10.58	-110			
1508	—	2.75	6.97	0.169	0.96	0.00	10.59	-111			
	2.52								sample		

Meters Used for Measurement Horiba water quality meter
pH/Con./DO Instrument Calibration [X] Yes [ ] No turbidity Micro TPW E-Tape Solinst Model 102M

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance
Analyses, Number and Volume of Sample Containers 3 x 40mL VOA's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of

Check if additional information on back [ ]

9.71
2.49
7.22

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GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID PZ - 726 130312

PURGE DATA

Well Condition: Secure [ ] Yes [✓] No Describe Damage No bolts, J-plug locked
(Padlock brand and number)
Depth to Water (from top of well casing) 2.71
Depth to Base of Well 8.76 Height of Water Column 6.05
Well Casing Type/Diameter 1"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal underdrain on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/12/13
Sample Location and Depth ~~middle column~~ as low as tubing would fit - 7' Time Collected 1645
Tidal Cycle NA [✓] High Tide at Low Tide at Weather rainy, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [✓] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1615	—	0	5.89	0.099	93.49	1.29	9.93	86	350 mL/min		
1619	—	0.25	5.77	0.098	39.00	0.00	9.84	73	*cannot fit slower indicator		
1623	—	0.5	5.73	0.097	19.83	0.00	9.74	60	in 1" diameter hole		
1627	—	1.25	5.71	0.097	8.83	0.00	9.72	51			
1631	—	1.5	5.70	0.097	5.55	0.00	9.71	45			
1635	—	2.0	5.70	0.097	3.37	0.00	9.70	40			
1639	—	2.5	5.69	0.097	3.23	0.00	9.69	38			

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [✓] Yes [ ] No Turbidity MicroTPW E-Tape Solinst Model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 350 mL/min
Analyses, Number and Volume of Sample Containers 3 x 40mL VOA's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0150-121-08 Collector LML/JCD Sample ID P2-728 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage

(Padlock brand and number) Master No 7 Key # 493

Depth to Water (from top of well casing) 2.12

Depth to Base of Well 9.06 Height of Water Column 6.94

Well Casing Type/Diameter 1/2" Sch 40 PVC

One Casing Volume (gal.)

Purge Method Pump (type) Peristaltic Bailer (type)

Gallons Purged ~2.5 gal

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal Subdrain CB-3

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13

Sample Location and Depth ~7.5 ft Time Collected 1625

Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny

Sample type (Groundwater, Product, Other) GW

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [✓] Disposable LDPE [ ] Other

Sampler Decon Procedure disposable LDPE tubing - no decon

Sample Description (color, free product thickness, odor, turbidity, etc.) Clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1604	–	~0.50	6.66	0.118	26.72	1.26	10.65	42			
1608	–	~1.00	6.62	0.111	4.95	0.0	10.63	49			
1612	–	~1.50	6.58	0.110	2.22	0.0	10.59	50			
1616	–	~2.00	6.57	0.110	1.25	0.0	10.58	51			
1620	–	~2.5	6.56	0.110	1.24	0.0	10.55	52			

Meters Used for Measurement Horiba U-52, HF Scientific turbidity meter

pH/Con./DO Instrument Calibration [X] Yes [ ] No E-Tape Slope ~~Waterra WS-2~~

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance N/A

Analyses, Number and Volume of Sample Containers 3-40ml Amb VOAs (HCL) VOCs 8260

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.) ~375 ml/min, no water levels collected not enough space in casing for tubing & water levels

Signature [signature] Date 3/7/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT-Palermo Job No. 0180-121-08 Collector JCD Sample ID RPZ-730 130313

PURGE DATA

Well Condition: Secure [✓] Yes [ ] No Describe Damage
(Padlock brand and number)
Depth to Water (from top of well casing) 2.51
Depth to Base of Well 9.10 Height of Water Column 6.59
Well Casing Type/Diameter 1"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged 3.6
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Lagoon underdrain on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/13/13
Sample Location and Depth middle screen 8' Time Collected 1500
Tidal Cycle NA [X] High Tide at Low Tide at Weather Rainy, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [✓] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/m)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			
1420	3.52	0.25	6.50	0.027	278.8	9.26	10.37	75	Flow at 300ml/min		
1424	3.61	0.5	6.10	0.022	138.9	10.23	9.25	126			
1428	3.64	0.75	6.00	0.021	67.97	10.65	9.16	140	slow flow rate for drawdown		
1432	3.37	1.25	5.78	0.021	45.89	10.32	9.13	159			
1436	3.38	2.5	5.73	0.021	26.19	10.05	9.04	167			
1440	3.38	2.7	5.70	0.021	14.38	9.85	9.00	173			
1444	3.39	3.0	5.78	0.021	11.10	9.69	9.00	177			
1448	3.41	~3.25	5.62	0.021	13.66	9.50	8.98	182			
1452	3.43	~3.5	5.58	0.021	10.74	9.42	8.95	185			
1456	3.44	~3.6	5.55	0.021	9.32	9.19	8.93	188			
									3 well volumes		
									collect sample		

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity MicroTPW E-Tape Waterra WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at 300 ml/min
Analyses, Number and Volume of Sample Containers 3 x 40 ml VOA's (HCl)
Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD MW ID RPZ-731 130313

PURGE DATA

Well Condition: Secure [x] Yes [ ] No Describe Damage None
(Padlock brand and number)

Depth to Water (from top of well casing) 3.84
Depth to Base of Well 9.62 Height of Water Column 5.78
Well Casing Type/Diameter 1"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged 3.0
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal Lagoon underdrain on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/13/13
Sample Location and Depth middle screen @ ~9' Time Collected 1600
Tidal Cycle NA [x] High Tide at Low Tide at Weather Rainy 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [x] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse, disposable tubing
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Purge Volume (Gallons)	Dissolved O2 (ppm)	pH	Conductivity (mS/cm)	Temperature (F/C)	Turbidity (NTU)	~~Salinity~~ dtw (%)	TDS (g/l)	ORP (mV)	Ferrous Iron	Notes
1528	0.25	1.33	5.55	0.063	9.71	56.44	4.11	—	~~0.063~~	—	300mL/min
1532	0.5	0.08	5.51	0.063	9.61	25.84	4.11	—	174 186	—	
1536	1.5	0.00	5.52	0.063	9.57	16.65	4.12	—	190	—	
1540	2.0	0.00	5.48	0.063	9.56	10.38	4.12	—	195	—	
1544	2.25	0.00	5.47	0.063	9.53	9.00	4.12	—	195	—	
1548	2.75	0.00	5.50	0.063	9.57	8.97	4.11	—	196	—	
1552	3.0	0.00	5.53	0.063	9.56	8.77	4.12	—	197	—	
											3 well volumes collect sample

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [x] Yes [ ] No Spectrophotometer E-Tape Waterna WS-2

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 300 mL/min
Analyses, Number and Volume of Sample Containers 3 x 40 mL VOA's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page 1 of 1

Check if additional information on back [ ]

9.62
3.84
5.78

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT - Palermo Job No. 0180-121-08 Collector JCD Sample ID RPZ-732 130312

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage smaller bolts
(Padlock brand and number)

Depth to Water (from top of well casing) 4.00
Depth to Base of Well 9.36 Height of Water Column 5.36
Well Casing Type/Diameter 1.5"
One Casing Volume (gal.)
Purge Method Pump (type) peristaltic Bailer (type)
Gallons Purged
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal underdrain on site
(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 03/12/13
Sample Location and Depth middle S Time Collected 1545
Tidal Cycle NA [X] High Tide at Low Tide at Weather overcast, 50's
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other
Sampler Decon Procedure Alconox wash and DI rinse, disposable tubing
Sample Description (color, free product thickness, odor, turbidity, etc.)

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)	Notes		
1500	6.51	0.25	5.81	0.177	350	3.10	10.02	189	turned flow rate down to		
1504	6.25	0.5	5.66	0.168	369.2	2.98	10.07	208	about 300 mL/min		
1508	5.91	1.0	5.39	0.162	193.6	2.52	10.06	225			
1512	5.91	~1.5	5.37	0.158	72.25	2.40	10.06	233			
1516	5.95	~2.0	5.33	0.158	28.01	2.42	9.98	243			
1520	5.94	~2.5	5.29	0.156	17.92	2.41	9.97	248			
1524	6.10	~2.75	5.28	0.154	15.54	2.47	9.99	252			
1528	6.14	~3.0	5.24	0.153	12.89	2.54	9.99	259			
1532	6.19	~3.2	5.24	0.152	13.09	2.58	9.98	263			
1536	6.21	~3.5	5.26	0.152	10.57	2.48	9.98	264			
1540	6.21	~3.75	5.28	0.151	9.23	2.49	9.99	266			

Meters Used for Measurement Horiba
pH/Con./DO Instrument Calibration [X] Yes [ ] No Turbidity MicroTPW E-Tape solinist Model 101

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance Flow at 375mL/min
Analyses, Number and Volume of Sample Containers 30 x 40mL Voa's (HCl)

Duplicate Sample Number(s)
Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/18/13 Page | of |

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 080-121-08 Collector LL/AD Sample ID TW-4 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage N/A
(Padlock brand and number) City wellhouse
Depth to Water (from top of well casing) 24.25
Depth to Base of Well Unknown Height of Water Column Unknown
Well Casing Type/Diameter N/A
One Casing Volume (gal.) N/A
Purge Method Pump (type) N/A Bailer (type)
Gallons Purged No purging required - production well
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal N/A
(Drum identification, sample analysis, sample results, storage location, etc.) N/A

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13
Sample Location and Depth N/A Time Collected 1505
Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny 45°F
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other Pump type unknown
Sampler Decon Procedure N/A
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (____)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			

N/A Production well

Meters Used for Measurement N/A
pH/Con./DO Instrument Calibration [ ] Yes [ ] No N/A E-Tape City

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance N/A
Analyses, Number and Volume of Sample Containers 3-40 ml ~~AG~~ VOAs (HCl)

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) Sampling port spigot opened for sampling, DTW measured from top of sounding tube on concrete pad.

Signature [signature] Date 3/7/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LL/JD Sample ID TW-5 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage N/A
(Padlock brand and number) City Wellhouse

Depth to Water (from top of well casing) 54.80

Depth to Base of Well unknown Height of Water Column unknown

Well Casing Type/Diameter N/A

One Casing Volume (gal.) N/A

Purge Method Pump (type) N/A Bailer (type)

Gallons Purged ~~N/A~~ LL 3/7/13 No purging required - production well

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal N/A

(Drum identification, sample analysis, sample results, storage location, etc.) N/A

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13

Sample Location and Depth N/A Time Collected 1530

Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny ~50°F

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other pump type unknown

Sampler Decon Procedure N/A

Sample Description (color, free product thickness, odor, turbidity, etc.) Slightly turbid

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity ( )	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			

N/A production well

Meters Used for Measurement N/A

pH/Con./DO Instrument Calibration [ ] Yes [ ] No N/A E-Tape City

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance N/A

Analyses, Number and Volume of Sample Containers 3-40ml AG VOAs (HCl)

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.) sampling spigot not used because well only runs in overboard conditions discharging @ rear of wellhouse - purged for ~10 min until relatively clear but still slightly turbid. Collect sample from rear of wellhouse along w/ flow rate. DFN

Signature [signature] Date 3/7/13 Page 1 of 1

Check if additional information on back [ ]

measured from top of sounding tube on concrete pad

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LL/JD Sample ID TW-8 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage N/A
(Padlock brand and number) City wellhouse
Depth to Water (from top of well casing) 34.40
Depth to Base of Well Unknown Height of Water Column Unknown
Well Casing Type/Diameter N/A
One Casing Volume (gal.) N/A
Purge Method Pump (type) N/A Bailer (type)
Gallons Purged N/A - No Purging required - production well
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal N/A
(Drum identification, sample analysis, sample results, storage location, etc.) N/A

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13
Sample Location and Depth N/A Time Collected 1510
Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny ~ 50°F
Sample type (Groundwater, Product, Other)
Sample Collected with [ ] Bailer [X] Pump [ ] Other
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other pump type unknown
Sampler Decon Procedure N/A
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (____)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			

N/A Production Well

Meters Used for Measurement N/A
pH/Con./DO Instrument Calibration [ ] Yes [ ] No N/A E-Tape City

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance N/A
Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCl)

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) Sampling port spigot opened for sampling, DTW measured from ~~top~~ top of sounding tube on concrete pad.

Signature [signature] Date 3/7/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project Palermo Job No. 0180-121-08 Collector LL/JD Sample ID ST-1 No sample collected

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage N/A
(Padlock brand and number) City Treatment Bldg
Depth to Water (from top of well casing) N/A
Depth to Base of Well N/A Height of Water Column
Well Casing Type/Diameter N/A
One Casing Volume (gal.) N/A
Purge Method Pump (type) N/A Bailer (type)
Gallons Purged N/A
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal N/A
(Drum identification, sample analysis, sample results, storage location, etc.) N/A

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) N/A
Sample Location and Depth Stripper Tower 1 (ST-1) Time Collected N/A
Tidal Cycle NA [X] High Tide at Low Tide at Weather
Sample type (Groundwater, Product, Other) Stripper tower effluent
Sample Collected with [ ] Bailer [ ] Pump [ ] Other N/A
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other N/A
Sampler Decon Procedure N/A
Sample Description (color, free product thickness, odor, turbidity, etc.) N/A

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (_____)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			

No sample collected

N/A

Meters Used for Measurement N/A
pH/Con./DO Instrument Calibration [ ] Yes [ ] No N/A E-Tape N/A

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance N/A
Analyses, Number and Volume of Sample Containers No sample collected

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) No sample collected because ST-1 is offline – City only runs one stripper tower at a time to save on operation costs but does vary which tower is online.
Signature [signature] Date 3/7/13 Page | of |

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project Pinnacle Job No. 0180-121-08 Collector LL/JD Sample ID ST-2 130307

PURGE DATA

Well Condition: Secure [X] Yes [ ] No Describe Damage N/A
(Padlock brand and number) City Treatment Bldg
Depth to Water (from top of well casing) N/A
Depth to Base of Well N/A Height of Water Column
Well Casing Type/Diameter N/A
One Casing Volume (gal.) N/A
Purge Method Pump (type) N/A Bailer (type)
Gallons Purged N/A
(Remove minimum of 3 well volumes or until field parameters stabilize)
Purge Water Storage/Disposal N/A
(Drum identification, sample analysis, sample results, storage location, etc.) N/A

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/7/13
Sample Location and Depth Stripper Tower 2 (ST-2) Time Collected 1515
Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny ~50°F
Sample type (Groundwater, Product, Other) Stripper tower effluent
Sample Collected with [ ] Bailer [ ] Pump [ ] Other N/A
Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [ ] Disposable LDPE [ ] Other N/A
Sampler Decon Procedure N/A
Sample Description (color, free product thickness, odor, turbidity, etc.) Clear

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (_____)	Turbidity (NTU)	Dissolved O_2 (ppm)	Temperature (F/C)	ORP (mV)			

Stripper tower effluent
N/A

Meters Used for Measurement N/A
pH/Con./DO Instrument Calibration [ ] Yes [ ] No N/A E-Tape N/A

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance N/A
Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCl)

Duplicate Sample Number(s) N/A
Comments: (Filtered, Not Filtered, Calculations, etc.) Sample collected from base of tower by opening bottom valve on south side of tower, sample collected by filling bottles directly from valve. ST-1 not online.
Signature [signature] Date 3/7/13 Page 1 of 1
Check if additional information on back [ ]

GEOENGINEERS

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AW/LL Sample Time 1425 Sample ID SEEP1 130319

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage installed new - good

(Padlock brand and number) N/A - no lock

Depth to Water (from top of well casing) 0.51

Depth to Base of Well 2.87+0.27=3.14 Height of Water Column 2.63

Well Casing Type/Diameter 3/4" stainless steel

One Casing Volume (gal.)

Purge Method Pump (type) peristaltic Bailer (type)

Gallons Purged N/A

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal N/A

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/19/13

Sample Location and Depth Bottom half of screen Time Collected 1425

Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny ~50°F

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure disposable LDPE tubing, decon not required

Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O2 (mg/l)	Temperature (deg C)	Salinity (%)	TDS (g/l)	Seawater Potential (σ_t)	ORP (mV)
1410	–	–	5.97	0.127	34.37	4.50	10.23				164
1415	–	–	5.93	0.118	4.97	6.01	10.11				180
1420	–	–	5.94	0.119	2.39	10.14	10.08				188

Meters Used for Measurement Horiba U-52, Hach Turbidimeter

pH/Con./DO Instrument Calibration [X] Yes [ ] No Spectrophotometer E-Tape Solinst 100'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 500 ml/min purge rate 150 ml/min sample Rate

Analyses, Number and Volume of Sample Containers 3-40 ml AG VOA (HCl), priority list VOCs

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.)

Surrounding water level in ditch (0.93') lower than in seep station → seep is artesian

Signature [signature] Date 3/19/13 Page 1 of 1

Check if additional information on back [ ]

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AW/LL Sample Time 1140 Sample ID SEEP3-130317

PURGE DATA

Well Condition: Secure [ ] Yes [X] No Describe Damage installed new - good

(Padlock brand and number) No lock

Depth to Water (from top of well casing) 1.26

Depth to Base of Well 2.87 + 0.27 = 3.14 Height of Water Column 1.88

Well Casing Type/Diameter 3/4" stainless steel

One Casing Volume (gal.)

Purge Method Pump (type) peristaltic Bailer (type)

Gallons Purged N/A

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal N/A

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/19/13

Sample Location and Depth Bottom half of screen Time Collected 1140

Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny n 45°F

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure disposable LDPE tubing, no decon required

Sample Description (color, free product thickness, odor, turbidity, etc.) ~~clear~~, no odor, slightly turbid

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O2 (mg/l)	Temperature (deg C)	Salinity (%)	TDS (g/l)	Seawater Potential (σ_t)	ORP (mV)
1125	—	—	5.77	0.105	—	0.84	9.02				122
1130	—	—	5.88	0.103	—	1.07	9.15				101
1135	—	—	5.55	0.104	—	2.05	9.27				94

Meters Used for Measurement Horiba U-52, Hach Turbidimeter

pH/Con./DO Instrument Calibration [X] Yes [ ] No Spectrophotometer E-Tape Eaton + 100'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 500 ml/min purge rate 150 ml/min sample rate

Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCl), prg list VOCs

Duplicate Sample Number(s) N/A

Comments: (Filtered, Not Filtered, Calculations, etc.)

Signature [signature] Date 3/19/13 Page 1 of 1

Check if additional information on back [ ]

GeoEngineers

GROUNDWATER SAMPLE COLLECTION FORM

Project WSDOT Palermo Job No. 0180-121-08 Collector AW/LL Sample Time 1225 Sample ID SEEP5-130319

PURGE DATA

Well Condition: Secure [ ] Yes [ ] No N/A Describe Damage N/A

(Padlock brand and number)

Depth to Water (from top of well casing) N/A

Depth to Base of Well N/A Height of Water Column N/A

Well Casing Type/Diameter N/A

One Casing Volume (gal.) N/A

Purge Method Pump (type) peristaltic Bailer (type)

Gallons Purged N/A

(Remove minimum of 3 well volumes or until field parameters stabilize)

Purge Water Storage/Disposal N/A

(Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (In.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	0.17
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625	7.981	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 3/19/13

Sample Location and Depth N/A Time Collected 1225

Tidal Cycle NA [X] High Tide at Low Tide at Weather Sunny, n 50°F

Sample type (Groundwater, Product, Other)

Sample Collected with [ ] Bailer [X] Pump [ ] Other

Made of [ ] Stainless Steel [ ] PVC [ ] Teflon [X] Disposable LDPE [ ] Other

Sampler Decon Procedure disposable LDPE tubing, no decon required

Sample Description (color, free product thickness, odor, turbidity, etc.) clear, no odor

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved O2 (mg/l)	Temperature (deg C)	Salinity (%)	TDS (g/l)	Seawater Potential (σ_t)	ORP (mV)
1205			6.13	0.150	12.2	9.65	9.90				57
1215			6.72	0.149	0.0	9.00	9.84				81
1220			6.83	0.149	0.0	9.85	9.85				86

Meters Used for Measurement Horiba U-52, Hach Turbidimeter

pH/Con./DO Instrument Calibration [X] Yes [ ] No Spectrophotometer E-Tape Solinst 100'

ADDITIONAL INFORMATION

Samples Composited Overtime, Distance 500 ml/min purge rate 150 ml/min sample rate

Analyses, Number and Volume of Sample Containers 3-40 ml AG VOAs (HCL), prog lis VOCs

Duplicate Sample Number(s) DUP 130319 C 1230

Comments: (Filtered, Not Filtered, Calculations, etc.) Screen fabric woven too tightly for water to absorb and continue pumping, abandon screen & pump directly from surface water ditch

Signature [signature] Date 3/19/13 Page 1 of 1

Check if additional information on back [ ]

GEOENGINEERS

APPENDIX B
Complete Data Tables of all Compounds

Table B-1

Groundwater Results

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Location	Sample ID	Date	Type	1,1,1,2-Tetrachloroethane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1,2,2-Tetrachloroethane (µg/L)	1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113) (µg/L)	1,1,2-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	1,1-Dichloroethene (µg/L)	1,1-Dichloropropene (µg/L)	1,2,3-Trichlorobenzene (µg/L)	1,2,3-Trichloropropane (µg/L)	1,2,4-Trichlorobenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,2-Dibromo-3-Chloropropane (µg/L)	1,2-dibromoethane (EDB) (µg/L)	1,2-Dichlorobenzene (o-Dichlorobenzene) (µg/L)	1,2-Dichloroethane (EDC) (µg/L)	1,2-Dichloropropane (µg/L)	1,3,5-Trimethylbenzene (µg/L)	1,3-Dichlorobenzene (m-Dichlorobenzene) (µg/L)	1,3-Dichloropropane (µg/L)	1,4-Dichlorobenzene (p-Dichlorobenzene) (µg/L)	2,2-Dichloropropane (µg/L)	2-Butanone (MEK) (µg/L)	2-Chloroethyl vinyl ether (µg/L)	2-Chlorotoluene (µg/L)
MW-100	MW-100 130305	03/05/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-101A	MW-101A 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-101B	MW-101B 130305 26.5 FT	03/05/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-102	MW-102 130305 20 FT	03/05/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-103	MW-103 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-104A	MW-104A 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-104B	MW-104B 130311	03/11/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-107	MW-107 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-109	MW-109 130305	03/05/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-110	DUP-1 130306	03/06/2013	Duplicate	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-110	MW-110 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-111	MW-111 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-4A	MW-4A 130312	03/12/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-4B	MW-4B 130312	03/12/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-93-02	MW-93-02 130312	03/12/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-96-15	MW-96-15 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 R	1.0 U
MW-96-16	MW-96-16 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-96-17	MW-96-17 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-02	MW-ES-02 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-03	DUP-2_130307	03/07/2013	Duplicate	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-03	MW-ES-03 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-04	MW-ES-04 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-05	MW-ES-05 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-06	MW-ES-06 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-07	MW-ES-07 130305 30 FT	03/05/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 R	1.0 U
MW-ES-08	MW-ES-08 130305	03/05/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-09	MW-ES-09 130311	03/11/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-10	MW-ES-10 130311	03/11/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-ES-11	MW-ES-11 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
MW-UI	MW-UI 130305	03/05/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-704	PZ-704 130313	03/13/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-709	PZ-709 130313	03/13/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.38 J**	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-715	PZ-715 130313	03/13/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.65 J**	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U

Location	Sample ID	Date	Type	1,1,1,2-Tetrachloroethane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1,2,2-Tetrachloroethane (µg/L)	1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113) (µg/L)	1,1,2-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	1,1-Dichloroethene (µg/L)	1,1-Dichloropropene (µg/L)	1,2,3-Trichlorobenzene (µg/L)	1,2,3-Trichloropropane (µg/L)	1,2,4-Trichlorobenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,2-Dibromo-3-Chloropropane (µg/L)	1,2-dibromoethane (EDB) (µg/L)	1,2-Dichlorobenzene (o-Dichlorobenzene) (µg/L)	1,2-Dichloroethane (EDC) (µg/L)	1,2-Dichloropropane (µg/L)	1,3,5-Trimethylbenzene (µg/L)	1,3-Dichlorobenzene (m-Dichlorobenzene) (µg/L)	1,3-Dichloropropane (µg/L)	1,4-Dichlorobenzene (p-Dichlorobenzene) (µg/L)	2,2-Dichloropropane (µg/L)	2-Butanone (MEK) (µg/L)	2-Chloroethyl vinyl ether (µg/L)	2-Chlorotoluene (µg/L)
PZ-719	DUP-4 130314	03/14/2013	Duplicate	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-719	PZ-719 130314	03/14/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-720	PZ-720 130314	03/14/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-721	PZ-721 130314	03/14/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-722	PZ-722 130314	03/14/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-723	PZ-723 130314	03/14/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-724	PZ-724 130314	03/14/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-725	PZ-725 130314	03/14/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-726	PZ-726 130312	03/12/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
PZ-728	PZ-728 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
RPZ-730	RPZ-730 130313	03/13/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
RPZ-731	RPZ-731 130313	03/13/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
RPZ-732	RPZ-732 130312	03/12/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
WDOT-MW-1	WDOT-MW-1 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U
WDOT-MW-2	WDOT-MW-2 130306	03/06/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U

Location	Sample ID	Date	Type	4-Chlorotoluene (µg/L)	4-Methyl-2-Pentanone (Methyl isobutyl ketone) (µg/L)	Acetone (µg/L)	Acrolein (µg/L)	Acrylonitrile (µg/L)	Benzene (µg/L)	Benzene, 1,2,3-Trimethyl- (µg/L)	Bromobenzene (µg/L)	Bromodichloromethane (µg/L)	Bromoform (Tribromomethane) (µg/L)	Bromomethane (µg/L)	Carbon Tetrachloride (µg/L)	Chlorobenzene (µg/L)	Chloroethane (µg/L)	Chloroform (µg/L)	Chloromethane (µg/L)	cis-1,2-Dichloroethene (µg/L)	Cis-1,3-Dichloropropene (µg/L)	Dibromochloromethane (µg/L)	Dibromomethane (µg/L)	Dichlorodifluoromethane (CFC-12) (µg/L)	Diisopropyl Ether (Dot) (µg/L)	Ethylbenzene (µg/L)	Hexachlorobutadiene (µg/L)
MW-100	MW-100 130305	03/05/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-101A	MW-101A 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-101B	MW-101B 130305 26.5 FT	03/05/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-102	MW-102 130305 20 FT	03/05/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-103	MW-103 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-104A	MW-104A 130307	03/07/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-104B	MW-104B 130311	03/11/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-107	MW-107 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-109	MW-109 130305	03/05/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-110	DUP-1 130306	03/06/2013	Duplicate	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-110	MW-110 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-111	MW-111 130307	03/07/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-4A	MW-4A 130312	03/12/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-4B	MW-4B 130312	03/12/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-93-02	MW-93-02 130312	03/12/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-96-15	MW-96-15 130307	03/07/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-96-16	MW-96-16 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-96-17	MW-96-17 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-02	MW-ES-02 130307	03/07/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-03	DUP-2_130307	03/07/2013	Duplicate	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-03	MW-ES-03 130307	03/07/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-04	MW-ES-04 130308	03/08/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-05	MW-ES-05 130308	03/08/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-06	MW-ES-06 130308	03/08/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-07	MW-ES-07 130305 30 FT	03/05/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-08	MW-ES-08 130305	03/05/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-09	MW-ES-09 130311	03/11/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-10	MW-ES-10 130311	03/11/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-ES-11	MW-ES-11 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
MW-UI	MW-UI 130305	03/05/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	**0.34 J**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-704	PZ-704 130313	03/13/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-709	PZ-709 130313	03/13/2013	Primary	1.0 U	10 U	11 UJ	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-715	PZ-715 130313	03/13/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U

Location	Sample ID	Date	Type	4-Chlorotoluene (µg/L)	4-Methyl-2-Pentanone (Methyl isobutyl ketone) (µg/L)	Acetone (µg/L)	Acrolein (µg/L)	Acrylonitrile (µg/L)	Benzene (µg/L)	Benzene, 1,2,3-Trimethyl- (µg/L)	Bromobenzene (µg/L)	Bromodichloromethane (µg/L)	Bromoform (Tribromomethane) (µg/L)	Bromomethane (µg/L)	Carbon Tetrachloride (µg/L)	Chlorobenzene (µg/L)	Chloroethane (µg/L)	Chloroform (µg/L)	Chloromethane (µg/L)	cis-1,2-Dichloroethene (µg/L)	Cis-1,3-Dichloropropene (µg/L)	Dibromochloromethane (µg/L)	Dibromomethane (µg/L)	Dichlorodifluoromethane (CFC-12) (µg/L)	Diisopropyl Ether (Dot) (µg/L)	Ethylbenzene (µg/L)	Hexachlorobutadiene (µg/L)
PZ-719	DUP-4 130314	03/14/2013	Duplicate	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-719	PZ-719 130314	03/14/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-720	PZ-720 130314	03/14/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-721	PZ-721 130314	03/14/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-722	PZ-722 130314	03/14/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-723	PZ-723 130314	03/14/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-724	PZ-724 130314	03/14/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	**1.2**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-725	PZ-725 130314	03/14/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-726	PZ-726 130312	03/12/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
PZ-728	PZ-728 130307	03/07/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	**0.31 J**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	**0.39 J**	1.0 U
RPZ-730	RPZ-730 130313	03/13/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
RPZ-731	RPZ-731 130313	03/13/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
RPZ-732	RPZ-732 130312	03/12/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
WDOT-MW-1	WDOT-MW-1 130307	03/07/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U
WDOT-MW-2	WDOT-MW-2 130306	03/06/2013	Primary	1.0 U	10 U	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U

Location	Sample ID	Date	Type	Isopropylbenzene (Cumene) (µg/L)	Methyl t-butyl ether (µg/L)	Methylene Chloride (µg/L)	Naphthalene (µg/L)	n-Butylbenzene (µg/L)	n-Propylbenzene (µg/L)	p-Isopropyltoluene (µg/L)	Sec-Butylbenzene (µg/L)	Styrene (µg/L)	Tert-Butylbenzene (µg/L)	Tetrachloroethene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	Trans-1,2-Dichloroethene (µg/L)	Trans-1,3-Dichloropropene (µg/L)	Trichloroethene (TCE) (µg/L)	Trichlorofluoromethane (CFC-11) (µg/L)	Vinyl Chloride (µg/L)
MW-100	MW-100 130305	03/05/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-101A	MW-101A 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-101B	MW-101B 130305 26.5 FT	03/05/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**3.0**	5.0 U	1.0 U
MW-102	MW-102 130305 20 FT	03/05/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-103	MW-103 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-104A	MW-104A 130307	03/07/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**8.0**	5.0 U	1.0 U
MW-104B	MW-104B 130311	03/11/2013	Primary	1.0 U	1.0 U	1.7 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.4**	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-107	MW-107 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-109	MW-109 130305	03/05/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**15**	5.0 U	1.0 U
MW-110	DUP-1 130306	03/06/2013	Duplicate	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-110	MW-110 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-111	MW-111 130307	03/07/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**9.1**	5.0 U	1.0 U
MW-4A	MW-4A 130312	03/12/2013	Primary	1.0 U	1.0 U	1.7 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-4B	MW-4B 130312	03/12/2013	Primary	1.0 U	1.0 U	1.6 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-93-02	MW-93-02 130312	03/12/2013	Primary	1.0 U	1.0 U	1.6 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-96-15	MW-96-15 130307	03/07/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-96-16	MW-96-16 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-96-17	MW-96-17 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-ES-02	MW-ES-02 130307	03/07/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**38**	5.0 U	1.0 U
MW-ES-03	DUP-2_130307	03/07/2013	Duplicate	1.0 U	1.0 U	5.0 U	**1.8 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**20**	5.0 U	1.0 U
MW-ES-03	MW-ES-03 130307	03/07/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**17**	5.0 U	1.0 U
MW-ES-04	MW-ES-04 130308	03/08/2013	Primary	1.0 U	1.0 U	5.0 U	**1.8 J**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**44**	5.0 U	3.0 U	1.0 U	1.0 U	**0.56 J**	5.0 U	1.0 U
MW-ES-05	MW-ES-05 130308	03/08/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**27**	5.0 U	1.0 U
MW-ES-06	MW-ES-06 130308	03/08/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**23**	5.0 U	3.0 U	1.0 U	1.0 U	**0.97 J**	5.0 U	1.0 U
MW-ES-07	MW-ES-07 130305 30 FT	03/05/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**3.9**	5.0 U	1.0 U
MW-ES-08	MW-ES-08 130305	03/05/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-ES-09	MW-ES-09 130311	03/11/2013	Primary	1.0 U	1.0 U	1.7 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**120**	5.0 U	1.0 U
MW-ES-10	MW-ES-10 130311	03/11/2013	Primary	1.0 U	1.0 U	1.7 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**37**	5.0 U	1.0 U
MW-ES-11	MW-ES-11 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
MW-UI	MW-UI 130305	03/05/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**8.1**	5.0 U	1.0 U
PZ-704	PZ-704 130313	03/13/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
PZ-709	PZ-709 130313	03/13/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
PZ-715	PZ-715 130313	03/13/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U

Location	Sample ID	Date	Type	Isopropylbenzene (Cumene) (µg/L)	Methyl t-butyl ether (µg/L)	Methylene Chloride (µg/L)	Naphthalene (µg/L)	n-Butylbenzene (µg/L)	n-Propylbenzene (µg/L)	p-Isopropyltoluene (µg/L)	Sec-Butylbenzene (µg/L)	Styrene (µg/L)	Tert-Butylbenzene (µg/L)	Tetrachloroethene (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)	Trans-1,2-Dichloroethene (µg/L)	Trans-1,3-Dichloropropene (µg/L)	Trichloroethene (TCE) (µg/L)	Trichlorofluoromethane (CFC-11) (µg/L)	Vinyl Chloride (µg/L)
PZ-719	DUP-4 130314	03/14/2013	Duplicate	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**1.5**	5.0 U	1.0 U
PZ-719	PZ-719 130314	03/14/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**1.6**	5.0 U	1.0 U
PZ-720	PZ-720 130314	03/14/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.38 J**	5.0 U	3.0 U	1.0 U	1.0 U	**5.0**	5.0 U	1.0 U
PZ-721	PZ-721 130314	03/14/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**30**	5.0 U	1.0 U
PZ-722	PZ-722 130314	03/14/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
PZ-723	PZ-723 130314	03/14/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
PZ-724	PZ-724 130314	03/14/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**32**	5.0 U	1.0 U
PZ-725	PZ-725 130314	03/14/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
PZ-726	PZ-726 130312	03/12/2013	Primary	1.0 U	1.0 U	1.6 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**2.7**	5.0 U	1.0 U
PZ-728	PZ-728 130307	03/07/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4 J**	3.0 U	1.0 U	1.0 U	**4.7**	5.0 U	1.0 U
RPZ-730	RPZ-730 130313	03/13/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
RPZ-731	RPZ-731 130313	03/13/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**0.60 J**	5.0 U	1.0 U
RPZ-732	RPZ-732 130312	03/12/2013	Primary	1.0 U	1.0 U	1.7 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
WDOT-MW-1	WDOT-MW-1 130307	03/07/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
WDOT-MW-2	WDOT-MW-2 130306	03/06/2013	Primary	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U

Notes:

µg/L = micrograms per liter

U = not detected at or above the reported detection limit

R = rejected result

J = estimated result detected below the reporting detection limit and above the method detection limit

UJ = not detected at or above the listed detection limit; the limit is an approximate value

Bold = detected result above the method detection limit.

Table B-2

Subdrain Results

Spring 2013 Groundwater Monitoring Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Location	Sample ID	Date	Type	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-Chloropropane	1,2-dibromoethane (EDB)	1,2-Dichlorobenzene (o-Dichlorobenzene)	1,2-Dichloroethane (EDC)	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene (m-Dichlorobenzene)	1,3-Dichloropropane	1,4-Dichlorobenzene (p-Dichlorobenzene)	2,2-Dichloropropane	2-Butanone (MEK)	2-Chloroethyl vinyl ether	2-Chlorotoluene	4-Chlorotoluene	4-Methyl-2-Pentanone (Methyl isobutyl ketone)
				(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Sub-Drain System																															
357	357 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
357	DUP-3 130308	03/08/2013	Duplicate	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
358	358 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
359	359 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
360	360 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
350	350 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
356	356 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
361	361 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
364	364 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 R	1.0 U	1.0 U	10 U
Seeps																															
Seep 1	SEEP-1 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
Seep 2	SEEP-2 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
Seep 3	SEEP-3 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
Seep 5	DUP-5 130319	03/19/2013	Duplicate	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
Seep 5	SEEP-5 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
Wellfield Samples																															
ST-2	ST-2 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
TW-4	TW-4 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
TW-5	TW-5 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U
TW-8	TW-8 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	50 U	1.0 U	1.0 U	10 U

Location	Sample ID	Date	Type	Acetone	Acrolein	Acrylonitrile	Benzene	Benzene, 1,2,3-Trimethyl-	Bromobenzene	Bromodichloromethane	Bromoform (Tribromomethane)	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane (CFC-12)	Diisopropyl Ether (Dot)	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene (Cumene)	Methyl t-butyl ether	Methylene Chloride	Naphthalene	n-Butylbenzene
				(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Sub-Drain System																														
357	357 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
357	DUP-3 130308	03/08/2013	Duplicate	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
358	358 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
359	359 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
360	360 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
350	350 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
356	356 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
361	361 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
364	364 130308	03/08/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Seeps																														
Seep 1	SEEP-1 130319	03/19/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Seep 2	SEEP-2 130319	03/19/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Seep 3	SEEP-3 130319	03/19/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Seep 5	DUP-5 130319	03/19/2013	Duplicate	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Seep 5	SEEP-5 130319	03/19/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
Wellfield Samples																														
ST-2	ST-2 130307	03/07/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
TW-4	TW-4 130307	03/07/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
TW-5	TW-5 130307	03/07/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U
TW-8	TW-8 130307	03/07/2013	Primary	50 U	50 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U

Location	Sample ID	Date	Type	n-Propylbenzene	p-Isopropyltoluene	Sec-Butylbenzene	Styrene	Tert-Butylbenzene	Tetrachloroethene	Toluene	Total Xylenes	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene (TCE)	Trichlorofluoromethane (CFC-11)	Vinyl Chloride
				(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Sub-Drain System																
357	357 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.5**	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
357	DUP-3 130308	03/08/2013	Duplicate	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.3**	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
358	358 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**10**	5.0 U	3.0 U	1.0 U	1.0 U	**16**	5.0 U	1.0 U
359	359 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**6.5**	5.0 U	3.0 U	1.0 U	1.0 U	**13**	5.0 U	1.0 U
360	360 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.3**	5.0 U	3.0 U	1.0 U	1.0 U	**11**	5.0 U	1.0 U
350	350 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**1.1**	5.0 U	1.0 U
356	356 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
361	361 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**0.83 J**	5.0 U	1.0 U
364	364 130308	03/08/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Seeps																
Seep 1	SEEP-1 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Seep 2	SEEP-2 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Seep 3	SEEP-3 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**15**	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Seep 5	DUP-5 130319	03/19/2013	Duplicate	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Seep 5	SEEP-5 130319	03/19/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Wellfield Samples																
ST-2	ST-2 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
TW-4	TW-4 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	**1.7**	5.0 U	1.0 U
TW-5	TW-5 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U
TW-8	TW-8 130307	03/07/2013	Primary	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	3.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U

Notes:

µg/L = micrograms per liter

U = not detected at or above the reported detection limit

R = rejected result

J = estimated result detected below the reporting detection limit and above the method detection limit

UJ = not detected at or above the listed detection limit; the limit is an approximate value

Bold = detected result above the method detection limit.

APPENDIX C
Data Validation Report and Analytical Reports

GROUNDWATER DATA VALIDATION SUMMARY
VOLATILE ORGANIC COMPOUNDS BY METHOD SW8260B

Laboratory SDG	Samples Validated (bold indicates the sample was qualified)
L623994	MW-101A 130306, MW-101B 130305 26.5 FT, MW-102 130305 20 FT, MW-103 130306, **MW-ES-07 130305 30 FT**, MW-ES-11 130306, WDOT-MW-2 130306, TB-2 130305
L623995	MW-100 130305, MW-107 130306, MW-109 130305, MW-110 130306, DUP-1 130306, MW-96-16 130306, MW-96-17 130306, MW-UI 130305, MW-ES-08 130305, TB-1 130305
L624126	MW-104A 130307, MW-111 130307, MW-ES-03 130307, DUP-2_130307, MW-ES-04 130308, MW-ES-05 130308, MW-ES-06 130308, WDOT-MW-1 130307, RIN-2 130308, TB-4 130308
L624134	350 130308, 356 130308, **357 130308**, **DUP-3 130308**, **358 130308**, **359 130308**, 360 130308, 361 130308, 364 130308, **RIN-3 130308**, **TB-5 130308**
L624169	**MW-96-15 130307**, MW-ES-02 130307, PZ-728 130307, ST-2 130307, TW-4 130307, TW-5 130307, TW-8 130307, RIN-1 130307, TB-3 130307
L624938	**MW-104B 130311**, MW-4A 130312, MW-4B 130312, MW-93-02 130312, **MW-ES-09 130311**, **MW-ES-10 130311**, PZ-726 130312, RPZ-732 130312, TB-6 130311
L625509	PZ-704 130313, **PZ-709 130313**, PZ-715 130313, PZ-719 130314, PZ-720 130314, PZ-721 130314, PZ-722 130314, PZ-723 130314, PZ-724 130314, PZ-725 130314, RPZ-730 130313, RPZ-731 130313, DUP-4 130314, TB-7 0130313
L626394	**SEEP-1 130319, SEEP-2 130319, SEEP-3 130319, SEEP-5 130319, DUP-5 130319, TB-8 130319**

PROJECT: PALERMO WELLFIELD RI/FS (0180-121-09)

This report documents the results of an Environmental Protection Agency (EPA) level 2B data validation of analytical data from the analyses of groundwater samples and the associated laboratory and field quality control (QC) samples. The review included the following:

- Chain of Custody
- Holding Times and Sample Preservation
- Surrogates
- Method and Trip Blanks
- Laboratory Control Samples
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory and Field Duplicates
- Internal Standards
- Initial and Continuing Calibrations
- Reporting Limits and Miscellaneous

OBJECTIVE

The objective of the data validation was to review laboratory analytical procedures and quality control (QC) results to evaluate whether:

- The samples were analyzed using well-defined and acceptable methods that provide detection limits below applicable regulatory criteria;
- The precision and accuracy of the data are well defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

DATA PACKAGE COMPLETENESS

Environmental Science Corp., located in Mt. Juliet, Tennessee, analyzed the groundwater samples evaluated as part of this data quality assessment. The laboratory provided all required deliverables for the assessment according to the National Functional Guidelines with minor adjustments. The laboratory followed adequate corrective action processes and all identified anomalies were discussed in the case narrative.

DATA QUALITY ASSESSMENT SUMMARY

The results for each of the QC elements are summarized below. The data assessment was performed using guidance in the USEPA Contract Laboratory Program *National Functional Guidelines for Organic Data Review* (USEPA, 2008).

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. There were no anomalies noted on the COC forms; proper COC protocols appear to have been followed for this sampling event.

Holding Times and Sample Preservation

The holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for all analyses.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in any environmental sample. Surrogates are used for organic analyses and are added to all samples, standards and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added at a known concentration and percent recoveries are calculated following analysis. All surrogate recoveries for field samples were within the laboratory control limits.

Method and Trip Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. Method blanks were analyzed with each batch of

samples, at a frequency of 1 per 20 samples. For all sample batches, method blanks for all applicable methods were analyzed at the required frequency. None of the analytes of interest were detected above the reporting limits in any of the method blanks.

Trip blanks are analyzed to provide an indication as to whether volatile compounds have cross-contaminated other like samples within the transportation process to the laboratory. Typically, samples are stored in a cooler for as much as 24 hours before arriving at the laboratory. Eight trip blanks were collected: TB-1 130305, TB-2 130305, TB-3 130307, TB-4 130308, TB-5 130308, TB-6 130311, TB-7 0130313 and TB-8 130319. None of the volatiles analytes were detected above the reporting limits in any of the trip blanks, with the exceptions below:

SDG L624938: The laboratory reported a positive result for methylene chloride in the trip blank TB-6 130311. The positive results for this compound were qualified as not-detected (UJ) in the associated field Samples MW-104B 130311, MW-ES-10 130311, and MW-ES-09 130311 because the original results were all less than the reporting limit in each field sample.

SDG L625509: The laboratory reported a positive result for methylene chloride and acetone in the trip blank TB-7 0130313. The positive result for acetone was qualified as not-detected (UJ) in the associated field Sample PZ-709 130313 because the original results were all less than the reporting limit in each sample. There were no other positive results for methylene chloride in the associated samples. No action was necessary for this trip blank contamination.

Equipment rinsate blanks are analyzed to provide an indication as to whether field decontamination and sampling procedures effectively prevent cross-contamination in field activities. Three equipment rinsate blanks were collected: RIN-1 130307, RIN-2 130308 and RIN-3 130308. None of the volatiles analytes were detected above the reporting limits in any of the equipment rinsate blanks.

Matrix Spikes/Matrix Spike Duplicates (MS/MSD)

Because the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis. One aliquot of sample is analyzed in the normal manner, and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery (%R) is calculated. Matrix spike duplicates (MSD) analyses are generally performed for organic analyses as a precision check.

For matrix spike analyses should be performed once per analytical batch or every 20 field samples, whichever is more frequent. The recovery criteria for matrix spikes and laboratory control samples are specified in the laboratory documents as are the relative percent difference values. The frequency requirements were met for all analyses and the %R/RPD values were within the proper control limits, with the exceptions below:

SDG L623994: The laboratory performed an MS/MSD QC set on Sample MW-ES-07 130305 30 FT. The %R values for 2-chloroethyl-vinyl-ether were below 10% in both the MS and the MSD. There was no positive result for this analyte in the parent sample. The reporting limits for 2-chloroethyl-vinyl-ether were rejected (R) in Sample MW-ES-07 130305 30 FT.

SDG L624134: The laboratory performed an MS/MSD QC set on Sample 364 130308. The %R values for 2-chloroethyl-vinyl-ether were below 10% in both the MS and the MSD. There was no positive result for this analyte in the parent sample. The reporting limits for 2-chloroethyl-vinyl-ether were rejected (R) in Sample 364 130308.

SDG L624169: The laboratory performed an MS/MSD QC set on Sample MW-96-15 130307. The %R values for 2-chloroethyl-vinyl-ether were below 10% in both the MS and the MSD. There was no positive result for this analyte in the parent sample. The reporting limits for 2-chloroethyl-vinyl-ether were rejected (R) in Sample MW-96-15 130307.

SDG L625509: The laboratory performed an MS/MSD QC set on Sample RPZ-731 130313. The %R values for acrolein were greater than the control limits in both the MS and the MSD. There was no positive result for this analyte in the parent sample. No action was required for these outliers.

Also, the %R values for 1,2-dibromoethane, 1,3-dichloropropane, and 2-chloro-ethyl vinyl ether were outside of the control limits in the MSD. However, the corresponding %R values for these analytes were within the control limits in the MS. No action was taken for these outliers because one out of the two MS/MSD samples were within the control limits.

Laboratory Control Samples/Laboratory Control Sample Duplicates (LCS/LCSD)

A laboratory control sample is essentially a blank sample that is spiked with a known amount of analyte concentration and analyzed. It is to be treated much like a matrix spike, without the possibility for matrix interference. As there is no actual sample matrix in the analysis, the analytical expectations for accuracy and precision are usually more rigorous and qualification would apply to all samples in the batch, instead of the parent sample only.

Laboratory control sample analyses should be performed once per analytical batch or every 20 field samples, whichever is more frequent. The recovery criteria for laboratory control samples are specified in the laboratory documents as are the relative percent difference values. The frequency requirements were met for all analyses, and the %R/RPD values were within the proper control limits, with the exceptions below:

SDG L623994: The %R value for 1,2,3-trichlorobenzene was greater than the control limit in the LCS analyzed on March 9, 2013. However, the corresponding %R value for this analyte was within the control limits in the LCSD. No action was taken for this outlier because one out of the two QC samples were within the control limits.

SDG L624126: The %R values for 1,2,3-trichlorobenzene were greater than the control limits in the second LCS/LCSD analyzed on March 10, 2013. There were no positive results for this analyte in any of the field samples. As these outliers were indicative of a high bias, no action was taken.

SDG L624134: The %R value for 1,2,3-trichlorobenzene was greater than the control limit in the first LCS/LCSD analyzed on March 10, 2013. There were no positive results for this analyte in any of the field samples. As these outliers were indicative of a high bias, no action was taken.

The %R value for 2-chlorotoluene was greater than the control limit in the second LCS analyzed on March 10, 2013. However, the corresponding %R value for this analyte was within the control limits in the LCSD. No action was taken for this outlier because one out of the two QC samples were within the control limits.

The %R value for 1,1,2-trichlorotrifluoroethane was less than the control limit in the second LCS/LCSD analyzed on March 10, 2013. There were no positive results for this analyte in any of the field samples. The reporting limits for this analyte were qualified as estimated (UJ) in Samples 357 130308, 358 130308, 359 130308, DUP-3 130308, RIN-3 130308, and TB-5 130308.

The RPD values for 1,1-dichloroethane, acetone, acrolein, acrylonitrile, and di-isopropyl ether, MTBE, and methylene chloride greater than the control limit in the second LCS/LCSD analyzed on March 10, 2013. There were no positive results for these analytes in any of the associated field samples. No action was taken for these outliers.

SDG L624169: The %R value for 1,2,3-trichlorobenzene was greater than the control limit in the LCS analyzed on March 10, 2013. However, the corresponding %R value for this analyte was within the control limits in the LCSD. No action was taken for this outlier because one out of the two QC samples were within the control limits.

The RPD values for 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, and naphthalene were greater than the control limit in the LCS/LCSD analyzed on March 10, 2013. There were no positive results for these analytes in any of the associated field samples. No action was taken for these outliers.

SDG L625509: The %R value for 1,3-dichloropropane was greater than the control limit in the LCSD analyzed on the first sample batch on March 19, 2013. However, the corresponding %R value for this analyte was within the control limits in the LCS. No action was taken for this outlier because one out of the two QC samples were within the control limits.

SDG L626394: The %R values for 1,2,3-trichlorobenzene were less than the control limits in the LCS/LCSD analyzed on March 21, 2013. There were no positive results for this analyte in the associated samples. The reporting limits were qualified as estimated (UJ) in all samples in this SDG.

Field Duplicates

Field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. In order to assess precision, the relative percent difference (RPD) is used, unless one or more of the sample analytes has a concentration greater than five times the reporting limit for that sample. In this case the absolute difference is used instead of the RPD.

SDG L623995: One set of field duplicates, MW-110 130306 and DUP-1 130306, were submitted with this SDG. The precision criteria for all volatile target analytes were met for this sample pair.

SDG L624126: One set of field duplicates, MW-ES-03 130307 and DUP-2_130307, were submitted with this SDG. The precision criteria for all volatile target analytes were met for this sample pair.

SDG L624134: One set of field duplicates, 357 130308 and DUP-3 130308, were submitted with this SDG. The precision criteria for all volatile target analytes were met for this sample pair.

SDG L625509: One set of field duplicates, PZ-719 130314 and DUP-4 130314, were submitted with this SDG. The precision criteria for all volatile target analytes were met for this sample pair.

SDG L626394: One set of field duplicates, SEEP-5 130319 and DUP-5 130319, were submitted with this SDG. The precision criteria for all volatile target analytes were met for this sample pair.

Internal Standards (Low Resolution Mass Spectroscopy)

Like the surrogate, an internal standard is a compound that is chemically similar to the analytes of interest, but unlikely to be found in any environmental sample. Internal standards are used only for the mass spectrometry (MS) instrumentation and are usually added to the sample aliquot after extraction has taken place. The internal standard should be analyzed at the beginning of a 12 hour sample run and the

control limits for internal standard recoveries are -50% to +100% of the calibration standard. All internal standard recoveries were within the control limits.

Initial Calibrations (ICALs)

All initial calibrations were conducted according to the laboratory methods, and consisted of the appropriate number of standards. All percent relative standard deviation (%RSD) values were less than +/- 30% and all relative response factors (RRF) were greater than 0.05.

All continuing calibrations were conducted according to the laboratory methods, and consisted of the appropriate number of standards. All percent difference (%D) values were less than +/-25% and all relative response factors (RRF) were greater than 0.05.

Reporting Limits and Miscellaneous

The contract required quantitation limits (CRQL) were generally met by the laboratory for all target analytes throughout this sampling event. There may be cases of analytical results that were quantitated even though they were less than the linear calibration range of the instrument, yet greater than the method detection limit. In these cases, the laboratory would indicate any such occurrence with a "J" flag. Any such "J" flags were qualified as estimated (J) in the validation process.

No further validation qualifiers were needed in these cases.

OVERALL ASSESSMENT

As was determined by this data quality assessment, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD %R values. Precision was acceptable, as demonstrated by the field duplicate, laboratory duplicate, LCS/LCSD and MS/MSD RPD values.

Data points for one non-target analyte were rejected because of MS/MSD %R values being less than 10%.

Data points were estimated because of low LCS/LCSD %R values.

Analytical results that were less than the reporting limit, but greater than the method detection limit have been reported and qualified as estimated (J-code).

The data are acceptable for the intended use.

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L623994
Samples Received: 03/08/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-07 130305 30 FT

Collected By : Aaron Waggoner
Collection Date : 03/05/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l	J6J3	8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-07 130305 30 FT

Collected By : Aaron Waggoner
Collection Date : 03/05/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	3.9	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	96.2			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	89.8			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	99.8			% Rec.		8260B	03/09/13	1

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REPORT OF ANALYSIS

Nick Rohrback
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1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-102 130305 20 FT

Collected By : Aaron Waggoner
Collection Date : 03/05/13 13:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

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1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-102 130305 20 FT

Collected By : Aaron Waggoner
Collection Date : 03/05/13 13:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	95.1			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	93.5			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	101.			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-101B 130305 26.5 FT

Collected By : Aaron Waggoner
Collection Date : 03/05/13 16:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-101B 130305 26.5 FT

Collected By : Aaron Waggoner
Collection Date : 03/05/13 16:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	3.0	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	95.6			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	91.2			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	99.4			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-2 130305

Collected By : Aaron Waggoner
Collection Date : 03/05/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-2 130305

Collected By : Aaron Waggoner
Collection Date : 03/05/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	95.8			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	91.1			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	101.			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-103 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 13:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-103 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 13:20

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	96.1			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	90.1			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	97.3			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-101A 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 10:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-101A 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 10:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	96.2			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	92.8			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	97.5			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-11 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 15:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-11 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 15:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	95.8			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	93.0			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	99.7			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : WDOT-MW-2 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 16:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623994-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : WDOT-MW-2 130306

Collected By : Aaron Waggoner
Collection Date : 03/06/13 16:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	96.3			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	90.8			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/09/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L623994-01	WG650134	SAMP	2-Chloroethyl vinyl ether	R2576538	J6J3
	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623994-02	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623994-03	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623994-04	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623994-05	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623994-06	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623994-07	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623994-08	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 14:53:33

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW Metals by 6020.

Sample: L623994-01 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs. uni 690707 dor 4/4/13.
Sample: L623994-02 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs
Sample: L623994-03 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs
Sample: L623994-04 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs
Sample: L623994-05 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs
Sample: L623994-06 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs
Sample: L623994-07 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs
Sample: L623994-08 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:52
MS/ MSD. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN
and added QC3 Per SR2868 3/21/13 ~gs

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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L623994

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,1-Trichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,2-Trichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1-Dichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1-Dichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
1,1-Dichloropropene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,3-Trichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,3-Trichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
1,2,3-Trimethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,4-Trichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,4-Trimethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650134	03/09/13 05:23
1,2-Dibromoethane	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
1,3,5-Trimethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,3-Dichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,3-Dichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
1,4-Dichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
2,2-Dichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
2-Butanone (MEK)	< .01	mg/l			WG650134	03/09/13 05:23
2-Chloroethyl vinyl ether	< .05	mg/l			WG650134	03/09/13 05:23
2-Chlorotoluene	< .001	mg/l			WG650134	03/09/13 05:23
4-Chlorotoluene	< .001	mg/l			WG650134	03/09/13 05:23
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650134	03/09/13 05:23
Acetone	< .05	mg/l			WG650134	03/09/13 05:23
Acrolein	< .025	mg/l			WG650134	03/09/13 05:23
Acrylonitrile	< .01	mg/l			WG650134	03/09/13 05:23
Benzene	< .001	mg/l			WG650134	03/09/13 05:23
Bromobenzene	< .001	mg/l			WG650134	03/09/13 05:23
Bromodichloromethane	< .001	mg/l			WG650134	03/09/13 05:23
Bromoform	< .001	mg/l			WG650134	03/09/13 05:23
Bromomethane	< .005	mg/l			WG650134	03/09/13 05:23
Carbon tetrachloride	< .001	mg/l			WG650134	03/09/13 05:23
Chlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
Chlorodibromomethane	< .001	mg/l			WG650134	03/09/13 05:23
Chloroethane	< .005	mg/l			WG650134	03/09/13 05:23
Chloroform	< .005	mg/l			WG650134	03/09/13 05:23
Chloromethane	< .0025	mg/l			WG650134	03/09/13 05:23
cis-1,2-Dichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
cis-1,3-Dichloropropene	< .001	mg/l			WG650134	03/09/13 05:23
Di-isopropyl ether	< .001	mg/l			WG650134	03/09/13 05:23
Dibromomethane	< .001	mg/l			WG650134	03/09/13 05:23
Dichlorodifluoromethane	< .005	mg/l			WG650134	03/09/13 05:23
Ethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Hexachloro-1,3-butadiene	< .001	mg/l			WG650134	03/09/13 05:23
Isopropylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Methyl tert-butyl ether	< .001	mg/l			WG650134	03/09/13 05:23
Methylene Chloride	< .005	mg/l			WG650134	03/09/13 05:23
n-Butylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
n-Propylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Naphthalene	< .005	mg/l			WG650134	03/09/13 05:23
p-Isopropyltoluene	< .001	mg/l			WG650134	03/09/13 05:23
sec-Butylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Styrene	< .001	mg/l			WG650134	03/09/13 05:23
tert-Butylbenzene	< .001	mg/l			WG650134	03/09/13 05:23

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Est. 1970

GeoEngineers - Tacoma, WA
Nick Rohrback
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Tacoma, WA 98402

Quality Assurance Report
Level II

L623994

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG650134	03/09/13 05:23
Toluene	< .005	mg/l			WG650134	03/09/13 05:23
trans-1,2-Dichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
trans-1,3-Dichloropropene	< .001	mg/l			WG650134	03/09/13 05:23
Trichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
Trichlorofluoromethane	< .005	mg/l			WG650134	03/09/13 05:23
Vinyl chloride	< .001	mg/l			WG650134	03/09/13 05:23
Xylenes, Total	< .003	mg/l			WG650134	03/09/13 05:23
4-Bromofluorobenzene		% Rec.	101.7	82-120	WG650134	03/09/13 05:23
Dibromofluoromethane		% Rec.	91.67	82-126	WG650134	03/09/13 05:23
Toluene-d8		% Rec.	97.17	92-112	WG650134	03/09/13 05:23

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0272	109.	77-128	WG650134
1,1,1-Trichloroethane	mg/l	.025	0.0231	92.4	71-126	WG650134
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0275	110.	78-130	WG650134
1,1,2-Trichloroethane	mg/l	.025	0.0255	102.	81-121	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0239	95.4	53-143	WG650134
1,1-Dichloroethane	mg/l	.025	0.0226	90.5	73-123	WG650134
1,1-Dichloroethene	mg/l	.025	0.0241	96.5	54-134	WG650134
1,1-Dichloropropene	mg/l	.025	0.0231	92.4	67-127	WG650134
1,2,3-Trichlorobenzene	mg/l	.025	0.0328	131.*	77-130	WG650134
1,2,3-Trichloropropane	mg/l	.025	0.0257	103.	68-130	WG650134
1,2,3-Trimethylbenzene	mg/l	.025	0.0240	95.9	77-126	WG650134
1,2,4-Trichlorobenzene	mg/l	.025	0.0314	126.	76-127	WG650134
1,2,4-Trimethylbenzene	mg/l	.025	0.0279	112.	77-129	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0238	95.2	55-142	WG650134
1,2-Dibromoethane	mg/l	.025	0.0256	102.	78-124	WG650134
1,2-Dichlorobenzene	mg/l	.025	0.0260	104.	82-121	WG650134
1,2-Dichloroethane	mg/l	.025	0.0237	94.9	69-128	WG650134
1,2-Dichloropropane	mg/l	.025	0.0241	96.6	77-121	WG650134
1,3,5-Trimethylbenzene	mg/l	.025	0.0282	113.	78-127	WG650134
1,3-Dichlorobenzene	mg/l	.025	0.0294	118.	77-127	WG650134
1,3-Dichloropropane	mg/l	.025	0.0243	97.1	78-117	WG650134
1,4-Dichlorobenzene	mg/l	.025	0.0249	99.8	79-117	WG650134
2,2-Dichloropropane	mg/l	.025	0.0232	92.9	63-130	WG650134
2-Butanone (MEK)	mg/l	.125	0.111	89.1	58-144	WG650134
2-Chloroethyl vinyl ether	mg/l	.125	0.132	105.	26-172	WG650134
2-Chlorotoluene	mg/l	.025	0.0275	110.	78-123	WG650134
4-Chlorotoluene	mg/l	.025	0.0269	108.	78-122	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.121	96.7	58-147	WG650134
Acetone	mg/l	.125	0.116	92.9	49-153	WG650134
Acrolein	mg/l	.125	0.126	100.	10-181	WG650134
Acrylonitrile	mg/l	.125	0.111	88.6	53-153	WG650134
Benzene	mg/l	.025	0.0235	93.9	72-119	WG650134
Bromobenzene	mg/l	.025	0.0257	103.	76-121	WG650134
Bromodichloromethane	mg/l	.025	0.0230	92.2	75-127	WG650134
Bromoform	mg/l	.025	0.0253	101.	61-136	WG650134
Bromomethane	mg/l	.025	0.0354	142.	42-172	WG650134
Carbon tetrachloride	mg/l	.025	0.0238	95.3	63-129	WG650134
Chlorobenzene	mg/l	.025	0.0266	106.	78-123	WG650134
Chlorodibromomethane	mg/l	.025	0.0256	102.	73-128	WG650134
Chloroethane	mg/l	.025	0.0248	99.4	52-164	WG650134
Chloroform	mg/l	.025	0.0236	94.4	76-122	WG650134
Chloromethane	mg/l	.025	0.0211	84.2	50-141	WG650134
cis-1,2-Dichloroethene	mg/l	.025	0.0237	94.6	75-121	WG650134
cis-1,3-Dichloropropene	mg/l	.025	0.0243	97.2	74-124	WG650134

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Quality Assurance Report
Level II

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April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Di-isopropyl ether	mg/l	.025	0.0212	84.7	66-129	WG650134
Dibromomethane	mg/l	.025	0.0248	99.2	77-124	WG650134
Dichlorodifluoromethane	mg/l	.025	0.0228	91.3	33-173	WG650134
Ethylbenzene	mg/l	.025	0.0264	106.	77-124	WG650134
Hexachloro-1,3-butadiene	mg/l	.025	0.0309	124.	71-134	WG650134
Isopropylbenzene	mg/l	.025	0.0271	108.	74-126	WG650134
Methyl tert-butyl ether	mg/l	.025	0.0224	89.5	67-127	WG650134
Methylene Chloride	mg/l	.025	0.0230	92.0	67-122	WG650134
n-Butylbenzene	mg/l	.025	0.0258	103.	74-130	WG650134
n-Propylbenzene	mg/l	.025	0.0275	110.	77-125	WG650134
Naphthalene	mg/l	.025	0.0270	108.	70-134	WG650134
p-Isopropyltoluene	mg/l	.025	0.0291	116.	77-132	WG650134
sec-Butylbenzene	mg/l	.025	0.0287	115.	77-130	WG650134
Styrene	mg/l	.025	0.0258	103.	69-145	WG650134
tert-Butylbenzene	mg/l	.025	0.0285	114.	76-131	WG650134
Tetrachloroethene	mg/l	.025	0.0273	109.	69-131	WG650134
Toluene	mg/l	.025	0.0249	99.5	75-114	WG650134
trans-1,2-Dichloroethene	mg/l	.025	0.0234	93.6	63-127	WG650134
trans-1,3-Dichloropropene	mg/l	.025	0.0246	98.6	69-124	WG650134
Trichloroethene	mg/l	.025	0.0269	108.	69-131	WG650134
Trichlorofluoromethane	mg/l	.025	0.0250	99.9	53-161	WG650134
Vinyl chloride	mg/l	.025	0.0213	85.3	55-142	WG650134
Xylenes, Total	mg/l	.075	0.0799	107.	77-123	WG650134
4-Bromofluorobenzene				97.39	82-120	WG650134
Dibromofluoromethane				94.28	82-126	WG650134
Toluene-d8				96.62	92-112	WG650134

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0270	0.0272	108.	77-128	0.950	20	WG650134
1,1,1-Trichloroethane	mg/l	0.0215	0.0231	86.0	71-126	7.31	20	WG650134
1,1,2,2-Tetrachloroethane	mg/l	0.0264	0.0275	105.	78-130	4.09	20	WG650134
1,1,2-Trichloroethane	mg/l	0.0257	0.0255	103.	81-121	0.600	20	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	0.0221	0.0239	88.0	53-143	7.63	20	WG650134
1,1-Dichloroethane	mg/l	0.0218	0.0226	87.0	73-123	3.52	20	WG650134
1,1-Dichloroethene	mg/l	0.0227	0.0241	91.0	54-134	5.99	20	WG650134
1,1-Dichloropropene	mg/l	0.0224	0.0231	90.0	67-127	2.87	20	WG650134
1,2,3-Trichlorobenzene	mg/l	0.0303	0.0328	121.	77-130	7.93	20	WG650134
1,2,3-Trichloropropane	mg/l	0.0235	0.0257	94.0	68-130	8.61	20	WG650134
1,2,3-Trimethylbenzene	mg/l	0.0235	0.0240	94.0	77-126	1.80	20	WG650134
1,2,4-Trichlorobenzene	mg/l	0.0300	0.0314	120.	76-127	4.46	20	WG650134
1,2,4-Trimethylbenzene	mg/l	0.0274	0.0279	110.	77-129	1.81	20	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	0.0232	0.0238	93.0	55-142	2.61	20	WG650134
1,2-Dibromoethane	mg/l	0.0258	0.0256	103.	78-124	1.05	20	WG650134
1,2-Dichlorobenzene	mg/l	0.0252	0.0260	101.	82-121	3.01	20	WG650134
1,2-Dichloroethane	mg/l	0.0232	0.0237	93.0	69-128	2.10	20	WG650134
1,2-Dichloropropane	mg/l	0.0238	0.0241	95.0	77-121	1.22	20	WG650134
1,3,5-Trimethylbenzene	mg/l	0.0275	0.0282	110.	78-127	2.56	20	WG650134
1,3-Dichlorobenzene	mg/l	0.0292	0.0294	117.	77-127	0.440	20	WG650134
1,3-Dichloropropane	mg/l	0.0250	0.0243	100.	78-117	2.97	20	WG650134
1,4-Dichlorobenzene	mg/l	0.0246	0.0249	98.0	79-117	1.33	20	WG650134
2,2-Dichloropropane	mg/l	0.0214	0.0232	86.0	63-130	8.33	20	WG650134
2-Butanone (MEK)	mg/l	0.107	0.111	86.0	58-144	3.58	20	WG650134
2-Chloroethyl vinyl ether	mg/l	0.131	0.132	105.	26-172	0.250	22	WG650134
2-Chlorotoluene	mg/l	0.0270	0.0275	108.	78-123	1.67	20	WG650134
4-Chlorotoluene	mg/l	0.0267	0.0269	107.	78-122	0.680	20	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	0.115	0.121	92.0	58-147	4.56	20	WG650134
Acetone	mg/l	0.112	0.116	89.0	49-153	3.80	21	WG650134

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Quality Assurance Report
Level II

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Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Acrolein	mg/l	0.138	0.126	110.	10-181	9.29	30	WG650134
Acrylonitrile	mg/l	0.104	0.111	83.0	53-153	6.47	20	WG650134
Benzene	mg/l	0.0228	0.0235	91.0	72-119	2.88	20	WG650134
Bromobenzene	mg/l	0.0255	0.0257	102.	76-121	0.680	20	WG650134
Bromodichloromethane	mg/l	0.0230	0.0230	92.0	75-127	0.300	20	WG650134
Bromoform	mg/l	0.0258	0.0253	103.	61-136	1.95	20	WG650134
Bromomethane	mg/l	0.0327	0.0354	131.	42-172	8.07	20	WG650134
Carbon tetrachloride	mg/l	0.0204	0.0238	82.0	63-129	15.6	20	WG650134
Chlorobenzene	mg/l	0.0269	0.0266	107.	78-123	0.950	20	WG650134
Chlorodibromomethane	mg/l	0.0259	0.0256	104.	73-128	1.44	20	WG650134
Chloroethane	mg/l	0.0229	0.0248	91.0	52-164	8.24	20	WG650134
Chloroform	mg/l	0.0230	0.0236	92.0	76-122	2.55	20	WG650134
Chloromethane	mg/l	0.0196	0.0211	78.0	50-141	6.91	20	WG650134
cis-1,2-Dichloroethene	mg/l	0.0225	0.0237	90.0	75-121	5.12	20	WG650134
cis-1,3-Dichloropropene	mg/l	0.0236	0.0243	94.0	74-124	2.93	20	WG650134
Di-isopropyl ether	mg/l	0.0205	0.0212	82.0	66-129	3.50	20	WG650134
Dibromomethane	mg/l	0.0243	0.0248	97.0	77-124	2.20	20	WG650134
Dichlorodifluoromethane	mg/l	0.0208	0.0228	83.0	33-173	9.49	20	WG650134
Ethylbenzene	mg/l	0.0261	0.0264	104.	77-124	1.13	20	WG650134
Hexachloro-1,3-butadiene	mg/l	0.0290	0.0309	116.	71-134	6.44	20	WG650134
Isopropylbenzene	mg/l	0.0268	0.0271	107.	74-126	0.910	20	WG650134
Methyl tert-butyl ether	mg/l	0.0216	0.0224	86.0	67-127	3.68	20	WG650134
Methylene Chloride	mg/l	0.0216	0.0230	86.0	67-122	6.14	20	WG650134
n-Butylbenzene	mg/l	0.0251	0.0258	100.	74-130	2.94	20	WG650134
n-Propylbenzene	mg/l	0.0271	0.0275	108.	77-125	1.64	20	WG650134
Naphthalene	mg/l	0.0257	0.0270	103.	70-134	4.97	20	WG650134
p-Isopropyltoluene	mg/l	0.0286	0.0291	114.	77-132	1.61	20	WG650134
sec-Butylbenzene	mg/l	0.0282	0.0287	113.	77-130	1.78	20	WG650134
Styrene	mg/l	0.0258	0.0258	103.	69-145	0.250	20	WG650134
tert-Butylbenzene	mg/l	0.0277	0.0285	111.	76-131	3.06	20	WG650134
Tetrachloroethene	mg/l	0.0268	0.0273	107.	69-131	1.93	20	WG650134
Toluene	mg/l	0.0244	0.0249	98.0	75-114	1.81	20	WG650134
trans-1,2-Dichloroethene	mg/l	0.0221	0.0234	88.0	63-127	5.71	20	WG650134
trans-1,3-Dichloropropene	mg/l	0.0253	0.0246	101.	69-124	2.66	20	WG650134
Trichloroethene	mg/l	0.0259	0.0269	104.	69-131	3.61	20	WG650134
Trichlorofluoromethane	mg/l	0.0234	0.0250	94.0	53-161	6.57	20	WG650134
Vinyl chloride	mg/l	0.0193	0.0213	77.0	55-142	9.79	20	WG650134
Xylenes, Total	mg/l	0.0799	0.0799	106.	77-123	0.0200	20	WG650134
4-Bromofluorobenzene				99.11	82-120			WG650134
Dibromofluoromethane				90.81	82-126			WG650134
Toluene-d8				96.00	92-112			WG650134

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0263	0	.025	105.	71-130	L623994-01	WG650134
1,1,1-Trichloroethane	mg/l	0.0221	0	.025	88.4	58-137	L623994-01	WG650134
1,1,2,2-Tetrachloroethane	mg/l	0.0282	0	.025	113.	64-149	L623994-01	WG650134
1,1,2-Trichloroethane	mg/l	0.0251	0	.025	100.	73-128	L623994-01	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	0.0229	0	.025	91.6	36-159	L623994-01	WG650134
1,1-Dichloroethane	mg/l	0.0215	0	.025	85.9	58-133	L623994-01	WG650134
1,1-Dichloroethene	mg/l	0.0227	0	.025	90.8	32-152	L623994-01	WG650134
1,1-Dichloropropene	mg/l	0.0223	0	.025	89.0	50-140	L623994-01	WG650134
1,2,3-Trichlorobenzene	mg/l	0.0316	0	.025	126.	68-135	L623994-01	WG650134
1,2,3-Trichloropropane	mg/l	0.0232	0	.025	92.7	74-137	L623994-01	WG650134
1,2,3-Trimethylbenzene	mg/l	0.0233	0	.025	93.1	67-133	L623994-01	WG650134
1,2,4-Trichlorobenzene	mg/l	0.0311	0	.025	124.	67-133	L623994-01	WG650134
1,2,4-Trimethylbenzene	mg/l	0.0275	0	.025	110.	62-141	L623994-01	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	0.0242	0	.025	96.6	55-148	L623994-01	WG650134

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Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,2-Dibromoethane	mg/l	0.0250	0	.025	100.	71-129	L623994-01	WG650134
1,2-Dichlorobenzene	mg/l	0.0252	0	.025	101.	75-125	L623994-01	WG650134
1,2-Dichloroethane	mg/l	0.0222	0	.025	88.7	59-135	L623994-01	WG650134
1,2-Dichloropropane	mg/l	0.0227	0	.025	90.6	68-126	L623994-01	WG650134
1,3,5-Trimethylbenzene	mg/l	0.0277	0	.025	111.	67-136	L623994-01	WG650134
1,3-Dichlorobenzene	mg/l	0.0291	0	.025	116.	69-131	L623994-01	WG650134
1,3-Dichloropropane	mg/l	0.0239	0	.025	95.6	70-122	L623994-01	WG650134
1,4-Dichlorobenzene	mg/l	0.0244	0	.025	97.6	70-123	L623994-01	WG650134
2,2-Dichloropropane	mg/l	0.0228	0	.025	91.3	51-141	L623994-01	WG650134
2-Butanone (MEK)	mg/l	0.0750	0	.125	60.0	51-149	L623994-01	WG650134
2-Chloroethyl vinyl ether	mg/l	0.00721	0	.125	5.76*	10-161	L623994-01	WG650134
2-Chlorotoluene	mg/l	0.0269	0	.025	108.	65-133	L623994-01	WG650134
4-Chlorotoluene	mg/l	0.0263	0	.025	105.	67-129	L623994-01	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	0.113	0	.125	90.4	53-154	L623994-01	WG650134
Acetone	mg/l	0.0505	0.00112	.125	39.5	34-146	L623994-01	WG650134
Acrolein	mg/l	0.170	0	.125	136.	10-189	L623994-01	WG650134
Acrylonitrile	mg/l	0.106	0	.125	85.2	49-162	L623994-01	WG650134
Benzene	mg/l	0.0221	0	.025	88.5	51-134	L623994-01	WG650134
Bromobenzene	mg/l	0.0255	0	.025	102.	64-130	L623994-01	WG650134
Bromodichloromethane	mg/l	0.0220	0	.025	88.1	67-132	L623994-01	WG650134
Bromoform	mg/l	0.0254	0	.025	102.	59-137	L623994-01	WG650134
Bromomethane	mg/l	0.0307	0	.025	123.	23-177	L623994-01	WG650134
Carbon tetrachloride	mg/l	0.0232	0	.025	92.8	49-140	L623994-01	WG650134
Chlorobenzene	mg/l	0.0262	0	.025	105.	69-126	L623994-01	WG650134
Chlorodibromomethane	mg/l	0.0256	0	.025	102.	68-130	L623994-01	WG650134
Chloroethane	mg/l	0.0229	0	.025	91.5	32-177	L623994-01	WG650134
Chloroform	mg/l	0.0226	0	.025	90.3	64-130	L623994-01	WG650134
Chloromethane	mg/l	0.0186	0	.025	74.4	27-155	L623994-01	WG650134
cis-1,2-Dichloroethene	mg/l	0.0221	0	.025	88.3	54-137	L623994-01	WG650134
cis-1,3-Dichloropropene	mg/l	0.0223	0	.025	89.3	63-127	L623994-01	WG650134
Di-isopropyl ether	mg/l	0.0202	0	.025	80.7	58-133	L623994-01	WG650134
Dibromomethane	mg/l	0.0228	0	.025	91.1	68-131	L623994-01	WG650134
Dichlorodifluoromethane	mg/l	0.0199	0	.025	79.8	16-188	L623994-01	WG650134
Ethylbenzene	mg/l	0.0263	0	.025	105.	64-135	L623994-01	WG650134
Hexachloro-1,3-butadiene	mg/l	0.0300	0	.025	120.	64-140	L623994-01	WG650134
Isopropylbenzene	mg/l	0.0269	0	.025	108.	62-134	L623994-01	WG650134
Methyl tert-butyl ether	mg/l	0.0212	0	.025	84.8	55-136	L623994-01	WG650134
Methylene Chloride	mg/l	0.0210	0	.025	84.2	52-130	L623994-01	WG650134
n-Butylbenzene	mg/l	0.0256	0	.025	102.	62-142	L623994-01	WG650134
n-Propylbenzene	mg/l	0.0273	0	.025	109.	62-137	L623994-01	WG650134
Naphthalene	mg/l	0.0274	0	.025	110.	65-140	L623994-01	WG650134
p-Isopropyltoluene	mg/l	0.0294	0	.025	118.	64-142	L623994-01	WG650134
sec-Butylbenzene	mg/l	0.0294	0	.025	117.	67-139	L623994-01	WG650134
Styrene	mg/l	0.0253	0	.025	101.	58-152	L623994-01	WG650134
tert-Butylbenzene	mg/l	0.0286	0	.025	114.	66-139	L623994-01	WG650134
Tetrachloroethene	mg/l	0.0266	0	.025	106.	56-139	L623994-01	WG650134
Toluene	mg/l	0.0235	0	.025	94.0	61-126	L623994-01	WG650134
trans-1,2-Dichloroethene	mg/l	0.0215	0	.025	86.0	45-137	L623994-01	WG650134
trans-1,3-Dichloropropene	mg/l	0.0232	0	.025	92.6	59-130	L623994-01	WG650134
Trichloroethene	mg/l	0.0278	0.00387	.025	95.8	40-155	L623994-01	WG650134
Trichlorofluoromethane	mg/l	0.0236	0	.025	94.5	35-177	L623994-01	WG650134
Vinyl chloride	mg/l	0.0191	0	.025	76.6	32-159	L623994-01	WG650134
Xylenes, Total	mg/l	0.0786	0	.075	105.	64-133	L623994-01	WG650134
4-Bromofluorobenzene					99.36	82-120		WG650134
Dibromofluoromethane					93.03	82-126		WG650134
Toluene-d8					94.91	92-112		WG650134

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L623994

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0268	0.0263	107.	71-130	2.00	20	L623994-01	WG650134
1,1,1-Trichloroethane	mg/l	0.0231	0.0221	92.3	58-137	4.38	20	L623994-01	WG650134
1,1,2,2-Tetrachloroethane	mg/l	0.0289	0.0282	116.	64-149	2.77	20	L623994-01	WG650134
1,1,2-Trichloroethane	mg/l	0.0258	0.0251	103.	73-128	2.82	20	L623994-01	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	0.0243	0.0229	97.3	36-159	6.01	21	L623994-01	WG650134
1,1-Dichloroethane	mg/l	0.0228	0.0215	91.0	58-133	5.81	20	L623994-01	WG650134
1,1-Dichloroethene	mg/l	0.0238	0.0227	95.1	32-152	4.60	20	L623994-01	WG650134
1,1-Dichloropropene	mg/l	0.0229	0.0223	91.8	50-140	3.03	20	L623994-01	WG650134
1,2,3-Trichlorobenzene	mg/l	0.0327	0.0316	131.	68-135	3.30	20	L623994-01	WG650134
1,2,3-Trichloropropane	mg/l	0.0249	0.0232	99.6	74-137	7.20	20	L623994-01	WG650134
1,2,3-Trimethylbenzene	mg/l	0.0238	0.0233	95.3	67-133	2.34	20	L623994-01	WG650134
1,2,4-Trichlorobenzene	mg/l	0.0314	0.0311	126.	67-133	1.07	20	L623994-01	WG650134
1,2,4-Trimethylbenzene	mg/l	0.0284	0.0275	114.	62-141	3.35	20	L623994-01	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	0.0253	0.0242	101.	55-148	4.67	22	L623994-01	WG650134
1,2-Dibromoethane	mg/l	0.0259	0.0250	103.	71-129	3.24	20	L623994-01	WG650134
1,2-Dichlorobenzene	mg/l	0.0256	0.0252	102.	75-125	1.51	20	L623994-01	WG650134
1,2-Dichloroethane	mg/l	0.0232	0.0222	92.9	59-135	4.68	20	L623994-01	WG650134
1,2-Dichloropropane	mg/l	0.0239	0.0227	95.5	68-126	5.16	20	L623994-01	WG650134
1,3,5-Trimethylbenzene	mg/l	0.0282	0.0277	113.	67-136	1.95	20	L623994-01	WG650134
1,3-Dichlorobenzene	mg/l	0.0301	0.0291	120.	69-131	3.36	20	L623994-01	WG650134
1,3-Dichloropropane	mg/l	0.0250	0.0239	100.	70-122	4.66	20	L623994-01	WG650134
1,4-Dichlorobenzene	mg/l	0.0248	0.0244	99.2	70-123	1.67	20	L623994-01	WG650134
2,2-Dichloropropane	mg/l	0.0228	0.0228	91.0	51-141	0.310	20	L623994-01	WG650134
2-Butanone (MEK)	mg/l	0.0810	0.0750	64.8	51-149	7.63	22	L623994-01	WG650134
2-Chloroethyl vinyl ether	mg/l	0.00234	0.00721	1.87*	10-161	102.*	40	L623994-01	WG650134
2-Chlorotoluene	mg/l	0.0277	0.0269	111.	65-133	2.72	20	L623994-01	WG650134
4-Chlorotoluene	mg/l	0.0273	0.0263	109.	67-129	3.87	20	L623994-01	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	0.123	0.113	98.2	53-154	8.28	21	L623994-01	WG650134
Acetone	mg/l	0.0551	0.0505	43.2	34-146	8.79	22	L623994-01	WG650134
Acrolein	mg/l	0.183	0.170	146.	10-189	7.35	30	L623994-01	WG650134
Acrylonitrile	mg/l	0.115	0.106	92.4	49-162	8.09	20	L623994-01	WG650134
Benzene	mg/l	0.0230	0.0221	92.1	51-134	4.03	20	L623994-01	WG650134
Bromobenzene	mg/l	0.0262	0.0255	105.	64-130	2.75	20	L623994-01	WG650134
Bromodichloromethane	mg/l	0.0227	0.0220	90.7	67-132	2.97	20	L623994-01	WG650134
Bromoform	mg/l	0.0259	0.0254	103.	59-137	1.74	20	L623994-01	WG650134
Bromomethane	mg/l	0.0311	0.0307	124.	23-177	1.26	21	L623994-01	WG650134
Carbon tetrachloride	mg/l	0.0239	0.0232	95.7	49-140	3.09	20	L623994-01	WG650134
Chlorobenzene	mg/l	0.0265	0.0262	106.	69-126	1.17	20	L623994-01	WG650134
Chlorodibromomethane	mg/l	0.0254	0.0256	101.	68-130	1.11	20	L623994-01	WG650134
Chloroethane	mg/l	0.0236	0.0229	94.3	32-177	2.94	21	L623994-01	WG650134
Chloroform	mg/l	0.0236	0.0226	94.3	64-130	4.25	20	L623994-01	WG650134
Chloromethane	mg/l	0.0196	0.0186	78.3	27-155	5.18	20	L623994-01	WG650134
cis-1,2-Dichloroethene	mg/l	0.0232	0.0221	92.8	54-137	4.88	20	L623994-01	WG650134
cis-1,3-Dichloropropene	mg/l	0.0231	0.0223	92.3	63-127	3.34	20	L623994-01	WG650134
Di-isopropyl ether	mg/l	0.0213	0.0202	85.1	58-133	5.32	20	L623994-01	WG650134
Dibromomethane	mg/l	0.0243	0.0228	97.2	68-131	6.42	20	L623994-01	WG650134
Dichlorodifluoromethane	mg/l	0.0208	0.0199	83.0	16-188	4.01	22	L623994-01	WG650134
Ethylbenzene	mg/l	0.0270	0.0263	108.	64-135	2.47	20	L623994-01	WG650134
Hexachloro-1,3-butadiene	mg/l	0.0302	0.0300	121.	64-140	0.700	20	L623994-01	WG650134
Isopropylbenzene	mg/l	0.0278	0.0269	111.	62-134	3.19	20	L623994-01	WG650134
Methyl tert-butyl ether	mg/l	0.0223	0.0212	89.3	55-136	5.25	20	L623994-01	WG650134
Methylene Chloride	mg/l	0.0216	0.0210	86.2	52-130	2.37	20	L623994-01	WG650134
n-Butylbenzene	mg/l	0.0260	0.0256	104.	62-142	1.28	20	L623994-01	WG650134
n-Propylbenzene	mg/l	0.0281	0.0273	112.	62-137	2.88	20	L623994-01	WG650134
Naphthalene	mg/l	0.0282	0.0274	113.	65-140	2.74	20	L623994-01	WG650134
p-Isopropyltoluene	mg/l	0.0302	0.0294	121.	64-142	2.88	20	L623994-01	WG650134
sec-Butylbenzene	mg/l	0.0298	0.0294	119.	67-139	1.55	20	L623994-01	WG650134
Styrene	mg/l	0.0260	0.0253	104.	58-152	2.85	20	L623994-01	WG650134
tert-Butylbenzene	mg/l	0.0293	0.0286	117.	66-139	2.24	20	L623994-01	WG650134
Tetrachloroethene	mg/l	0.0263	0.0266	105.	56-139	1.10	20	L623994-01	WG650134

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Est. 1970

GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L623994

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Toluene	mg/l	0.0240	0.0235	96.1	61-126	2.18	20	L623994-01	WG650134
trans-1,2-Dichloroethene	mg/l	0.0223	0.0215	89.1	45-137	3.52	20	L623994-01	WG650134
trans-1,3-Dichloropropene	mg/l	0.0249	0.0232	99.6	59-130	7.23	20	L623994-01	WG650134
Trichloroethene	mg/l	0.0286	0.0278	99.1	40-155	2.94	20	L623994-01	WG650134
Trichlorofluoromethane	mg/l	0.0242	0.0236	96.9	35-177	2.44	23	L623994-01	WG650134
Vinyl chloride	mg/l	0.0202	0.0191	80.9	32-159	5.51	21	L623994-01	WG650134
Xylenes, Total	mg/l	0.0799	0.0786	106.	64-133	1.63	20	L623994-01	WG650134
4-Bromofluorobenzene				99.17	82-120				WG650134
Dibromofluoromethane				93.42	82-126				WG650134
Toluene-d8				95.58	92-112				WG650134

Batch number /Run number / Sample number cross reference

WG650134: R2576538: L623994-01 02 03 04 05 06 07 08

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L623994

April 10, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

C210

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Report to: Nick Rohrbach ~~Scott MacDonald~~

Email: nrohrbach@geoengineers.com ~~smacdonald@geoengineers.co~~

Project Description: **Palermo Wellfield Superfund Site**

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0130-121-08 ~~19903-001-01~~

Lab Project #: **GEOENGTWA-PALERMO**

Collected by (print): Aaron Wagoner

Site/Facility ID#: **TUMWATER, WA**

P.O.#:

Collected by (signature):

Immediately Packed on Ice N __ Y X

Rush? (Lab MUST Be Notified)
__ Same Day 200%
__ Next Day 100%
__ Two Day 50%
__ Three Day 25%

Date Results Needed: Standard TAT

Email? __No X Yes
FAX? __No __Yes

Analysis/Container/Preservative

ESC LAB SCIENCES
12065 Lebanon Road
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Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

L623994

Page 1 of 1 of Custody

Acctnum: **GEOENGTWA** (lab use only)
Template/Prelogin: **T83764/ P419878**
Cooler #:
Shipped Via: **FedEx Ground**

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk							Remarks/Contaminant	Sample # (lab only)
MW-ES-07 130305	Grab	GW	30'	3/5/13	1050	9	X	X							MS/MSD triplicate volume	01
MW-102 130305	Grab	GW	20'	3/5/13	1320	3	X									02
MW-101B 130305	Grab	GW	26.5'	3/5/13	1615	3	X									03
TB-2 130305	Gr	GW				3	X	X								04
MW-103 130306	Grab	GW		3/6/13	13:20	3	X									05
MW-101A 130306	Grab	GW		3/6/13	10:05	3	X									06
MW-ES-11 130306	Grab	GW		3/6/13	15:10	3	X									07
WDOT-MW-2 130306	Grab	GW		3/6/13	16:55	3	X									08
		GW				3	X									

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

pH _____ Temp _____

Flow _____ Other _____

Quote number: GEOENGTWA021813L

5547 0230 1198

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐	Condition: (lab use only)
	3/6/13	1745			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.7°C Bottles Received: 29 VP	COC Seal Intact: ✓ Y ___ N ___ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3-8-13 Time: 0900	pH Checked: NCF:

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L623995
Samples Received: 03/08/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-1 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-1 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	95.6			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	92.2			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	99.7			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-08 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 10:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l	J5	8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l	J6J3	8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-08 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 10:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	98.9			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	93.6			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-100 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 12:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-100 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 12:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	95.5			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	91.0			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	101.			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-UI 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 14:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	0.34	0.26	1.0	ug/l	J	8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-UI 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 14:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	8.1	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	95.4			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	93.2			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	96.4			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-109 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 16:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-109 130305

Collected By : Linde-Deeds
Collection Date : 03/05/13 16:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	15.	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	96.4			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	91.9			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-110 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-110 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	97.4			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	94.5			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	102.			% Rec.		8260B	03/09/13	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-107 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 12:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-107 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 12:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	97.4			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	92.2			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	99.7			% Rec.		8260B	03/09/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-96-16 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 14:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-96-16 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 14:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	96.8			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	93.2			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	99.2			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-96-17 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 15:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-96-17 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 15:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	98.2			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	92.5			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	96.8			% Rec.		8260B	03/09/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-1 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/09/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/09/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/09/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/09/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/09/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/09/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/09/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/09/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/09/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/09/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/09/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/09/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/09/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/09/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/09/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/09/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/09/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/09/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/09/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/09/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/09/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/09/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/09/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/09/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/09/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/09/13	1

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Tacoma, WA 98402

April 10, 2013

ESC Sample # : L623995-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 08, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-1 130306

Collected By : Linde-Deeds
Collection Date : 03/06/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/09/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/09/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/09/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/09/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/09/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/09/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/09/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/09/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/09/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/09/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/09/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/09/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/09/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/09/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/09/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/09/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/09/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/09/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/09/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/09/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/09/13	1
Surrogate Recovery								
Toluene-d8	97.1			% Rec.		8260B	03/09/13	1
Dibromofluoromethane	92.3			% Rec.		8260B	03/09/13	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/09/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L623995-01	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-02	WG650209	SAMP	Acrolein	R2575548	J5
	WG650209	SAMP	2-Chloroethyl vinyl ether	R2575548	J6J3
L623995-03	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-04	WG650134	SAMP	cis-1,2-Dichloroethene	R2576538	J
	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-05	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-06	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-07	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-08	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-09	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4
L623995-10	WG650134	SAMP	1,2,3-Trichlorobenzene	R2576538	J4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 15:03:40

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW
Metals by 6020.

Sample: L623995-01 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs. uni 690706 dor 4/4/13.
Sample: L623995-02 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-03 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-04 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-05 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-06 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-07 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-08 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-09 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs
Sample: L623995-10 Account: GEOENGTWA Received: 03/08/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 15:02
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Removed QC2MODCN and added
QC3 Per SR2868 3/21/13 ~gs

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Quality Assurance Report
Level II

L623995

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650209	03/09/13 15:58
1,1,1-Trichloroethane	< .001	mg/l			WG650209	03/09/13 15:58
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650209	03/09/13 15:58
1,1,2-Trichloroethane	< .001	mg/l			WG650209	03/09/13 15:58
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650209	03/09/13 15:58
1,1-Dichloroethane	< .001	mg/l			WG650209	03/09/13 15:58
1,1-Dichloroethene	< .001	mg/l			WG650209	03/09/13 15:58
1,1-Dichloropropene	< .001	mg/l			WG650209	03/09/13 15:58
1,2,3-Trichlorobenzene	< .001	mg/l			WG650209	03/09/13 15:58
1,2,3-Trichloropropane	< .001	mg/l			WG650209	03/09/13 15:58
1,2,3-Trimethylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
1,2,4-Trichlorobenzene	< .001	mg/l			WG650209	03/09/13 15:58
1,2,4-Trimethylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650209	03/09/13 15:58
1,2-Dibromoethane	< .001	mg/l			WG650209	03/09/13 15:58
1,2-Dichlorobenzene	< .001	mg/l			WG650209	03/09/13 15:58
1,2-Dichloroethane	< .001	mg/l			WG650209	03/09/13 15:58
1,2-Dichloropropane	< .001	mg/l			WG650209	03/09/13 15:58
1,3,5-Trimethylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
1,3-Dichlorobenzene	< .001	mg/l			WG650209	03/09/13 15:58
1,3-Dichloropropane	< .001	mg/l			WG650209	03/09/13 15:58
1,4-Dichlorobenzene	< .001	mg/l			WG650209	03/09/13 15:58
2,2-Dichloropropane	< .001	mg/l			WG650209	03/09/13 15:58
2-Butanone (MEK)	< .01	mg/l			WG650209	03/09/13 15:58
2-Chloroethyl vinyl ether	< .05	mg/l			WG650209	03/09/13 15:58
2-Chlorotoluene	< .001	mg/l			WG650209	03/09/13 15:58
4-Chlorotoluene	< .001	mg/l			WG650209	03/09/13 15:58
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650209	03/09/13 15:58
Acetone	< .05	mg/l			WG650209	03/09/13 15:58
Acrolein	< .025	mg/l			WG650209	03/09/13 15:58
Acrylonitrile	< .01	mg/l			WG650209	03/09/13 15:58
Benzene	< .001	mg/l			WG650209	03/09/13 15:58
Bromobenzene	< .001	mg/l			WG650209	03/09/13 15:58
Bromodichloromethane	< .001	mg/l			WG650209	03/09/13 15:58
Bromoform	< .001	mg/l			WG650209	03/09/13 15:58
Bromomethane	< .005	mg/l			WG650209	03/09/13 15:58
Carbon tetrachloride	< .001	mg/l			WG650209	03/09/13 15:58
Chlorobenzene	< .001	mg/l			WG650209	03/09/13 15:58
Chlorodibromomethane	< .001	mg/l			WG650209	03/09/13 15:58
Chloroethane	< .005	mg/l			WG650209	03/09/13 15:58
Chloroform	< .005	mg/l			WG650209	03/09/13 15:58
Chloromethane	< .0025	mg/l			WG650209	03/09/13 15:58
cis-1,2-Dichloroethene	< .001	mg/l			WG650209	03/09/13 15:58
cis-1,3-Dichloropropene	< .001	mg/l			WG650209	03/09/13 15:58
Di-isopropyl ether	< .001	mg/l			WG650209	03/09/13 15:58
Dibromomethane	< .001	mg/l			WG650209	03/09/13 15:58
Dichlorodifluoromethane	< .005	mg/l			WG650209	03/09/13 15:58
Ethylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
Hexachloro-1,3-butadiene	< .001	mg/l			WG650209	03/09/13 15:58
Isopropylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
Methyl tert-butyl ether	< .001	mg/l			WG650209	03/09/13 15:58
Methylene Chloride	< .005	mg/l			WG650209	03/09/13 15:58
n-Butylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
n-Propylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
Naphthalene	< .005	mg/l			WG650209	03/09/13 15:58
p-Isopropyltoluene	< .001	mg/l			WG650209	03/09/13 15:58
sec-Butylbenzene	< .001	mg/l			WG650209	03/09/13 15:58
Styrene	< .001	mg/l			WG650209	03/09/13 15:58
tert-Butylbenzene	< .001	mg/l			WG650209	03/09/13 15:58

* Performance of this Analyte is outside of established criteria.
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Quality Assurance Report
Level II

L623995

April 10, 2013

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG650209	03/09/13 15:58
Toluene	< .005	mg/l			WG650209	03/09/13 15:58
trans-1,2-Dichloroethene	< .001	mg/l			WG650209	03/09/13 15:58
trans-1,3-Dichloropropene	< .001	mg/l			WG650209	03/09/13 15:58
Trichloroethene	< .001	mg/l			WG650209	03/09/13 15:58
Trichlorofluoromethane	< .005	mg/l			WG650209	03/09/13 15:58
Vinyl chloride	< .001	mg/l			WG650209	03/09/13 15:58
Xylenes, Total	< .003	mg/l			WG650209	03/09/13 15:58
4-Bromofluorobenzene		% Rec.	94.32	82-120	WG650209	03/09/13 15:58
Dibromofluoromethane		% Rec.	97.81	82-126	WG650209	03/09/13 15:58
Toluene-d8		% Rec.	99.69	92-112	WG650209	03/09/13 15:58
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,1-Trichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,2-Trichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1-Dichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,1-Dichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
1,1-Dichloropropene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,3-Trichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,3-Trichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
1,2,3-Trimethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,4-Trichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2,4-Trimethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650134	03/09/13 05:23
1,2-Dibromoethane	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dichloroethane	< .001	mg/l			WG650134	03/09/13 05:23
1,2-Dichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
1,3,5-Trimethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,3-Dichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
1,3-Dichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
1,4-Dichlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
2,2-Dichloropropane	< .001	mg/l			WG650134	03/09/13 05:23
2-Butanone (MEK)	< .01	mg/l			WG650134	03/09/13 05:23
2-Chloroethyl vinyl ether	< .05	mg/l			WG650134	03/09/13 05:23
2-Chlorotoluene	< .001	mg/l			WG650134	03/09/13 05:23
4-Chlorotoluene	< .001	mg/l			WG650134	03/09/13 05:23
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650134	03/09/13 05:23
Acetone	< .05	mg/l			WG650134	03/09/13 05:23
Acrolein	< .025	mg/l			WG650134	03/09/13 05:23
Acrylonitrile	< .01	mg/l			WG650134	03/09/13 05:23
Benzene	< .001	mg/l			WG650134	03/09/13 05:23
Bromobenzene	< .001	mg/l			WG650134	03/09/13 05:23
Bromodichloromethane	< .001	mg/l			WG650134	03/09/13 05:23
Bromoform	< .001	mg/l			WG650134	03/09/13 05:23
Bromomethane	< .005	mg/l			WG650134	03/09/13 05:23
Carbon tetrachloride	< .001	mg/l			WG650134	03/09/13 05:23
Chlorobenzene	< .001	mg/l			WG650134	03/09/13 05:23
Chlorodibromomethane	< .001	mg/l			WG650134	03/09/13 05:23
Chloroethane	< .005	mg/l			WG650134	03/09/13 05:23
Chloroform	< .005	mg/l			WG650134	03/09/13 05:23
Chloromethane	< .0025	mg/l			WG650134	03/09/13 05:23
cis-1,2-Dichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
cis-1,3-Dichloropropene	< .001	mg/l			WG650134	03/09/13 05:23
Di-isopropyl ether	< .001	mg/l			WG650134	03/09/13 05:23
Dibromomethane	< .001	mg/l			WG650134	03/09/13 05:23

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Quality Assurance Report
Level II

L623995

April 10, 2013

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Dichlorodifluoromethane	< .005	mg/l			WG650134	03/09/13 05:23
Ethylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Hexachloro-1,3-butadiene	< .001	mg/l			WG650134	03/09/13 05:23
Isopropylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Methyl tert-butyl ether	< .001	mg/l			WG650134	03/09/13 05:23
Methylene Chloride	< .005	mg/l			WG650134	03/09/13 05:23
n-Butylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
n-Propylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Naphthalene	< .005	mg/l			WG650134	03/09/13 05:23
p-Isopropyltoluene	< .001	mg/l			WG650134	03/09/13 05:23
sec-Butylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Styrene	< .001	mg/l			WG650134	03/09/13 05:23
tert-Butylbenzene	< .001	mg/l			WG650134	03/09/13 05:23
Tetrachloroethene	< .001	mg/l			WG650134	03/09/13 05:23
Toluene	< .005	mg/l			WG650134	03/09/13 05:23
trans-1,2-Dichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
trans-1,3-Dichloropropene	< .001	mg/l			WG650134	03/09/13 05:23
Trichloroethene	< .001	mg/l			WG650134	03/09/13 05:23
Trichlorofluoromethane	< .005	mg/l			WG650134	03/09/13 05:23
Vinyl chloride	< .001	mg/l			WG650134	03/09/13 05:23
Xylenes, Total	< .003	mg/l			WG650134	03/09/13 05:23
4-Bromofluorobenzene		% Rec.	101.7	82-120	WG650134	03/09/13 05:23
Dibromofluoromethane		% Rec.	91.67	82-126	WG650134	03/09/13 05:23
Toluene-d8		% Rec.	97.17	92-112	WG650134	03/09/13 05:23

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0227	90.6	77-128	WG650209
1,1,1-Trichloroethane	mg/l	.025	0.0227	90.9	71-126	WG650209
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0242	96.6	78-130	WG650209
1,1,2-Trichloroethane	mg/l	.025	0.0232	92.6	81-121	WG650209
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0258	103.	53-143	WG650209
1,1-Dichloroethane	mg/l	.025	0.0252	101.	73-123	WG650209
1,1-Dichloroethene	mg/l	.025	0.0222	88.9	54-134	WG650209
1,1-Dichloropropene	mg/l	.025	0.0253	101.	67-127	WG650209
1,2,3-Trichlorobenzene	mg/l	.025	0.0266	106.	77-130	WG650209
1,2,3-Trichloropropane	mg/l	.025	0.0223	89.4	68-130	WG650209
1,2,3-Trimethylbenzene	mg/l	.025	0.0246	98.5	77-126	WG650209
1,2,4-Trichlorobenzene	mg/l	.025	0.0265	106.	76-127	WG650209
1,2,4-Trimethylbenzene	mg/l	.025	0.0230	91.8	77-129	WG650209
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0227	90.8	55-142	WG650209
1,2-Dibromoethane	mg/l	.025	0.0233	93.1	78-124	WG650209
1,2-Dichlorobenzene	mg/l	.025	0.0260	104.	82-121	WG650209
1,2-Dichloroethane	mg/l	.025	0.0228	91.4	69-128	WG650209
1,2-Dichloropropane	mg/l	.025	0.0246	98.6	77-121	WG650209
1,3,5-Trimethylbenzene	mg/l	.025	0.0231	92.4	78-127	WG650209
1,3-Dichlorobenzene	mg/l	.025	0.0234	93.7	77-127	WG650209
1,3-Dichloropropane	mg/l	.025	0.0243	97.3	78-117	WG650209
1,4-Dichlorobenzene	mg/l	.025	0.0249	99.5	79-117	WG650209
2,2-Dichloropropane	mg/l	.025	0.0215	86.0	63-130	WG650209
2-Butanone (MEK)	mg/l	.125	0.132	105.	58-144	WG650209
2-Chloroethyl vinyl ether	mg/l	.125	0.118	94.8	26-172	WG650209
2-Chlorotoluene	mg/l	.025	0.0240	96.0	78-123	WG650209
4-Chlorotoluene	mg/l	.025	0.0233	93.0	78-122	WG650209
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.116	93.2	58-147	WG650209
Acetone	mg/l	.125	0.121	96.4	49-153	WG650209
Acrolein	mg/l	.125	0.133	106.	10-181	WG650209
Acrylonitrile	mg/l	.125	0.123	98.6	53-153	WG650209

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Quality Assurance Report
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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.025	0.0254	102.	72-119	WG650209
Bromobenzene	mg/l	.025	0.0233	93.0	76-121	WG650209
Bromodichloromethane	mg/l	.025	0.0227	90.7	75-127	WG650209
Bromoform	mg/l	.025	0.0210	83.9	61-136	WG650209
Bromomethane	mg/l	.025	0.0307	123.	42-172	WG650209
Carbon tetrachloride	mg/l	.025	0.0222	88.7	63-129	WG650209
Chlorobenzene	mg/l	.025	0.0240	96.0	78-123	WG650209
Chlorodibromomethane	mg/l	.025	0.0220	88.0	73-128	WG650209
Chloroethane	mg/l	.025	0.0251	100.	52-164	WG650209
Chloroform	mg/l	.025	0.0238	95.4	76-122	WG650209
Chloromethane	mg/l	.025	0.0248	99.3	50-141	WG650209
cis-1,2-Dichloroethene	mg/l	.025	0.0236	94.6	75-121	WG650209
cis-1,3-Dichloropropene	mg/l	.025	0.0230	92.0	74-124	WG650209
Di-isopropyl ether	mg/l	.025	0.0232	93.0	66-129	WG650209
Dibromomethane	mg/l	.025	0.0238	95.1	77-124	WG650209
Dichlorodifluoromethane	mg/l	.025	0.0225	89.9	33-173	WG650209
Ethylbenzene	mg/l	.025	0.0233	93.3	77-124	WG650209
Hexachloro-1,3-butadiene	mg/l	.025	0.0261	104.	71-134	WG650209
Isopropylbenzene	mg/l	.025	0.0234	93.5	74-126	WG650209
Methyl tert-butyl ether	mg/l	.025	0.0227	90.8	67-127	WG650209
Methylene Chloride	mg/l	.025	0.0245	98.1	67-122	WG650209
n-Butylbenzene	mg/l	.025	0.0267	107.	74-130	WG650209
n-Propylbenzene	mg/l	.025	0.0239	95.5	77-125	WG650209
Naphthalene	mg/l	.025	0.0254	101.	70-134	WG650209
p-Isopropyltoluene	mg/l	.025	0.0238	95.2	77-132	WG650209
sec-Butylbenzene	mg/l	.025	0.0238	95.3	77-130	WG650209
Styrene	mg/l	.025	0.0239	95.8	69-145	WG650209
tert-Butylbenzene	mg/l	.025	0.0236	94.4	76-131	WG650209
Tetrachloroethene	mg/l	.025	0.0235	94.0	69-131	WG650209
Toluene	mg/l	.025	0.0239	95.7	75-114	WG650209
trans-1,2-Dichloroethene	mg/l	.025	0.0243	97.3	63-127	WG650209
trans-1,3-Dichloropropene	mg/l	.025	0.0216	86.5	69-124	WG650209
Trichloroethene	mg/l	.025	0.0239	95.5	69-131	WG650209
Trichlorofluoromethane	mg/l	.025	0.0233	93.1	53-161	WG650209
Vinyl chloride	mg/l	.025	0.0245	98.2	55-142	WG650209
Xylenes, Total	mg/l	.075	0.0697	92.9	77-123	WG650209
4-Bromofluorobenzene				90.56	82-120	WG650209
Dibromofluoromethane				100.8	82-126	WG650209
Toluene-d8				98.73	92-112	WG650209
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0272	109.	77-128	WG650134
1,1,1-Trichloroethane	mg/l	.025	0.0231	92.4	71-126	WG650134
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0275	110.	78-130	WG650134
1,1,2-Trichloroethane	mg/l	.025	0.0255	102.	81-121	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0239	95.4	53-143	WG650134
1,1-Dichloroethane	mg/l	.025	0.0226	90.5	73-123	WG650134
1,1-Dichloroethene	mg/l	.025	0.0241	96.5	54-134	WG650134
1,1-Dichloropropene	mg/l	.025	0.0231	92.4	67-127	WG650134
1,2,3-Trichlorobenzene	mg/l	.025	0.0328	131.*	77-130	WG650134
1,2,3-Trichloropropane	mg/l	.025	0.0257	103.	68-130	WG650134
1,2,3-Trimethylbenzene	mg/l	.025	0.0240	95.9	77-126	WG650134
1,2,4-Trichlorobenzene	mg/l	.025	0.0314	126.	76-127	WG650134
1,2,4-Trimethylbenzene	mg/l	.025	0.0279	112.	77-129	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0238	95.2	55-142	WG650134
1,2-Dibromoethane	mg/l	.025	0.0256	102.	78-124	WG650134
1,2-Dichlorobenzene	mg/l	.025	0.0260	104.	82-121	WG650134
1,2-Dichloroethane	mg/l	.025	0.0237	94.9	69-128	WG650134
1,2-Dichloropropane	mg/l	.025	0.0241	96.6	77-121	WG650134

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Quality Assurance Report
Level II

L623995

April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,3,5-Trimethylbenzene	mg/l	.025	0.0282	113.	78-127	WG650134
1,3-Dichlorobenzene	mg/l	.025	0.0294	118.	77-127	WG650134
1,3-Dichloropropane	mg/l	.025	0.0243	97.1	78-117	WG650134
1,4-Dichlorobenzene	mg/l	.025	0.0249	99.8	79-117	WG650134
2,2-Dichloropropane	mg/l	.025	0.0232	92.9	63-130	WG650134
2-Butanone (MEK)	mg/l	.125	0.111	89.1	58-144	WG650134
2-Chloroethyl vinyl ether	mg/l	.125	0.132	105.	26-172	WG650134
2-Chlorotoluene	mg/l	.025	0.0275	110.	78-123	WG650134
4-Chlorotoluene	mg/l	.025	0.0269	108.	78-122	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.121	96.7	58-147	WG650134
Acetone	mg/l	.125	0.116	92.9	49-153	WG650134
Acrolein	mg/l	.125	0.126	100.	10-181	WG650134
Acrylonitrile	mg/l	.125	0.111	88.6	53-153	WG650134
Benzene	mg/l	.025	0.0235	93.9	72-119	WG650134
Bromobenzene	mg/l	.025	0.0257	103.	76-121	WG650134
Bromodichloromethane	mg/l	.025	0.0230	92.2	75-127	WG650134
Bromoform	mg/l	.025	0.0253	101.	61-136	WG650134
Bromomethane	mg/l	.025	0.0354	142.	42-172	WG650134
Carbon tetrachloride	mg/l	.025	0.0238	95.3	63-129	WG650134
Chlorobenzene	mg/l	.025	0.0266	106.	78-123	WG650134
Chlorodibromomethane	mg/l	.025	0.0256	102.	73-128	WG650134
Chloroethane	mg/l	.025	0.0248	99.4	52-164	WG650134
Chloroform	mg/l	.025	0.0236	94.4	76-122	WG650134
Chloromethane	mg/l	.025	0.0211	84.2	50-141	WG650134
cis-1,2-Dichloroethene	mg/l	.025	0.0237	94.6	75-121	WG650134
cis-1,3-Dichloropropene	mg/l	.025	0.0243	97.2	74-124	WG650134
Di-isopropyl ether	mg/l	.025	0.0212	84.7	66-129	WG650134
Dibromomethane	mg/l	.025	0.0248	99.2	77-124	WG650134
Dichlorodifluoromethane	mg/l	.025	0.0228	91.3	33-173	WG650134
Ethylbenzene	mg/l	.025	0.0264	106.	77-124	WG650134
Hexachloro-1,3-butadiene	mg/l	.025	0.0309	124.	71-134	WG650134
Isopropylbenzene	mg/l	.025	0.0271	108.	74-126	WG650134
Methyl tert-butyl ether	mg/l	.025	0.0224	89.5	67-127	WG650134
Methylene Chloride	mg/l	.025	0.0230	92.0	67-122	WG650134
n-Butylbenzene	mg/l	.025	0.0258	103.	74-130	WG650134
n-Propylbenzene	mg/l	.025	0.0275	110.	77-125	WG650134
Naphthalene	mg/l	.025	0.0270	108.	70-134	WG650134
p-Isopropyltoluene	mg/l	.025	0.0291	116.	77-132	WG650134
sec-Butylbenzene	mg/l	.025	0.0287	115.	77-130	WG650134
Styrene	mg/l	.025	0.0258	103.	69-145	WG650134
tert-Butylbenzene	mg/l	.025	0.0285	114.	76-131	WG650134
Tetrachloroethene	mg/l	.025	0.0273	109.	69-131	WG650134
Toluene	mg/l	.025	0.0249	99.5	75-114	WG650134
trans-1,2-Dichloroethene	mg/l	.025	0.0234	93.6	63-127	WG650134
trans-1,3-Dichloropropene	mg/l	.025	0.0246	98.6	69-124	WG650134
Trichloroethene	mg/l	.025	0.0269	108.	69-131	WG650134
Trichlorofluoromethane	mg/l	.025	0.0250	99.9	53-161	WG650134
Vinyl chloride	mg/l	.025	0.0213	85.3	55-142	WG650134
Xylenes, Total	mg/l	.075	0.0799	107.	77-123	WG650134
4-Bromofluorobenzene				97.39	82-120	WG650134
Dibromofluoromethane				94.28	82-126	WG650134
Toluene-d8				96.62	92-112	WG650134

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0228	0.0227	91.0	77-128	0.840	20	WG650209
1,1,1-Trichloroethane	mg/l	0.0233	0.0227	93.0	71-126	2.29	20	WG650209
1,1,2,2-Tetrachloroethane	mg/l	0.0245	0.0242	98.0	78-130	1.42	20	WG650209

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Quality Assurance Report
Level II

L623995

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,2-Trichloroethane	mg/l	0.0236	0.0232	94.0	81-121	1.76	20	WG650209
1,1,2-Trichlorotrifluoroethane	mg/l	0.0261	0.0258	104.	53-143	1.33	20	WG650209
1,1-Dichloroethane	mg/l	0.0258	0.0252	103.	73-123	2.41	20	WG650209
1,1-Dichloroethene	mg/l	0.0221	0.0222	88.0	54-134	0.480	20	WG650209
1,1-Dichloropropene	mg/l	0.0260	0.0253	104.	67-127	2.91	20	WG650209
1,2,3-Trichlorobenzene	mg/l	0.0267	0.0266	107.	77-130	0.310	20	WG650209
1,2,3-Trichloropropane	mg/l	0.0221	0.0223	88.0	68-130	1.14	20	WG650209
1,2,3-Trimethylbenzene	mg/l	0.0250	0.0246	100.	77-126	1.53	20	WG650209
1,2,4-Trichlorobenzene	mg/l	0.0266	0.0265	106.	76-127	0.310	20	WG650209
1,2,4-Trimethylbenzene	mg/l	0.0229	0.0230	92.0	77-129	0.0400	20	WG650209
1,2-Dibromo-3-Chloropropane	mg/l	0.0231	0.0227	92.0	55-142	1.53	20	WG650209
1,2-Dibromoethane	mg/l	0.0242	0.0233	97.0	78-124	3.81	20	WG650209
1,2-Dichlorobenzene	mg/l	0.0260	0.0260	104.	82-121	0.0500	20	WG650209
1,2-Dichloroethane	mg/l	0.0231	0.0228	92.0	69-128	1.11	20	WG650209
1,2-Dichloropropane	mg/l	0.0250	0.0246	100.	77-121	1.55	20	WG650209
1,3,5-Trimethylbenzene	mg/l	0.0231	0.0231	92.0	78-127	0.0600	20	WG650209
1,3-Dichlorobenzene	mg/l	0.0237	0.0234	95.0	77-127	1.19	20	WG650209
1,3-Dichloropropane	mg/l	0.0249	0.0243	100.	78-117	2.40	20	WG650209
1,4-Dichlorobenzene	mg/l	0.0250	0.0249	100.	79-117	0.450	20	WG650209
2,2-Dichloropropane	mg/l	0.0218	0.0215	87.0	63-130	1.49	20	WG650209
2-Butanone (MEK)	mg/l	0.139	0.132	111.	58-144	5.58	20	WG650209
2-Chloroethyl vinyl ether	mg/l	0.119	0.118	95.0	26-172	0.300	22	WG650209
2-Chlorotoluene	mg/l	0.0242	0.0240	97.0	78-123	0.930	20	WG650209
4-Chlorotoluene	mg/l	0.0235	0.0233	94.0	78-122	1.19	20	WG650209
4-Methyl-2-pentanone (MIBK)	mg/l	0.117	0.116	94.0	58-147	0.840	20	WG650209
Acetone	mg/l	0.123	0.121	98.0	49-153	2.07	21	WG650209
Acrolein	mg/l	0.138	0.133	111.	10-181	4.27	30	WG650209
Acrylonitrile	mg/l	0.131	0.123	105.	53-153	6.30	20	WG650209
Benzene	mg/l	0.0260	0.0254	104.	72-119	2.09	20	WG650209
Bromobenzene	mg/l	0.0236	0.0233	94.0	76-121	1.37	20	WG650209
Bromodichloromethane	mg/l	0.0225	0.0227	90.0	75-127	0.790	20	WG650209
Bromoform	mg/l	0.0218	0.0210	87.0	61-136	3.74	20	WG650209
Bromomethane	mg/l	0.0315	0.0307	126.	42-172	2.35	20	WG650209
Carbon tetrachloride	mg/l	0.0222	0.0222	89.0	63-129	0.110	20	WG650209
Chlorobenzene	mg/l	0.0236	0.0240	94.0	78-123	1.51	20	WG650209
Chlorodibromomethane	mg/l	0.0221	0.0220	88.0	73-128	0.300	20	WG650209
Chloroethane	mg/l	0.0249	0.0251	100.	52-164	0.560	20	WG650209
Chloroform	mg/l	0.0245	0.0238	98.0	76-122	2.86	20	WG650209
Chloromethane	mg/l	0.0259	0.0248	104.	50-141	4.27	20	WG650209
cis-1,2-Dichloroethene	mg/l	0.0243	0.0236	97.0	75-121	2.86	20	WG650209
cis-1,3-Dichloropropene	mg/l	0.0235	0.0230	94.0	74-124	2.11	20	WG650209
Di-isopropyl ether	mg/l	0.0239	0.0232	96.0	66-129	2.72	20	WG650209
Dibromomethane	mg/l	0.0244	0.0238	98.0	77-124	2.72	20	WG650209
Dichlorodifluoromethane	mg/l	0.0224	0.0225	90.0	33-173	0.400	20	WG650209
Ethylbenzene	mg/l	0.0239	0.0233	96.0	77-124	2.40	20	WG650209
Hexachloro-1,3-butadiene	mg/l	0.0260	0.0261	104.	71-134	0.500	20	WG650209
Isopropylbenzene	mg/l	0.0232	0.0234	93.0	74-126	0.910	20	WG650209
Methyl tert-butyl ether	mg/l	0.0232	0.0227	93.0	67-127	2.30	20	WG650209
Methylene Chloride	mg/l	0.0247	0.0245	99.0	67-122	0.890	20	WG650209
n-Butylbenzene	mg/l	0.0269	0.0267	108.	74-130	0.670	20	WG650209
n-Propylbenzene	mg/l	0.0239	0.0239	96.0	77-125	0.0800	20	WG650209
Naphthalene	mg/l	0.0251	0.0254	100.	70-134	1.05	20	WG650209
p-Isopropyltoluene	mg/l	0.0237	0.0238	95.0	77-132	0.280	20	WG650209
sec-Butylbenzene	mg/l	0.0242	0.0238	97.0	77-130	1.72	20	WG650209
Styrene	mg/l	0.0234	0.0239	94.0	69-145	2.35	20	WG650209
tert-Butylbenzene	mg/l	0.0234	0.0236	94.0	76-131	0.890	20	WG650209
Tetrachloroethene	mg/l	0.0238	0.0235	95.0	69-131	1.09	20	WG650209
Toluene	mg/l	0.0240	0.0239	96.0	75-114	0.470	20	WG650209
trans-1,2-Dichloroethene	mg/l	0.0251	0.0243	100.	63-127	2.95	20	WG650209

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Quality Assurance Report
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Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
trans-1,3-Dichloropropene	mg/l	0.0210	0.0216	84.0	69-124	2.74	20	WG650209
Trichloroethene	mg/l	0.0240	0.0239	96.0	69-131	0.690	20	WG650209
Trichlorofluoromethane	mg/l	0.0233	0.0233	93.0	53-161	0.300	20	WG650209
Vinyl chloride	mg/l	0.0255	0.0245	102.	55-142	3.75	20	WG650209
Xylenes, Total	mg/l	0.0712	0.0697	95.0	77-123	2.23	20	WG650209
4-Bromofluorobenzene				91.43	82-120			WG650209
Dibromofluoromethane				100.3	82-126			WG650209
Toluene-d8				99.66	92-112			WG650209
1,1,1,2-Tetrachloroethane	mg/l	0.0270	0.0272	108.	77-128	0.950	20	WG650134
1,1,1-Trichloroethane	mg/l	0.0215	0.0231	86.0	71-126	7.31	20	WG650134
1,1,2,2-Tetrachloroethane	mg/l	0.0264	0.0275	105.	78-130	4.09	20	WG650134
1,1,2-Trichloroethane	mg/l	0.0257	0.0255	103.	81-121	0.600	20	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	0.0221	0.0239	88.0	53-143	7.63	20	WG650134
1,1-Dichloroethane	mg/l	0.0218	0.0226	87.0	73-123	3.52	20	WG650134
1,1-Dichloroethene	mg/l	0.0227	0.0241	91.0	54-134	5.99	20	WG650134
1,1-Dichloropropene	mg/l	0.0224	0.0231	90.0	67-127	2.87	20	WG650134
1,2,3-Trichlorobenzene	mg/l	0.0303	0.0328	121.	77-130	7.93	20	WG650134
1,2,3-Trichloropropane	mg/l	0.0235	0.0257	94.0	68-130	8.61	20	WG650134
1,2,3-Trimethylbenzene	mg/l	0.0235	0.0240	94.0	77-126	1.80	20	WG650134
1,2,4-Trichlorobenzene	mg/l	0.0300	0.0314	120.	76-127	4.46	20	WG650134
1,2,4-Trimethylbenzene	mg/l	0.0274	0.0279	110.	77-129	1.81	20	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	0.0232	0.0238	93.0	55-142	2.61	20	WG650134
1,2-Dibromoethane	mg/l	0.0258	0.0256	103.	78-124	1.05	20	WG650134
1,2-Dichlorobenzene	mg/l	0.0252	0.0260	101.	82-121	3.01	20	WG650134
1,2-Dichloroethane	mg/l	0.0232	0.0237	93.0	69-128	2.10	20	WG650134
1,2-Dichloropropane	mg/l	0.0238	0.0241	95.0	77-121	1.22	20	WG650134
1,3,5-Trimethylbenzene	mg/l	0.0275	0.0282	110.	78-127	2.56	20	WG650134
1,3-Dichlorobenzene	mg/l	0.0292	0.0294	117.	77-127	0.440	20	WG650134
1,3-Dichloropropane	mg/l	0.0250	0.0243	100.	78-117	2.97	20	WG650134
1,4-Dichlorobenzene	mg/l	0.0246	0.0249	98.0	79-117	1.33	20	WG650134
2,2-Dichloropropane	mg/l	0.0214	0.0232	86.0	63-130	8.33	20	WG650134
2-Butanone (MEK)	mg/l	0.107	0.111	86.0	58-144	3.58	20	WG650134
2-Chloroethyl vinyl ether	mg/l	0.131	0.132	105.	26-172	0.250	22	WG650134
2-Chlorotoluene	mg/l	0.0270	0.0275	108.	78-123	1.67	20	WG650134
4-Chlorotoluene	mg/l	0.0267	0.0269	107.	78-122	0.680	20	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	0.115	0.121	92.0	58-147	4.56	20	WG650134
Acetone	mg/l	0.112	0.116	89.0	49-153	3.80	21	WG650134
Acrolein	mg/l	0.138	0.126	110.	10-181	9.29	30	WG650134
Acrylonitrile	mg/l	0.104	0.111	83.0	53-153	6.47	20	WG650134
Benzene	mg/l	0.0228	0.0235	91.0	72-119	2.88	20	WG650134
Bromobenzene	mg/l	0.0255	0.0257	102.	76-121	0.680	20	WG650134
Bromodichloromethane	mg/l	0.0230	0.0230	92.0	75-127	0.300	20	WG650134
Bromoform	mg/l	0.0258	0.0253	103.	61-136	1.95	20	WG650134
Bromomethane	mg/l	0.0327	0.0354	131.	42-172	8.07	20	WG650134
Carbon tetrachloride	mg/l	0.0204	0.0238	82.0	63-129	15.6	20	WG650134
Chlorobenzene	mg/l	0.0269	0.0266	107.	78-123	0.950	20	WG650134
Chlorodibromomethane	mg/l	0.0259	0.0256	104.	73-128	1.44	20	WG650134
Chloroethane	mg/l	0.0229	0.0248	91.0	52-164	8.24	20	WG650134
Chloroform	mg/l	0.0230	0.0236	92.0	76-122	2.55	20	WG650134
Chloromethane	mg/l	0.0196	0.0211	78.0	50-141	6.91	20	WG650134
cis-1,2-Dichloroethene	mg/l	0.0225	0.0237	90.0	75-121	5.12	20	WG650134
cis-1,3-Dichloropropene	mg/l	0.0236	0.0243	94.0	74-124	2.93	20	WG650134
Di-isopropyl ether	mg/l	0.0205	0.0212	82.0	66-129	3.50	20	WG650134
Dibromomethane	mg/l	0.0243	0.0248	97.0	77-124	2.20	20	WG650134
Dichlorodifluoromethane	mg/l	0.0208	0.0228	83.0	33-173	9.49	20	WG650134
Ethylbenzene	mg/l	0.0261	0.0264	104.	77-124	1.13	20	WG650134
Hexachloro-1,3-butadiene	mg/l	0.0290	0.0309	116.	71-134	6.44	20	WG650134

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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L623995

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Isopropylbenzene	mg/l	0.0268	0.0271	107.	74-126	0.910	20	WG650134
Methyl tert-butyl ether	mg/l	0.0216	0.0224	86.0	67-127	3.68	20	WG650134
Methylene Chloride	mg/l	0.0216	0.0230	86.0	67-122	6.14	20	WG650134
n-Butylbenzene	mg/l	0.0251	0.0258	100.	74-130	2.94	20	WG650134
n-Propylbenzene	mg/l	0.0271	0.0275	108.	77-125	1.64	20	WG650134
Naphthalene	mg/l	0.0257	0.0270	103.	70-134	4.97	20	WG650134
p-Isopropyltoluene	mg/l	0.0286	0.0291	114.	77-132	1.61	20	WG650134
sec-Butylbenzene	mg/l	0.0282	0.0287	113.	77-130	1.78	20	WG650134
Styrene	mg/l	0.0258	0.0258	103.	69-145	0.250	20	WG650134
tert-Butylbenzene	mg/l	0.0277	0.0285	111.	76-131	3.06	20	WG650134
Tetrachloroethene	mg/l	0.0268	0.0273	107.	69-131	1.93	20	WG650134
Toluene	mg/l	0.0244	0.0249	98.0	75-114	1.81	20	WG650134
trans-1,2-Dichloroethene	mg/l	0.0221	0.0234	88.0	63-127	5.71	20	WG650134
trans-1,3-Dichloropropene	mg/l	0.0253	0.0246	101.	69-124	2.66	20	WG650134
Trichloroethene	mg/l	0.0259	0.0269	104.	69-131	3.61	20	WG650134
Trichlorofluoromethane	mg/l	0.0234	0.0250	94.0	53-161	6.57	20	WG650134
Vinyl chloride	mg/l	0.0193	0.0213	77.0	55-142	9.79	20	WG650134
Xylenes, Total	mg/l	0.0799	0.0799	106.	77-123	0.0200	20	WG650134
4-Bromofluorobenzene				99.11	82-120			WG650134
Dibromofluoromethane				90.81	82-126			WG650134
Toluene-d8				96.00	92-112			WG650134

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0234	0	.025	93.7	71-130	L623995-02	WG650209
1,1,1-Trichloroethane	mg/l	0.0222	0	.025	88.9	58-137	L623995-02	WG650209
1,1,2,2-Tetrachloroethane	mg/l	0.0246	0	.025	98.2	64-149	L623995-02	WG650209
1,1,2-Trichloroethane	mg/l	0.0235	0	.025	94.0	73-128	L623995-02	WG650209
1,1,2-Trichlorotrifluoroethane	mg/l	0.0242	0	.025	96.7	36-159	L623995-02	WG650209
1,1-Dichloroethane	mg/l	0.0247	0	.025	98.7	58-133	L623995-02	WG650209
1,1-Dichloroethene	mg/l	0.0210	0	.025	84.0	32-152	L623995-02	WG650209
1,1-Dichloropropene	mg/l	0.0241	0	.025	96.4	50-140	L623995-02	WG650209
1,2,3-Trichlorobenzene	mg/l	0.0272	0	.025	109.	68-135	L623995-02	WG650209
1,2,3-Trichloropropane	mg/l	0.0223	0	.025	89.2	74-137	L623995-02	WG650209
1,2,3-Trimethylbenzene	mg/l	0.0246	0	.025	98.6	67-133	L623995-02	WG650209
1,2,4-Trichlorobenzene	mg/l	0.0279	0	.025	112.	67-133	L623995-02	WG650209
1,2,4-Trimethylbenzene	mg/l	0.0232	0	.025	92.8	62-141	L623995-02	WG650209
1,2-Dibromo-3-Chloropropane	mg/l	0.0222	0	.025	88.7	55-148	L623995-02	WG650209
1,2-Dibromoethane	mg/l	0.0232	0	.025	92.7	71-129	L623995-02	WG650209
1,2-Dichlorobenzene	mg/l	0.0257	0	.025	103.	75-125	L623995-02	WG650209
1,2-Dichloroethane	mg/l	0.0221	0	.025	88.5	59-135	L623995-02	WG650209
1,2-Dichloropropane	mg/l	0.0245	0	.025	98.1	68-126	L623995-02	WG650209
1,3,5-Trimethylbenzene	mg/l	0.0234	0	.025	93.6	67-136	L623995-02	WG650209
1,3-Dichlorobenzene	mg/l	0.0240	0	.025	95.9	69-131	L623995-02	WG650209
1,3-Dichloropropane	mg/l	0.0253	0	.025	101.	70-122	L623995-02	WG650209
1,4-Dichlorobenzene	mg/l	0.0251	0	.025	100.	70-123	L623995-02	WG650209
2,2-Dichloropropane	mg/l	0.0209	0	.025	83.6	51-141	L623995-02	WG650209
2-Butanone (MEK)	mg/l	0.0823	0	.125	65.8	51-149	L623995-02	WG650209
2-Chloroethyl vinyl ether	mg/l	0.0152	0	.125	12.2	10-161	L623995-02	WG650209
2-Chlorotoluene	mg/l	0.0242	0	.025	96.8	65-133	L623995-02	WG650209
4-Chlorotoluene	mg/l	0.0242	0	.025	96.6	67-129	L623995-02	WG650209
4-Methyl-2-pentanone (MIBK)	mg/l	0.112	0	.125	89.8	53-154	L623995-02	WG650209
Acetone	mg/l	0.0534	0.000559	.125	42.3	34-146	L623995-02	WG650209
Acrolein	mg/l	0.307	0	.125	246.*	10-189	L623995-02	WG650209
Acrylonitrile	mg/l	0.121	0	.125	96.4	49-162	L623995-02	WG650209
Benzene	mg/l	0.0246	0	.025	98.6	51-134	L623995-02	WG650209
Bromobenzene	mg/l	0.0235	0	.025	94.0	64-130	L623995-02	WG650209
Bromodichloromethane	mg/l	0.0221	0	.025	88.4	67-132	L623995-02	WG650209

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L623995

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Bromoform	mg/l	0.0217	0	.025	86.8	59-137	L623995-02	WG650209
Bromomethane	mg/l	0.0303	0	.025	121.	23-177	L623995-02	WG650209
Carbon tetrachloride	mg/l	0.0211	0	.025	84.4	49-140	L623995-02	WG650209
Chlorobenzene	mg/l	0.0244	0	.025	97.7	69-126	L623995-02	WG650209
Chlorodibromomethane	mg/l	0.0223	0	.025	89.1	68-130	L623995-02	WG650209
Chloroethane	mg/l	0.0235	0	.025	94.1	32-177	L623995-02	WG650209
Chloroform	mg/l	0.0232	0	.025	92.8	64-130	L623995-02	WG650209
Chloromethane	mg/l	0.0241	0	.025	96.3	27-155	L623995-02	WG650209
cis-1,2-Dichloroethene	mg/l	0.0231	0	.025	92.4	54-137	L623995-02	WG650209
cis-1,3-Dichloropropene	mg/l	0.0227	0	.025	90.8	63-127	L623995-02	WG650209
Di-isopropyl ether	mg/l	0.0232	0	.025	92.7	58-133	L623995-02	WG650209
Dibromomethane	mg/l	0.0239	0	.025	95.7	68-131	L623995-02	WG650209
Dichlorodifluoromethane	mg/l	0.0215	0	.025	85.9	16-188	L623995-02	WG650209
Ethylbenzene	mg/l	0.0240	0	.025	96.0	64-135	L623995-02	WG650209
Hexachloro-1,3-butadiene	mg/l	0.0268	0	.025	107.	64-140	L623995-02	WG650209
Isopropylbenzene	mg/l	0.0234	0	.025	93.7	62-134	L623995-02	WG650209
Methyl tert-butyl ether	mg/l	0.0221	0	.025	88.4	55-136	L623995-02	WG650209
Methylene Chloride	mg/l	0.0238	0	.025	95.2	52-130	L623995-02	WG650209
n-Butylbenzene	mg/l	0.0272	0	.025	109.	62-142	L623995-02	WG650209
n-Propylbenzene	mg/l	0.0242	0	.025	96.9	62-137	L623995-02	WG650209
Naphthalene	mg/l	0.0248	0	.025	99.3	65-140	L623995-02	WG650209
p-Isopropyltoluene	mg/l	0.0241	0	.025	96.6	64-142	L623995-02	WG650209
sec-Butylbenzene	mg/l	0.0243	0	.025	97.1	67-139	L623995-02	WG650209
Styrene	mg/l	0.0240	0	.025	96.1	58-152	L623995-02	WG650209
tert-Butylbenzene	mg/l	0.0238	0	.025	95.3	66-139	L623995-02	WG650209
Tetrachloroethene	mg/l	0.0235	0	.025	94.1	56-139	L623995-02	WG650209
Toluene	mg/l	0.0240	0	.025	96.1	61-126	L623995-02	WG650209
trans-1,2-Dichloroethene	mg/l	0.0235	0	.025	94.0	45-137	L623995-02	WG650209
trans-1,3-Dichloropropene	mg/l	0.0218	0	.025	87.2	59-130	L623995-02	WG650209
Trichloroethene	mg/l	0.0234	0	.025	93.6	40-155	L623995-02	WG650209
Trichlorofluoromethane	mg/l	0.0221	0	.025	88.6	35-177	L623995-02	WG650209
Vinyl chloride	mg/l	0.0238	0	.025	95.1	32-159	L623995-02	WG650209
Xylenes, Total	mg/l	0.0711	0	.075	94.8	64-133	L623995-02	WG650209
4-Bromofluorobenzene					93.92	82-120		WG650209
Dibromofluoromethane					99.41	82-126		WG650209
Toluene-d8					99.54	92-112		WG650209
1,1,1,2-Tetrachloroethane	mg/l	0.0263	0	.025	105.	71-130	L623994-01	WG650134
1,1,1-Trichloroethane	mg/l	0.0221	0	.025	88.4	58-137	L623994-01	WG650134
1,1,2,2-Tetrachloroethane	mg/l	0.0282	0	.025	113.	64-149	L623994-01	WG650134
1,1,2-Trichloroethane	mg/l	0.0251	0	.025	100.	73-128	L623994-01	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	0.0229	0	.025	91.6	36-159	L623994-01	WG650134
1,1-Dichloroethane	mg/l	0.0215	0	.025	85.9	58-133	L623994-01	WG650134
1,1-Dichloroethene	mg/l	0.0227	0	.025	90.8	32-152	L623994-01	WG650134
1,1-Dichloropropene	mg/l	0.0223	0	.025	89.0	50-140	L623994-01	WG650134
1,2,3-Trichlorobenzene	mg/l	0.0316	0	.025	126.	68-135	L623994-01	WG650134
1,2,3-Trichloropropane	mg/l	0.0232	0	.025	92.7	74-137	L623994-01	WG650134
1,2,3-Trimethylbenzene	mg/l	0.0233	0	.025	93.1	67-133	L623994-01	WG650134
1,2,4-Trichlorobenzene	mg/l	0.0311	0	.025	124.	67-133	L623994-01	WG650134
1,2,4-Trimethylbenzene	mg/l	0.0275	0	.025	110.	62-141	L623994-01	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	0.0242	0	.025	96.6	55-148	L623994-01	WG650134
1,2-Dibromoethane	mg/l	0.0250	0	.025	100.	71-129	L623994-01	WG650134
1,2-Dichlorobenzene	mg/l	0.0252	0	.025	101.	75-125	L623994-01	WG650134
1,2-Dichloroethane	mg/l	0.0222	0	.025	88.7	59-135	L623994-01	WG650134
1,2-Dichloropropane	mg/l	0.0227	0	.025	90.6	68-126	L623994-01	WG650134
1,3,5-Trimethylbenzene	mg/l	0.0277	0	.025	111.	67-136	L623994-01	WG650134
1,3-Dichlorobenzene	mg/l	0.0291	0	.025	116.	69-131	L623994-01	WG650134
1,3-Dichloropropane	mg/l	0.0239	0	.025	95.6	70-122	L623994-01	WG650134

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Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,4-Dichlorobenzene	mg/l	0.0244	0	.025	97.6	70-123	L623994-01	WG650134
2,2-Dichloropropane	mg/l	0.0228	0	.025	91.3	51-141	L623994-01	WG650134
2-Butanone (MEK)	mg/l	0.0750	0	.125	60.0	51-149	L623994-01	WG650134
2-Chloroethyl vinyl ether	mg/l	0.00721	0	.125	5.76*	10-161	L623994-01	WG650134
2-Chlorotoluene	mg/l	0.0269	0	.025	108.	65-133	L623994-01	WG650134
4-Chlorotoluene	mg/l	0.0263	0	.025	105.	67-129	L623994-01	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	0.113	0	.125	90.4	53-154	L623994-01	WG650134
Acetone	mg/l	0.0505	0.00112	.125	39.5	34-146	L623994-01	WG650134
Acrolein	mg/l	0.170	0	.125	136.	10-189	L623994-01	WG650134
Acrylonitrile	mg/l	0.106	0	.125	85.2	49-162	L623994-01	WG650134
Benzene	mg/l	0.0221	0	.025	88.5	51-134	L623994-01	WG650134
Bromobenzene	mg/l	0.0255	0	.025	102.	64-130	L623994-01	WG650134
Bromodichloromethane	mg/l	0.0220	0	.025	88.1	67-132	L623994-01	WG650134
Bromoform	mg/l	0.0254	0	.025	102.	59-137	L623994-01	WG650134
Bromomethane	mg/l	0.0307	0	.025	123.	23-177	L623994-01	WG650134
Carbon tetrachloride	mg/l	0.0232	0	.025	92.8	49-140	L623994-01	WG650134
Chlorobenzene	mg/l	0.0262	0	.025	105.	69-126	L623994-01	WG650134
Chlorodibromomethane	mg/l	0.0256	0	.025	102.	68-130	L623994-01	WG650134
Chloroethane	mg/l	0.0229	0	.025	91.5	32-177	L623994-01	WG650134
Chloroform	mg/l	0.0226	0	.025	90.3	64-130	L623994-01	WG650134
Chloromethane	mg/l	0.0186	0	.025	74.4	27-155	L623994-01	WG650134
cis-1,2-Dichloroethene	mg/l	0.0221	0	.025	88.3	54-137	L623994-01	WG650134
cis-1,3-Dichloropropene	mg/l	0.0223	0	.025	89.3	63-127	L623994-01	WG650134
Di-isopropyl ether	mg/l	0.0202	0	.025	80.7	58-133	L623994-01	WG650134
Dibromomethane	mg/l	0.0228	0	.025	91.1	68-131	L623994-01	WG650134
Dichlorodifluoromethane	mg/l	0.0199	0	.025	79.8	16-188	L623994-01	WG650134
Ethylbenzene	mg/l	0.0263	0	.025	105.	64-135	L623994-01	WG650134
Hexachloro-1,3-butadiene	mg/l	0.0300	0	.025	120.	64-140	L623994-01	WG650134
Isopropylbenzene	mg/l	0.0269	0	.025	108.	62-134	L623994-01	WG650134
Methyl tert-butyl ether	mg/l	0.0212	0	.025	84.8	55-136	L623994-01	WG650134
Methylene Chloride	mg/l	0.0210	0	.025	84.2	52-130	L623994-01	WG650134
n-Butylbenzene	mg/l	0.0256	0	.025	102.	62-142	L623994-01	WG650134
n-Propylbenzene	mg/l	0.0273	0	.025	109.	62-137	L623994-01	WG650134
Naphthalene	mg/l	0.0274	0	.025	110.	65-140	L623994-01	WG650134
p-Isopropyltoluene	mg/l	0.0294	0	.025	118.	64-142	L623994-01	WG650134
sec-Butylbenzene	mg/l	0.0294	0	.025	117.	67-139	L623994-01	WG650134
Styrene	mg/l	0.0253	0	.025	101.	58-152	L623994-01	WG650134
tert-Butylbenzene	mg/l	0.0286	0	.025	114.	66-139	L623994-01	WG650134
Tetrachloroethene	mg/l	0.0266	0	.025	106.	56-139	L623994-01	WG650134
Toluene	mg/l	0.0235	0	.025	94.0	61-126	L623994-01	WG650134
trans-1,2-Dichloroethene	mg/l	0.0215	0	.025	86.0	45-137	L623994-01	WG650134
trans-1,3-Dichloropropene	mg/l	0.0232	0	.025	92.6	59-130	L623994-01	WG650134
Trichloroethene	mg/l	0.0278	0.00387	.025	95.8	40-155	L623994-01	WG650134
Trichlorofluoromethane	mg/l	0.0236	0	.025	94.5	35-177	L623994-01	WG650134
Vinyl chloride	mg/l	0.0191	0	.025	76.6	32-159	L623994-01	WG650134
Xylenes, Total	mg/l	0.0786	0	.075	105.	64-133	L623994-01	WG650134
4-Bromofluorobenzene					99.36	82-120		WG650134
Dibromofluoromethane					93.03	82-126		WG650134
Toluene-d8					94.91	92-112		WG650134

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0217	0.0234	86.6	71-130	7.80	20	L623995-02	WG650209
1,1,1-Trichloroethane	mg/l	0.0207	0.0222	83.0	58-137	6.88	20	L623995-02	WG650209
1,1,2,2-Tetrachloroethane	mg/l	0.0236	0.0246	94.3	64-149	4.04	20	L623995-02	WG650209
1,1,2-Trichloroethane	mg/l	0.0228	0.0235	91.2	73-128	3.02	20	L623995-02	WG650209
1,1,2-Trichlorotrifluoroethane	mg/l	0.0230	0.0242	92.0	36-159	4.88	21	L623995-02	WG650209
1,1-Dichloroethane	mg/l	0.0236	0.0247	94.4	58-133	4.46	20	L623995-02	WG650209

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Quality Assurance Report
Level II

L623995

April 10, 2013

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1-Dichloroethene	mg/l	0.0197	0.0210	79.0	32-152	6.16	20	L623995-02	WG650209
1,1-Dichloropropene	mg/l	0.0231	0.0241	92.4	50-140	4.23	20	L623995-02	WG650209
1,2,3-Trichlorobenzene	mg/l	0.0252	0.0272	101.	68-135	7.56	20	L623995-02	WG650209
1,2,3-Trichloropropane	mg/l	0.0213	0.0223	85.1	74-137	4.65	20	L623995-02	WG650209
1,2,3-Trimethylbenzene	mg/l	0.0231	0.0246	92.5	67-133	6.31	20	L623995-02	WG650209
1,2,4-Trichlorobenzene	mg/l	0.0255	0.0279	102.	67-133	8.94	20	L623995-02	WG650209
1,2,4-Trimethylbenzene	mg/l	0.0220	0.0232	87.9	62-141	5.45	20	L623995-02	WG650209
1,2-Dibromo-3-Chloropropane	mg/l	0.0211	0.0222	84.4	55-148	5.01	22	L623995-02	WG650209
1,2-Dibromoethane	mg/l	0.0228	0.0232	91.2	71-129	1.53	20	L623995-02	WG650209
1,2-Dichlorobenzene	mg/l	0.0244	0.0257	97.7	75-125	5.11	20	L623995-02	WG650209
1,2-Dichloroethane	mg/l	0.0215	0.0221	86.0	59-135	2.82	20	L623995-02	WG650209
1,2-Dichloropropane	mg/l	0.0233	0.0245	93.3	68-126	5.04	20	L623995-02	WG650209
1,3,5-Trimethylbenzene	mg/l	0.0219	0.0234	87.7	67-136	6.46	20	L623995-02	WG650209
1,3-Dichlorobenzene	mg/l	0.0228	0.0240	91.3	69-131	4.92	20	L623995-02	WG650209
1,3-Dichloropropane	mg/l	0.0236	0.0253	94.3	70-122	6.92	20	L623995-02	WG650209
1,4-Dichlorobenzene	mg/l	0.0231	0.0251	92.6	70-123	8.05	20	L623995-02	WG650209
2,2-Dichloropropane	mg/l	0.0200	0.0209	79.9	51-141	4.53	20	L623995-02	WG650209
2-Butanone (MEK)	mg/l	0.0834	0.0823	66.7	51-149	1.32	22	L623995-02	WG650209
2-Chloroethyl vinyl ether	mg/l	0.00278	0.0152	2.22*	10-161	138.*	40	L623995-02	WG650209
2-Chlorotoluene	mg/l	0.0234	0.0242	93.5	65-133	3.54	20	L623995-02	WG650209
4-Chlorotoluene	mg/l	0.0228	0.0242	91.2	67-129	5.71	20	L623995-02	WG650209
4-Methyl-2-pentanone (MIBK)	mg/l	0.108	0.112	86.8	53-154	3.46	21	L623995-02	WG650209
Acetone	mg/l	0.0524	0.0534	41.4	34-146	2.00	22	L623995-02	WG650209
Acrolein	mg/l	0.305	0.307	244.*	10-189	0.630	30	L623995-02	WG650209
Acrylonitrile	mg/l	0.118	0.121	94.5	49-162	2.03	20	L623995-02	WG650209
Benzene	mg/l	0.0231	0.0246	92.4	51-134	6.42	20	L623995-02	WG650209
Bromobenzene	mg/l	0.0224	0.0235	89.4	64-130	5.03	20	L623995-02	WG650209
Bromodichloromethane	mg/l	0.0214	0.0221	85.5	67-132	3.33	20	L623995-02	WG650209
Bromoform	mg/l	0.0205	0.0217	82.1	59-137	5.61	20	L623995-02	WG650209
Bromomethane	mg/l	0.0278	0.0303	111.	23-177	8.50	21	L623995-02	WG650209
Carbon tetrachloride	mg/l	0.0199	0.0211	79.7	49-140	5.74	20	L623995-02	WG650209
Chlorobenzene	mg/l	0.0230	0.0244	92.2	69-126	5.80	20	L623995-02	WG650209
Chlorodibromomethane	mg/l	0.0215	0.0223	86.2	68-130	3.32	20	L623995-02	WG650209
Chloroethane	mg/l	0.0224	0.0235	89.7	32-177	4.84	21	L623995-02	WG650209
Chloroform	mg/l	0.0219	0.0232	87.4	64-130	5.99	20	L623995-02	WG650209
Chloromethane	mg/l	0.0226	0.0241	90.5	27-155	6.18	20	L623995-02	WG650209
cis-1,2-Dichloroethene	mg/l	0.0225	0.0231	90.2	54-137	2.43	20	L623995-02	WG650209
cis-1,3-Dichloropropene	mg/l	0.0213	0.0227	85.2	63-127	6.36	20	L623995-02	WG650209
Di-isopropyl ether	mg/l	0.0222	0.0232	88.6	58-133	4.51	20	L623995-02	WG650209
Dibromomethane	mg/l	0.0231	0.0239	92.6	68-131	3.31	20	L623995-02	WG650209
Dichlorodifluoromethane	mg/l	0.0204	0.0215	81.7	16-188	5.03	22	L623995-02	WG650209
Ethylbenzene	mg/l	0.0224	0.0240	89.4	64-135	7.06	20	L623995-02	WG650209
Hexachloro-1,3-butadiene	mg/l	0.0247	0.0268	99.0	64-140	7.80	20	L623995-02	WG650209
Isopropylbenzene	mg/l	0.0220	0.0234	88.1	62-134	6.19	20	L623995-02	WG650209
Methyl tert-butyl ether	mg/l	0.0214	0.0221	85.7	55-136	3.09	20	L623995-02	WG650209
Methylene Chloride	mg/l	0.0228	0.0238	91.3	52-130	4.22	20	L623995-02	WG650209
n-Butylbenzene	mg/l	0.0248	0.0272	99.2	62-142	9.24	20	L623995-02	WG650209
n-Propylbenzene	mg/l	0.0229	0.0242	91.5	62-137	5.75	20	L623995-02	WG650209
Naphthalene	mg/l	0.0232	0.0248	92.7	65-140	6.84	20	L623995-02	WG650209
p-Isopropyltoluene	mg/l	0.0228	0.0241	91.0	64-142	5.91	20	L623995-02	WG650209
sec-Butylbenzene	mg/l	0.0229	0.0243	91.6	67-139	5.79	20	L623995-02	WG650209
Styrene	mg/l	0.0231	0.0240	92.4	58-152	3.88	20	L623995-02	WG650209
tert-Butylbenzene	mg/l	0.0225	0.0238	90.0	66-139	5.74	20	L623995-02	WG650209
Tetrachloroethene	mg/l	0.0223	0.0235	89.0	56-139	5.50	20	L623995-02	WG650209
Toluene	mg/l	0.0226	0.0240	90.4	61-126	6.10	20	L623995-02	WG650209
trans-1,2-Dichloroethene	mg/l	0.0225	0.0235	89.9	45-137	4.48	20	L623995-02	WG650209
trans-1,3-Dichloropropene	mg/l	0.0206	0.0218	82.2	59-130	5.82	20	L623995-02	WG650209
Trichloroethene	mg/l	0.0221	0.0234	88.4	40-155	5.71	20	L623995-02	WG650209
Trichlorofluoromethane	mg/l	0.0207	0.0221	82.9	35-177	6.65	23	L623995-02	WG650209

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Quality Assurance Report
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April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Vinyl chloride	mg/l	0.0223	0.0238	89.3	32-159	6.34	21	L623995-02	WG650209
Xylenes, Total	mg/l	0.0672	0.0711	89.6	64-133	5.57	20	L623995-02	WG650209
4-Bromofluorobenzene				93.14	82-120				WG650209
Dibromofluoromethane				99.86	82-126				WG650209
Toluene-d8				99.73	92-112				WG650209
1,1,1,2-Tetrachloroethane	mg/l	0.0268	0.0263	107.	71-130	2.00	20	L623994-01	WG650134
1,1,1-Trichloroethane	mg/l	0.0231	0.0221	92.3	58-137	4.38	20	L623994-01	WG650134
1,1,2,2-Tetrachloroethane	mg/l	0.0289	0.0282	116.	64-149	2.77	20	L623994-01	WG650134
1,1,2-Trichloroethane	mg/l	0.0258	0.0251	103.	73-128	2.82	20	L623994-01	WG650134
1,1,2-Trichlorotrifluoroethane	mg/l	0.0243	0.0229	97.3	36-159	6.01	21	L623994-01	WG650134
1,1-Dichloroethane	mg/l	0.0228	0.0215	91.0	58-133	5.81	20	L623994-01	WG650134
1,1-Dichloroethene	mg/l	0.0238	0.0227	95.1	32-152	4.60	20	L623994-01	WG650134
1,1-Dichloropropene	mg/l	0.0229	0.0223	91.8	50-140	3.03	20	L623994-01	WG650134
1,2,3-Trichlorobenzene	mg/l	0.0327	0.0316	131.	68-135	3.30	20	L623994-01	WG650134
1,2,3-Trichloropropane	mg/l	0.0249	0.0232	99.6	74-137	7.20	20	L623994-01	WG650134
1,2,3-Trimethylbenzene	mg/l	0.0238	0.0233	95.3	67-133	2.34	20	L623994-01	WG650134
1,2,4-Trichlorobenzene	mg/l	0.0314	0.0311	126.	67-133	1.07	20	L623994-01	WG650134
1,2,4-Trimethylbenzene	mg/l	0.0284	0.0275	114.	62-141	3.35	20	L623994-01	WG650134
1,2-Dibromo-3-Chloropropane	mg/l	0.0253	0.0242	101.	55-148	4.67	22	L623994-01	WG650134
1,2-Dibromoethane	mg/l	0.0259	0.0250	103.	71-129	3.24	20	L623994-01	WG650134
1,2-Dichlorobenzene	mg/l	0.0256	0.0252	102.	75-125	1.51	20	L623994-01	WG650134
1,2-Dichloroethane	mg/l	0.0232	0.0222	92.9	59-135	4.68	20	L623994-01	WG650134
1,2-Dichloropropane	mg/l	0.0239	0.0227	95.5	68-126	5.16	20	L623994-01	WG650134
1,3,5-Trimethylbenzene	mg/l	0.0282	0.0277	113.	67-136	1.95	20	L623994-01	WG650134
1,3-Dichlorobenzene	mg/l	0.0301	0.0291	120.	69-131	3.36	20	L623994-01	WG650134
1,3-Dichloropropane	mg/l	0.0250	0.0239	100.	70-122	4.66	20	L623994-01	WG650134
1,4-Dichlorobenzene	mg/l	0.0248	0.0244	99.2	70-123	1.67	20	L623994-01	WG650134
2,2-Dichloropropane	mg/l	0.0228	0.0228	91.0	51-141	0.310	20	L623994-01	WG650134
2-Butanone (MEK)	mg/l	0.0810	0.0750	64.8	51-149	7.63	22	L623994-01	WG650134
2-Chloroethyl vinyl ether	mg/l	0.00234	0.00721	1.87*	10-161	102.*	40	L623994-01	WG650134
2-Chlorotoluene	mg/l	0.0277	0.0269	111.	65-133	2.72	20	L623994-01	WG650134
4-Chlorotoluene	mg/l	0.0273	0.0263	109.	67-129	3.87	20	L623994-01	WG650134
4-Methyl-2-pentanone (MIBK)	mg/l	0.123	0.113	98.2	53-154	8.28	21	L623994-01	WG650134
Acetone	mg/l	0.0551	0.0505	43.2	34-146	8.79	22	L623994-01	WG650134
Acrolein	mg/l	0.183	0.170	146.	10-189	7.35	30	L623994-01	WG650134
Acrylonitrile	mg/l	0.115	0.106	92.4	49-162	8.09	20	L623994-01	WG650134
Benzene	mg/l	0.0230	0.0221	92.1	51-134	4.03	20	L623994-01	WG650134
Bromobenzene	mg/l	0.0262	0.0255	105.	64-130	2.75	20	L623994-01	WG650134
Bromodichloromethane	mg/l	0.0227	0.0220	90.7	67-132	2.97	20	L623994-01	WG650134
Bromoform	mg/l	0.0259	0.0254	103.	59-137	1.74	20	L623994-01	WG650134
Bromomethane	mg/l	0.0311	0.0307	124.	23-177	1.26	21	L623994-01	WG650134
Carbon tetrachloride	mg/l	0.0239	0.0232	95.7	49-140	3.09	20	L623994-01	WG650134
Chlorobenzene	mg/l	0.0265	0.0262	106.	69-126	1.17	20	L623994-01	WG650134
Chlorodibromomethane	mg/l	0.0254	0.0256	101.	68-130	1.11	20	L623994-01	WG650134
Chloroethane	mg/l	0.0236	0.0229	94.3	32-177	2.94	21	L623994-01	WG650134
Chloroform	mg/l	0.0236	0.0226	94.3	64-130	4.25	20	L623994-01	WG650134
Chloromethane	mg/l	0.0196	0.0186	78.3	27-155	5.18	20	L623994-01	WG650134
cis-1,2-Dichloroethene	mg/l	0.0232	0.0221	92.8	54-137	4.88	20	L623994-01	WG650134
cis-1,3-Dichloropropene	mg/l	0.0231	0.0223	92.3	63-127	3.34	20	L623994-01	WG650134
Di-isopropyl ether	mg/l	0.0213	0.0202	85.1	58-133	5.32	20	L623994-01	WG650134
Dibromomethane	mg/l	0.0243	0.0228	97.2	68-131	6.42	20	L623994-01	WG650134
Dichlorodifluoromethane	mg/l	0.0208	0.0199	83.0	16-188	4.01	22	L623994-01	WG650134
Ethylbenzene	mg/l	0.0270	0.0263	108.	64-135	2.47	20	L623994-01	WG650134
Hexachloro-1,3-butadiene	mg/l	0.0302	0.0300	121.	64-140	0.700	20	L623994-01	WG650134
Isopropylbenzene	mg/l	0.0278	0.0269	111.	62-134	3.19	20	L623994-01	WG650134
Methyl tert-butyl ether	mg/l	0.0223	0.0212	89.3	55-136	5.25	20	L623994-01	WG650134
Methylene Chloride	mg/l	0.0216	0.0210	86.2	52-130	2.37	20	L623994-01	WG650134

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April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
n-Butylbenzene	mg/l	0.0260	0.0256	104.	62-142	1.28	20	L623994-01	WG650134
n-Propylbenzene	mg/l	0.0281	0.0273	112.	62-137	2.88	20	L623994-01	WG650134
Naphthalene	mg/l	0.0282	0.0274	113.	65-140	2.74	20	L623994-01	WG650134
p-Isopropyltoluene	mg/l	0.0302	0.0294	121.	64-142	2.88	20	L623994-01	WG650134
sec-Butylbenzene	mg/l	0.0298	0.0294	119.	67-139	1.55	20	L623994-01	WG650134
Styrene	mg/l	0.0260	0.0253	104.	58-152	2.85	20	L623994-01	WG650134
tert-Butylbenzene	mg/l	0.0293	0.0286	117.	66-139	2.24	20	L623994-01	WG650134
Tetrachloroethene	mg/l	0.0263	0.0266	105.	56-139	1.10	20	L623994-01	WG650134
Toluene	mg/l	0.0240	0.0235	96.1	61-126	2.18	20	L623994-01	WG650134
trans-1,2-Dichloroethene	mg/l	0.0223	0.0215	89.1	45-137	3.52	20	L623994-01	WG650134
trans-1,3-Dichloropropene	mg/l	0.0249	0.0232	99.6	59-130	7.23	20	L623994-01	WG650134
Trichloroethene	mg/l	0.0286	0.0278	99.1	40-155	2.94	20	L623994-01	WG650134
Trichlorofluoromethane	mg/l	0.0242	0.0236	96.9	35-177	2.44	23	L623994-01	WG650134
Vinyl chloride	mg/l	0.0202	0.0191	80.9	32-159	5.51	21	L623994-01	WG650134
Xylenes, Total	mg/l	0.0799	0.0786	106.	64-133	1.63	20	L623994-01	WG650134
4-Bromofluorobenzene				99.17	82-120				WG650134
Dibromofluoromethane				93.42	82-126				WG650134
Toluene-d8				95.58	92-112				WG650134

Batch number /Run number / Sample number cross reference

WG650209: R2575548: L623995-02
WG650134: R2576538: L623995-01 03 04 05 06 07 08 09 10

* * Calculations are performed prior to rounding of reported values.
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Quality Assurance Report
Level II

L623995

April 10, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

C213

Chain of Custody
Page 1 of 2

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

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ESC LAB SCIENCES
12065 Lebanon Road
Mt. Juliet, TN 37122

Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: ~~Scott MacDonald~~ Nick Rohrbach

Email: nrohrbach@geoengineers.com ~~smacdonald@geoengineers.cc~~

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0160-121-08 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): L. Linde / J. Deeds

Site/Facility ID#: TUMWATER, WA

~~P.O.#~~: 10 day TAT

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T83764/ P419879
Cooler #:
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk	Remarks/Contaminant	Sample # (lab only)
TB-1 130305	Grab	GW		~~3/5/13~~		3	X	X		L623995-01
MW-ES-08 130305		GW		3/5/13	1030	9	X		MS/MSD triplicate volume	02
MW-100 130305		GW			1210	3	X			03
MW-112 130305		GW			1440	3	X			04
MW-109 130305		GW			1625	3	X			05
MW-110 130306		GW		3/6/13	1050	3	X			06
MW-107 130306		GW			1215	3	X			07
MW-96-16 130306		GW			1440	3	X			08
MW-96-17 130306		GW			1535	3	X			09

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

pH _____ Temp _____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

Flow _____ Other _____

Quote # GEOENGTWA0218 13L

5547 0230 1857

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐	Condition: (lab use only)
[signature]	3/6/13	1650			OK
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1° Bottles Received: 36	COC Seal Intact: ✓ Y ___ N ___ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3-8-13 Time: 0900	pH Checked: NCF:

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

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Tacoma, WA 98402

Chain of Custody
Page 2 of 2

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Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: ~~Scott MacDonald~~ Nick Rohrbach

Email: nrohrbach@geoengineers.com ~~smacdonald@geoengineers.co~~

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0180-121-08 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): L. Linde / J. Dacks

Site/Facility ID#: TUMWATER, WA

~~P.O.#~~: 10 day TAT

Collected by (signature): [signature]
Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

(lab use only)
Acctnum: GEOENGTWA
Template/Prelogin: T83764/ P415579
Cooler #: ~~12 21 12 CK~~
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk							Remarks/Contaminant	Sample # (lab only)
✓ DWP-1 130306	Grab	GW		3/6/13		3	X									L623995-10
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

Flow _____ Other _____

Quote # GEOENGTWA0218/3L

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)
[signature]	3/6/13	1650			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1 Bottles Received: 36	COC Seal Intact: ✓ Y ___ N ___ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3-8-13 Time: 0900	pH Checked: NCF:

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L624126
Samples Received: 03/09/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-03 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 10:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-03 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 10:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	17.	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	105.			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-111 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 14:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-111 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 14:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	9.1	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	105.			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	101.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : WDOT-MW-1 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 12:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : WDOT-MW-1 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 12:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	104.			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	96.2			% Rec.		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-104A 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 16:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-104A 130307

Collected By : Aaron Waggoner
Collection Date : 03/07/13 16:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	8.0	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	105.			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	97.5			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-2

Collected By : Aaron Waggoner
Collection Date : 03/07/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l	J4	8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-2

Collected By : Aaron Waggoner
Collection Date : 03/07/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	1.8	1.0	5.0	ug/l	J	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	20.	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	104.			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	98.8			% Rec.		8260B	03/10/13	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-04 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l	J4	8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-04 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	1.8	1.0	5.0	ug/l	J	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	44.	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	0.56	0.40	1.0	ug/l	J	8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	103.			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	99.0			% Rec.		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-06 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 13:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-06 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 13:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	23.	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	0.97	0.40	1.0	ug/l	J	8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	95.4			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	92.1			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-05 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 14:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-05 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 14:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	27.	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	95.9			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	90.2			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RIN-2 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RIN-2 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	95.2			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	91.5			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	98.9			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-4 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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Fax (615) 758-5859

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Est. 1970

REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624126-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-4 130308

Collected By : Aaron Waggoner
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	96.9			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	90.0			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	103.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L624126-05	WG650232	SAMP	1,2-Dichloropropane	R2576499	J4
	WG650232	SAMP	Naphthalene	R2576499	J
L624126-06	WG650232	SAMP	1,2-Dichloropropane	R2576499	J4
	WG650232	SAMP	Naphthalene	R2576499	J
	WG650232	SAMP	Trichloroethene	R2576499	J
L624126-07	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
	WG650236	SAMP	Trichloroethene	R2576706	J
L624126-08	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
L624126-09	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
L624126-10	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J4	The associated batch QC was outside the established quality control range for accuracy.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 13:55:56

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW Metals by 6020.

Sample: L624126-01 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs. uni 690798 dor 4/4/13.
Sample: L624126-02 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-03 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-04 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-05 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-06 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-07 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-08 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-09 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624126-10 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:55
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs

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Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L624126

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650232	03/10/13 07:10
1,1,1-Trichloroethane	< .001	mg/l			WG650232	03/10/13 07:10
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650232	03/10/13 07:10
1,1,2-Trichloroethane	< .001	mg/l			WG650232	03/10/13 07:10
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650232	03/10/13 07:10
1,1-Dichloroethane	< .001	mg/l			WG650232	03/10/13 07:10
1,1-Dichloroethene	< .001	mg/l			WG650232	03/10/13 07:10
1,1-Dichloropropene	< .001	mg/l			WG650232	03/10/13 07:10
1,2,3-Trichlorobenzene	< .001	mg/l			WG650232	03/10/13 07:10
1,2,3-Trichloropropane	< .001	mg/l			WG650232	03/10/13 07:10
1,2,3-Trimethylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
1,2,4-Trichlorobenzene	< .001	mg/l			WG650232	03/10/13 07:10
1,2,4-Trimethylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650232	03/10/13 07:10
1,2-Dibromoethane	< .001	mg/l			WG650232	03/10/13 07:10
1,2-Dichlorobenzene	< .001	mg/l			WG650232	03/10/13 07:10
1,2-Dichloroethane	< .001	mg/l			WG650232	03/10/13 07:10
1,2-Dichloropropane	< .001	mg/l			WG650232	03/10/13 07:10
1,3,5-Trimethylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
1,3-Dichlorobenzene	< .001	mg/l			WG650232	03/10/13 07:10
1,3-Dichloropropane	< .001	mg/l			WG650232	03/10/13 07:10
1,4-Dichlorobenzene	< .001	mg/l			WG650232	03/10/13 07:10
2,2-Dichloropropane	< .001	mg/l			WG650232	03/10/13 07:10
2-Butanone (MEK)	< .01	mg/l			WG650232	03/10/13 07:10
2-Chloroethyl vinyl ether	< .05	mg/l			WG650232	03/10/13 07:10
2-Chlorotoluene	< .001	mg/l			WG650232	03/10/13 07:10
4-Chlorotoluene	< .001	mg/l			WG650232	03/10/13 07:10
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650232	03/10/13 07:10
Acetone	< .05	mg/l			WG650232	03/10/13 07:10
Acrolein	< .025	mg/l			WG650232	03/10/13 07:10
Acrylonitrile	< .01	mg/l			WG650232	03/10/13 07:10
Benzene	< .001	mg/l			WG650232	03/10/13 07:10
Bromobenzene	< .001	mg/l			WG650232	03/10/13 07:10
Bromodichloromethane	< .001	mg/l			WG650232	03/10/13 07:10
Bromoform	< .001	mg/l			WG650232	03/10/13 07:10
Bromomethane	< .005	mg/l			WG650232	03/10/13 07:10
Carbon tetrachloride	< .001	mg/l			WG650232	03/10/13 07:10
Chlorobenzene	< .001	mg/l			WG650232	03/10/13 07:10
Chlorodibromomethane	< .001	mg/l			WG650232	03/10/13 07:10
Chloroethane	< .005	mg/l			WG650232	03/10/13 07:10
Chloroform	< .005	mg/l			WG650232	03/10/13 07:10
Chloromethane	< .0025	mg/l			WG650232	03/10/13 07:10
cis-1,2-Dichloroethene	< .001	mg/l			WG650232	03/10/13 07:10
cis-1,3-Dichloropropene	< .001	mg/l			WG650232	03/10/13 07:10
Di-isopropyl ether	< .001	mg/l			WG650232	03/10/13 07:10
Dibromomethane	< .001	mg/l			WG650232	03/10/13 07:10
Dichlorodifluoromethane	< .005	mg/l			WG650232	03/10/13 07:10
Ethylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
Hexachloro-1,3-butadiene	< .001	mg/l			WG650232	03/10/13 07:10
Isopropylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
Methyl tert-butyl ether	< .001	mg/l			WG650232	03/10/13 07:10
Methylene Chloride	< .005	mg/l			WG650232	03/10/13 07:10
n-Butylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
n-Propylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
Naphthalene	< .005	mg/l			WG650232	03/10/13 07:10
p-Isopropyltoluene	< .001	mg/l			WG650232	03/10/13 07:10
sec-Butylbenzene	< .001	mg/l			WG650232	03/10/13 07:10
Styrene	< .001	mg/l			WG650232	03/10/13 07:10
tert-Butylbenzene	< .001	mg/l			WG650232	03/10/13 07:10

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L624126

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG650232	03/10/13 07:10
Toluene	< .005	mg/l			WG650232	03/10/13 07:10
trans-1,2-Dichloroethene	< .001	mg/l			WG650232	03/10/13 07:10
trans-1,3-Dichloropropene	< .001	mg/l			WG650232	03/10/13 07:10
Trichloroethene	< .001	mg/l			WG650232	03/10/13 07:10
Trichlorofluoromethane	< .005	mg/l			WG650232	03/10/13 07:10
Vinyl chloride	< .001	mg/l			WG650232	03/10/13 07:10
Xylenes, Total	< .003	mg/l			WG650232	03/10/13 07:10
4-Bromofluorobenzene		% Rec.	101.5	82-120	WG650232	03/10/13 07:10
Dibromofluoromethane		% Rec.	100.7	82-126	WG650232	03/10/13 07:10
Toluene-d8		% Rec.	104.4	92-112	WG650232	03/10/13 07:10
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,1-Trichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,2-Trichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1-Dichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1-Dichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
1,1-Dichloropropene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,3-Trichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,3-Trichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
1,2,3-Trimethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,4-Trichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,4-Trimethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650236	03/10/13 05:52
1,2-Dibromoethane	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
1,3,5-Trimethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,3-Dichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,3-Dichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
1,4-Dichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
2,2-Dichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
2-Butanone (MEK)	< .01	mg/l			WG650236	03/10/13 05:52
2-Chloroethyl vinyl ether	< .05	mg/l			WG650236	03/10/13 05:52
2-Chlorotoluene	< .001	mg/l			WG650236	03/10/13 05:52
4-Chlorotoluene	< .001	mg/l			WG650236	03/10/13 05:52
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650236	03/10/13 05:52
Acetone	< .05	mg/l			WG650236	03/10/13 05:52
Acrolein	< .025	mg/l			WG650236	03/10/13 05:52
Acrylonitrile	< .01	mg/l			WG650236	03/10/13 05:52
Benzene	< .001	mg/l			WG650236	03/10/13 05:52
Bromobenzene	< .001	mg/l			WG650236	03/10/13 05:52
Bromodichloromethane	< .001	mg/l			WG650236	03/10/13 05:52
Bromoform	< .001	mg/l			WG650236	03/10/13 05:52
Bromomethane	< .005	mg/l			WG650236	03/10/13 05:52
Carbon tetrachloride	< .001	mg/l			WG650236	03/10/13 05:52
Chlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
Chlorodibromomethane	< .001	mg/l			WG650236	03/10/13 05:52
Chloroethane	< .005	mg/l			WG650236	03/10/13 05:52
Chloroform	< .005	mg/l			WG650236	03/10/13 05:52
Chloromethane	< .0025	mg/l			WG650236	03/10/13 05:52
cis-1,2-Dichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
cis-1,3-Dichloropropene	< .001	mg/l			WG650236	03/10/13 05:52
Di-isopropyl ether	< .001	mg/l			WG650236	03/10/13 05:52
Dibromomethane	< .001	mg/l			WG650236	03/10/13 05:52

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Tacoma, WA 98402

Quality Assurance Report
Level II

L624126

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Dichlorodifluoromethane	< .005	mg/l			WG650236	03/10/13 05:52
Ethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Hexachloro-1,3-butadiene	< .001	mg/l			WG650236	03/10/13 05:52
Isopropylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Methyl tert-butyl ether	< .001	mg/l			WG650236	03/10/13 05:52
Methylene Chloride	< .005	mg/l			WG650236	03/10/13 05:52
n-Butylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
n-Propylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Naphthalene	< .005	mg/l			WG650236	03/10/13 05:52
p-Isopropyltoluene	< .001	mg/l			WG650236	03/10/13 05:52
sec-Butylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Styrene	< .001	mg/l			WG650236	03/10/13 05:52
tert-Butylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Tetrachloroethene	< .001	mg/l			WG650236	03/10/13 05:52
Toluene	< .005	mg/l			WG650236	03/10/13 05:52
trans-1,2-Dichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
trans-1,3-Dichloropropene	< .001	mg/l			WG650236	03/10/13 05:52
Trichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
Trichlorofluoromethane	< .005	mg/l			WG650236	03/10/13 05:52
Vinyl chloride	< .001	mg/l			WG650236	03/10/13 05:52
Xylenes, Total	< .003	mg/l			WG650236	03/10/13 05:52
4-Bromofluorobenzene		% Rec.	104.9	82-120	WG650236	03/10/13 05:52
Dibromofluoromethane		% Rec.	94.70	82-126	WG650236	03/10/13 05:52
Toluene-d8		% Rec.	97.05	92-112	WG650236	03/10/13 05:52
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650228	03/10/13 07:20
1,1,1-Trichloroethane	< .001	mg/l			WG650228	03/10/13 07:20
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650228	03/10/13 07:20
1,1,2-Trichloroethane	< .001	mg/l			WG650228	03/10/13 07:20
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650228	03/10/13 07:20
1,1-Dichloroethane	< .001	mg/l			WG650228	03/10/13 07:20
1,1-Dichloroethene	< .001	mg/l			WG650228	03/10/13 07:20
1,1-Dichloropropene	< .001	mg/l			WG650228	03/10/13 07:20
1,2,3-Trichlorobenzene	< .001	mg/l			WG650228	03/10/13 07:20
1,2,3-Trichloropropane	< .001	mg/l			WG650228	03/10/13 07:20
1,2,3-Trimethylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
1,2,4-Trichlorobenzene	< .001	mg/l			WG650228	03/10/13 07:20
1,2,4-Trimethylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650228	03/10/13 07:20
1,2-Dibromoethane	< .001	mg/l			WG650228	03/10/13 07:20
1,2-Dichlorobenzene	< .001	mg/l			WG650228	03/10/13 07:20
1,2-Dichloroethane	< .001	mg/l			WG650228	03/10/13 07:20
1,2-Dichloropropane	< .001	mg/l			WG650228	03/10/13 07:20
1,3,5-Trimethylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
1,3-Dichlorobenzene	< .001	mg/l			WG650228	03/10/13 07:20
1,3-Dichloropropane	< .001	mg/l			WG650228	03/10/13 07:20
1,4-Dichlorobenzene	< .001	mg/l			WG650228	03/10/13 07:20
2,2-Dichloropropane	< .001	mg/l			WG650228	03/10/13 07:20
2-Butanone (MEK)	< .01	mg/l			WG650228	03/10/13 07:20
2-Chloroethyl vinyl ether	< .05	mg/l			WG650228	03/10/13 07:20
2-Chlorotoluene	< .001	mg/l			WG650228	03/10/13 07:20
4-Chlorotoluene	< .001	mg/l			WG650228	03/10/13 07:20
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650228	03/10/13 07:20
Acetone	< .05	mg/l			WG650228	03/10/13 07:20
Acrolein	< .025	mg/l			WG650228	03/10/13 07:20
Acrylonitrile	< .01	mg/l			WG650228	03/10/13 07:20
Benzene	< .001	mg/l			WG650228	03/10/13 07:20
Bromobenzene	< .001	mg/l			WG650228	03/10/13 07:20

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Quality Assurance Report
Level II

L624126

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Bromodichloromethane	< .001	mg/l			WG650228	03/10/13 07:20
Bromoform	< .001	mg/l			WG650228	03/10/13 07:20
Bromomethane	< .005	mg/l			WG650228	03/10/13 07:20
Carbon tetrachloride	< .001	mg/l			WG650228	03/10/13 07:20
Chlorobenzene	< .001	mg/l			WG650228	03/10/13 07:20
Chlorodibromomethane	< .001	mg/l			WG650228	03/10/13 07:20
Chloroethane	< .005	mg/l			WG650228	03/10/13 07:20
Chloroform	< .005	mg/l			WG650228	03/10/13 07:20
Chloromethane	< .0025	mg/l			WG650228	03/10/13 07:20
cis-1,2-Dichloroethene	< .001	mg/l			WG650228	03/10/13 07:20
cis-1,3-Dichloropropene	< .001	mg/l			WG650228	03/10/13 07:20
Di-isopropyl ether	< .001	mg/l			WG650228	03/10/13 07:20
Dibromomethane	< .001	mg/l			WG650228	03/10/13 07:20
Dichlorodifluoromethane	< .005	mg/l			WG650228	03/10/13 07:20
Ethylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
Hexachloro-1,3-butadiene	< .001	mg/l			WG650228	03/10/13 07:20
Isopropylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
Methyl tert-butyl ether	< .001	mg/l			WG650228	03/10/13 07:20
Methylene Chloride	< .005	mg/l			WG650228	03/10/13 07:20
n-Butylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
n-Propylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
Naphthalene	< .005	mg/l			WG650228	03/10/13 07:20
p-Isopropyltoluene	< .001	mg/l			WG650228	03/10/13 07:20
sec-Butylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
Styrene	< .001	mg/l			WG650228	03/10/13 07:20
tert-Butylbenzene	< .001	mg/l			WG650228	03/10/13 07:20
Tetrachloroethene	< .001	mg/l			WG650228	03/10/13 07:20
Toluene	< .005	mg/l			WG650228	03/10/13 07:20
trans-1,2-Dichloroethene	< .001	mg/l			WG650228	03/10/13 07:20
trans-1,3-Dichloropropene	< .001	mg/l			WG650228	03/10/13 07:20
Trichloroethene	< .001	mg/l			WG650228	03/10/13 07:20
Trichlorofluoromethane	< .005	mg/l			WG650228	03/10/13 07:20
Vinyl chloride	< .001	mg/l			WG650228	03/10/13 07:20
Xylenes, Total	< .003	mg/l			WG650228	03/10/13 07:20
4-Bromofluorobenzene		% Rec.	100.5	82-120	WG650228	03/10/13 07:20
Dibromofluoromethane		% Rec.	99.45	82-126	WG650228	03/10/13 07:20
Toluene-d8		% Rec.	104.0	92-112	WG650228	03/10/13 07:20

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0272	109.	77-128	WG650232
1,1,1-Trichloroethane	mg/l	.025	0.0279	112.	71-126	WG650232
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0272	109.	78-130	WG650232
1,1,2-Trichloroethane	mg/l	.025	0.0268	107.	81-121	WG650232
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0272	109.	53-143	WG650232
1,1-Dichloroethane	mg/l	.025	0.0287	115.	73-123	WG650232
1,1-Dichloroethene	mg/l	.025	0.0277	111.	54-134	WG650232
1,1-Dichloropropene	mg/l	.025	0.0287	115.	67-127	WG650232
1,2,3-Trichlorobenzene	mg/l	.025	0.0284	114.	77-130	WG650232
1,2,3-Trichloropropane	mg/l	.025	0.0257	103.	68-130	WG650232
1,2,3-Trimethylbenzene	mg/l	.025	0.0275	110.	77-126	WG650232
1,2,4-Trichlorobenzene	mg/l	.025	0.0290	116.	76-127	WG650232
1,2,4-Trimethylbenzene	mg/l	.025	0.0273	109.	77-129	WG650232
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0231	92.2	55-142	WG650232
1,2-Dibromoethane	mg/l	.025	0.0266	106.	78-124	WG650232
1,2-Dichlorobenzene	mg/l	.025	0.0271	108.	82-121	WG650232
1,2-Dichloroethane	mg/l	.025	0.0287	115.	69-128	WG650232
1,2-Dichloropropane	mg/l	.025	0.0298	119.	77-121	WG650232

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Quality Assurance Report
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April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,3,5-Trimethylbenzene	mg/l	.025	0.0274	110.	78-127	WG650232
1,3-Dichlorobenzene	mg/l	.025	0.0277	111.	77-127	WG650232
1,3-Dichloropropane	mg/l	.025	0.0276	110.	78-117	WG650232
1,4-Dichlorobenzene	mg/l	.025	0.0273	109.	79-117	WG650232
2,2-Dichloropropane	mg/l	.025	0.0285	114.	63-130	WG650232
2-Butanone (MEK)	mg/l	.125	0.139	112.	58-144	WG650232
2-Chloroethyl vinyl ether	mg/l	.125	0.0572	45.8	26-172	WG650232
2-Chlorotoluene	mg/l	.025	0.0278	111.	78-123	WG650232
4-Chlorotoluene	mg/l	.025	0.0278	111.	78-122	WG650232
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.146	116.	58-147	WG650232
Acetone	mg/l	.125	0.147	118.	49-153	WG650232
Acrolein	mg/l	.125	0.148	119.	10-181	WG650232
Acrylonitrile	mg/l	.125	0.149	119.	53-153	WG650232
Benzene	mg/l	.025	0.0280	112.	72-119	WG650232
Bromobenzene	mg/l	.025	0.0279	112.	76-121	WG650232
Bromodichloromethane	mg/l	.025	0.0283	113.	75-127	WG650232
Bromoform	mg/l	.025	0.0239	95.6	61-136	WG650232
Bromomethane	mg/l	.025	0.0247	98.8	42-172	WG650232
Carbon tetrachloride	mg/l	.025	0.0271	108.	63-129	WG650232
Chlorobenzene	mg/l	.025	0.0276	110.	78-123	WG650232
Chlorodibromomethane	mg/l	.025	0.0271	108.	73-128	WG650232
Chloroethane	mg/l	.025	0.0273	109.	52-164	WG650232
Chloroform	mg/l	.025	0.0281	113.	76-122	WG650232
Chloromethane	mg/l	.025	0.0295	118.	50-141	WG650232
cis-1,2-Dichloroethene	mg/l	.025	0.0271	108.	75-121	WG650232
cis-1,3-Dichloropropene	mg/l	.025	0.0291	117.	74-124	WG650232
Di-isopropyl ether	mg/l	.025	0.0304	121.	66-129	WG650232
Dibromomethane	mg/l	.025	0.0279	112.	77-124	WG650232
Dichlorodifluoromethane	mg/l	.025	0.0265	106.	33-173	WG650232
Ethylbenzene	mg/l	.025	0.0273	109.	77-124	WG650232
Hexachloro-1,3-butadiene	mg/l	.025	0.0281	112.	71-134	WG650232
Isopropylbenzene	mg/l	.025	0.0276	110.	74-126	WG650232
Methyl tert-butyl ether	mg/l	.025	0.0276	111.	67-127	WG650232
Methylene Chloride	mg/l	.025	0.0270	108.	67-122	WG650232
n-Butylbenzene	mg/l	.025	0.0287	115.	74-130	WG650232
n-Propylbenzene	mg/l	.025	0.0279	111.	77-125	WG650232
Naphthalene	mg/l	.025	0.0241	96.3	70-134	WG650232
p-Isopropyltoluene	mg/l	.025	0.0279	112.	77-132	WG650232
sec-Butylbenzene	mg/l	.025	0.0274	110.	77-130	WG650232
Styrene	mg/l	.025	0.0277	111.	69-145	WG650232
tert-Butylbenzene	mg/l	.025	0.0274	110.	76-131	WG650232
Tetrachloroethene	mg/l	.025	0.0283	113.	69-131	WG650232
Toluene	mg/l	.025	0.0277	111.	75-114	WG650232
trans-1,2-Dichloroethene	mg/l	.025	0.0273	109.	63-127	WG650232
trans-1,3-Dichloropropene	mg/l	.025	0.0281	112.	69-124	WG650232
Trichloroethene	mg/l	.025	0.0276	110.	69-131	WG650232
Trichlorofluoromethane	mg/l	.025	0.0271	108.	53-161	WG650232
Vinyl chloride	mg/l	.025	0.0283	113.	55-142	WG650232
Xylenes, Total	mg/l	.075	0.0813	108.	77-123	WG650232
4-Bromofluorobenzene				99.27	82-120	WG650232
Dibromofluoromethane				100.5	82-126	WG650232
Toluene-d8				103.8	92-112	WG650232
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0267	107.	77-128	WG650236
1,1,1-Trichloroethane	mg/l	.025	0.0222	89.0	71-126	WG650236
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0273	109.	78-130	WG650236
1,1,2-Trichloroethane	mg/l	.025	0.0259	104.	81-121	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0231	92.4	53-143	WG650236

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April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,1-Dichloroethane	mg/l	.025	0.0224	89.6	73-123	WG650236
1,1-Dichloroethene	mg/l	.025	0.0235	94.1	54-134	WG650236
1,1-Dichloropropene	mg/l	.025	0.0228	91.0	67-127	WG650236
1,2,3-Trichlorobenzene	mg/l	.025	0.0327	131.*	77-130	WG650236
1,2,3-Trichloropropane	mg/l	.025	0.0243	97.1	68-130	WG650236
1,2,3-Trimethylbenzene	mg/l	.025	0.0238	95.1	77-126	WG650236
1,2,4-Trichlorobenzene	mg/l	.025	0.0312	125.	76-127	WG650236
1,2,4-Trimethylbenzene	mg/l	.025	0.0274	109.	77-129	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0257	103.	55-142	WG650236
1,2-Dibromoethane	mg/l	.025	0.0269	107.	78-124	WG650236
1,2-Dichlorobenzene	mg/l	.025	0.0257	103.	82-121	WG650236
1,2-Dichloroethane	mg/l	.025	0.0237	94.6	69-128	WG650236
1,2-Dichloropropane	mg/l	.025	0.0235	93.8	77-121	WG650236
1,3,5-Trimethylbenzene	mg/l	.025	0.0271	108.	78-127	WG650236
1,3-Dichlorobenzene	mg/l	.025	0.0292	117.	77-127	WG650236
1,3-Dichloropropane	mg/l	.025	0.0253	101.	78-117	WG650236
1,4-Dichlorobenzene	mg/l	.025	0.0247	98.9	79-117	WG650236
2,2-Dichloropropane	mg/l	.025	0.0221	88.3	63-130	WG650236
2-Butanone (MEK)	mg/l	.125	0.119	95.5	58-144	WG650236
2-Chloroethyl vinyl ether	mg/l	.125	0.138	110.	26-172	WG650236
2-Chlorotoluene	mg/l	.025	0.0266	106.	78-123	WG650236
4-Chlorotoluene	mg/l	.025	0.0263	105.	78-122	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.126	101.	58-147	WG650236
Acetone	mg/l	.125	0.122	97.6	49-153	WG650236
Acrolein	mg/l	.125	0.135	108.	10-181	WG650236
Acrylonitrile	mg/l	.125	0.117	93.3	53-153	WG650236
Benzene	mg/l	.025	0.0233	93.3	72-119	WG650236
Bromobenzene	mg/l	.025	0.0254	101.	76-121	WG650236
Bromodichloromethane	mg/l	.025	0.0229	91.7	75-127	WG650236
Bromoform	mg/l	.025	0.0262	105.	61-136	WG650236
Bromomethane	mg/l	.025	0.0331	132.	42-172	WG650236
Carbon tetrachloride	mg/l	.025	0.0207	82.7	63-129	WG650236
Chlorobenzene	mg/l	.025	0.0268	107.	78-123	WG650236
Chlorodibromomethane	mg/l	.025	0.0261	104.	73-128	WG650236
Chloroethane	mg/l	.025	0.0235	93.9	52-164	WG650236
Chloroform	mg/l	.025	0.0235	93.9	76-122	WG650236
Chloromethane	mg/l	.025	0.0209	83.7	50-141	WG650236
cis-1,2-Dichloroethene	mg/l	.025	0.0234	93.6	75-121	WG650236
cis-1,3-Dichloropropene	mg/l	.025	0.0240	96.2	74-124	WG650236
Di-isopropyl ether	mg/l	.025	0.0210	84.1	66-129	WG650236
Dibromomethane	mg/l	.025	0.0254	102.	77-124	WG650236
Dichlorodifluoromethane	mg/l	.025	0.0211	84.6	33-173	WG650236
Ethylbenzene	mg/l	.025	0.0266	107.	77-124	WG650236
Hexachloro-1,3-butadiene	mg/l	.025	0.0292	117.	71-134	WG650236
Isopropylbenzene	mg/l	.025	0.0263	105.	74-126	WG650236
Methyl tert-butyl ether	mg/l	.025	0.0225	90.2	67-127	WG650236
Methylene Chloride	mg/l	.025	0.0223	89.1	67-122	WG650236
n-Butylbenzene	mg/l	.025	0.0256	102.	74-130	WG650236
n-Propylbenzene	mg/l	.025	0.0267	107.	77-125	WG650236
Naphthalene	mg/l	.025	0.0286	115.	70-134	WG650236
p-Isopropyltoluene	mg/l	.025	0.0286	114.	77-132	WG650236
sec-Butylbenzene	mg/l	.025	0.0279	112.	77-130	WG650236
Styrene	mg/l	.025	0.0258	103.	69-145	WG650236
tert-Butylbenzene	mg/l	.025	0.0272	109.	76-131	WG650236
Tetrachloroethene	mg/l	.025	0.0265	106.	69-131	WG650236
Toluene	mg/l	.025	0.0242	96.8	75-114	WG650236
trans-1,2-Dichloroethene	mg/l	.025	0.0227	90.7	63-127	WG650236
trans-1,3-Dichloropropene	mg/l	.025	0.0253	101.	69-124	WG650236
Trichloroethene	mg/l	.025	0.0263	105.	69-131	WG650236

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GeoEngineers - Tacoma, WA
Nick Rohrback
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Tacoma, WA 98402

Quality Assurance Report
Level II

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April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Trichlorofluoromethane	mg/l	.025	0.0238	95.3	53-161	WG650236
Vinyl chloride	mg/l	.025	0.0203	81.3	55-142	WG650236
Xylenes, Total	mg/l	.075	0.0790	105.	77-123	WG650236
4-Bromofluorobenzene				96.23	82-120	WG650236
Dibromofluoromethane				93.85	82-126	WG650236
Toluene-d8				95.26	92-112	WG650236
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0245	98.0	77-128	WG650228
1,1,1-Trichloroethane	mg/l	.025	0.0242	97.0	71-126	WG650228
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0256	102.	78-130	WG650228
1,1,2-Trichloroethane	mg/l	.025	0.0256	102.	81-121	WG650228
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0268	107.	53-143	WG650228
1,1-Dichloroethane	mg/l	.025	0.0270	108.	73-123	WG650228
1,1-Dichloroethene	mg/l	.025	0.0271	109.	54-134	WG650228
1,1-Dichloropropene	mg/l	.025	0.0257	103.	67-127	WG650228
1,2,3-Trichlorobenzene	mg/l	.025	0.0267	107.	77-130	WG650228
1,2,3-Trichloropropane	mg/l	.025	0.0235	94.1	68-130	WG650228
1,2,3-Trimethylbenzene	mg/l	.025	0.0264	106.	77-126	WG650228
1,2,4-Trichlorobenzene	mg/l	.025	0.0266	106.	76-127	WG650228
1,2,4-Trimethylbenzene	mg/l	.025	0.0248	99.3	77-129	WG650228
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0280	112.	55-142	WG650228
1,2-Dibromoethane	mg/l	.025	0.0243	97.1	78-124	WG650228
1,2-Dichlorobenzene	mg/l	.025	0.0264	106.	82-121	WG650228
1,2-Dichloroethane	mg/l	.025	0.0249	99.8	69-128	WG650228
1,2-Dichloropropane	mg/l	.025	0.0271	108.	77-121	WG650228
1,3,5-Trimethylbenzene	mg/l	.025	0.0243	97.4	78-127	WG650228
1,3-Dichlorobenzene	mg/l	.025	0.0241	96.5	77-127	WG650228
1,3-Dichloropropane	mg/l	.025	0.0257	103.	78-117	WG650228
1,4-Dichlorobenzene	mg/l	.025	0.0256	102.	79-117	WG650228
2,2-Dichloropropane	mg/l	.025	0.0236	94.3	63-130	WG650228
2-Butanone (MEK)	mg/l	.125	0.157	126.	58-144	WG650228
2-Chloroethyl vinyl ether	mg/l	.125	0.143	114.	26-172	WG650228
2-Chlorotoluene	mg/l	.025	0.0249	99.8	78-123	WG650228
4-Chlorotoluene	mg/l	.025	0.0244	97.6	78-122	WG650228
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.144	115.	58-147	WG650228
Acetone	mg/l	.125	0.164	131.	49-153	WG650228
Acrolein	mg/l	.125	0.139	111.	10-181	WG650228
Acrylonitrile	mg/l	.125	0.144	115.	53-153	WG650228
Benzene	mg/l	.025	0.0262	105.	72-119	WG650228
Bromobenzene	mg/l	.025	0.0252	101.	76-121	WG650228
Bromodichloromethane	mg/l	.025	0.0256	102.	75-127	WG650228
Bromoform	mg/l	.025	0.0247	99.0	61-136	WG650228
Bromomethane	mg/l	.025	0.0259	104.	42-172	WG650228
Carbon tetrachloride	mg/l	.025	0.0233	93.2	63-129	WG650228
Chlorobenzene	mg/l	.025	0.0242	96.9	78-123	WG650228
Chlorodibromomethane	mg/l	.025	0.0250	100.	73-128	WG650228
Chloroethane	mg/l	.025	0.0262	105.	52-164	WG650228
Chloroform	mg/l	.025	0.0262	105.	76-122	WG650228
Chloromethane	mg/l	.025	0.0242	96.8	50-141	WG650228
cis-1,2-Dichloroethene	mg/l	.025	0.0258	103.	75-121	WG650228
cis-1,3-Dichloropropene	mg/l	.025	0.0267	107.	74-124	WG650228
Di-isopropyl ether	mg/l	.025	0.0290	116.	66-129	WG650228
Dibromomethane	mg/l	.025	0.0247	99.0	77-124	WG650228
Dichlorodifluoromethane	mg/l	.025	0.0259	104.	33-173	WG650228
Ethylbenzene	mg/l	.025	0.0249	99.4	77-124	WG650228
Hexachloro-1,3-butadiene	mg/l	.025	0.0273	109.	71-134	WG650228
Isopropylbenzene	mg/l	.025	0.0246	98.4	74-126	WG650228
Methyl tert-butyl ether	mg/l	.025	0.0280	112.	67-127	WG650228

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Level II

L624126

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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Methylene Chloride	mg/l	.025	0.0277	111.	67-122	WG650228
n-Butylbenzene	mg/l	.025	0.0275	110.	74-130	WG650228
n-Propylbenzene	mg/l	.025	0.0252	101.	77-125	WG650228
Naphthalene	mg/l	.025	0.0269	107.	70-134	WG650228
p-Isopropyltoluene	mg/l	.025	0.0252	101.	77-132	WG650228
sec-Butylbenzene	mg/l	.025	0.0244	97.5	77-130	WG650228
Styrene	mg/l	.025	0.0259	104.	69-145	WG650228
tert-Butylbenzene	mg/l	.025	0.0245	98.0	76-131	WG650228
Tetrachloroethene	mg/l	.025	0.0233	93.1	69-131	WG650228
Toluene	mg/l	.025	0.0252	101.	75-114	WG650228
trans-1,2-Dichloroethene	mg/l	.025	0.0277	111.	63-127	WG650228
trans-1,3-Dichloropropene	mg/l	.025	0.0266	106.	69-124	WG650228
Trichloroethene	mg/l	.025	0.0241	96.4	69-131	WG650228
Trichlorofluoromethane	mg/l	.025	0.0274	110.	53-161	WG650228
Vinyl chloride	mg/l	.025	0.0274	110.	55-142	WG650228
Xylenes, Total	mg/l	.075	0.0750	100.	77-123	WG650228
4-Bromofluorobenzene				97.97	82-120	WG650228
Dibromofluoromethane				102.3	82-126	WG650228
Toluene-d8				103.5	92-112	WG650228

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0281	0.0272	112.	77-128	3.23	20	WG650232
1,1,1-Trichloroethane	mg/l	0.0287	0.0279	115.	71-126	2.60	20	WG650232
1,1,2,2-Tetrachloroethane	mg/l	0.0281	0.0272	112.	78-130	3.39	20	WG650232
1,1,2-Trichloroethane	mg/l	0.0273	0.0268	109.	81-121	1.96	20	WG650232
1,1,2-Trichlorotrifluoroethane	mg/l	0.0278	0.0272	111.	53-143	2.03	20	WG650232
1,1-Dichloroethane	mg/l	0.0297	0.0287	119.	73-123	3.40	20	WG650232
1,1-Dichloroethene	mg/l	0.0279	0.0277	112.	54-134	0.810	20	WG650232
1,1-Dichloropropene	mg/l	0.0293	0.0287	117.	67-127	2.33	20	WG650232
1,2,3-Trichlorobenzene	mg/l	0.0299	0.0284	120.	77-130	5.05	20	WG650232
1,2,3-Trichloropropane	mg/l	0.0273	0.0257	109.	68-130	6.23	20	WG650232
1,2,3-Trimethylbenzene	mg/l	0.0281	0.0275	112.	77-126	2.35	20	WG650232
1,2,4-Trichlorobenzene	mg/l	0.0300	0.0290	120.	76-127	3.55	20	WG650232
1,2,4-Trimethylbenzene	mg/l	0.0279	0.0273	112.	77-129	2.25	20	WG650232
1,2-Dibromo-3-Chloropropane	mg/l	0.0240	0.0231	96.0	55-142	3.97	20	WG650232
1,2-Dibromoethane	mg/l	0.0271	0.0266	108.	78-124	1.90	20	WG650232
1,2-Dichlorobenzene	mg/l	0.0282	0.0271	113.	82-121	3.88	20	WG650232
1,2-Dichloroethane	mg/l	0.0296	0.0287	118.	69-128	3.15	20	WG650232
1,2-Dichloropropane	mg/l	0.0307	0.0298	123*	77-121	3.01	20	WG650232
1,3,5-Trimethylbenzene	mg/l	0.0280	0.0274	112.	78-127	2.13	20	WG650232
1,3-Dichlorobenzene	mg/l	0.0285	0.0277	114.	77-127	3.02	20	WG650232
1,3-Dichloropropane	mg/l	0.0281	0.0276	112.	78-117	1.95	20	WG650232
1,4-Dichlorobenzene	mg/l	0.0281	0.0273	112.	79-117	2.90	20	WG650232
2,2-Dichloropropane	mg/l	0.0290	0.0285	116.	63-130	1.52	20	WG650232
2-Butanone (MEK)	mg/l	0.150	0.139	120.	58-144	6.98	20	WG650232
2-Chloroethyl vinyl ether	mg/l	0.0573	0.0572	46.0	26-172	0.220	22	WG650232
2-Chlorotoluene	mg/l	0.0283	0.0278	113.	78-123	1.62	20	WG650232
4-Chlorotoluene	mg/l	0.0282	0.0278	113.	78-122	1.40	20	WG650232
4-Methyl-2-pentanone (MIBK)	mg/l	0.154	0.146	124.	58-147	5.84	20	WG650232
Acetone	mg/l	0.153	0.147	123.	49-153	4.39	21	WG650232
Acrolein	mg/l	0.154	0.148	123.	10-181	3.63	30	WG650232
Acrylonitrile	mg/l	0.157	0.149	126.	53-153	5.73	20	WG650232
Benzene	mg/l	0.0284	0.0280	114.	72-119	1.55	20	WG650232
Bromobenzene	mg/l	0.0286	0.0279	114.	76-121	2.57	20	WG650232
Bromodichloromethane	mg/l	0.0285	0.0283	114.	75-127	0.730	20	WG650232
Bromoform	mg/l	0.0247	0.0239	99.0	61-136	3.35	20	WG650232
Bromomethane	mg/l	0.0255	0.0247	102.	42-172	3.33	20	WG650232

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L624126

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Carbon tetrachloride	mg/l	0.0278	0.0271	111.	63-129	2.32	20	WG650232
Chlorobenzene	mg/l	0.0280	0.0276	112.	78-123	1.49	20	WG650232
Chlorodibromomethane	mg/l	0.0276	0.0271	110.	73-128	2.12	20	WG650232
Chloroethane	mg/l	0.0281	0.0273	112.	52-164	2.85	20	WG650232
Chloroform	mg/l	0.0290	0.0281	116.	76-122	2.89	20	WG650232
Chloromethane	mg/l	0.0301	0.0295	120.	50-141	2.17	20	WG650232
cis-1,2-Dichloroethene	mg/l	0.0276	0.0271	110.	75-121	1.70	20	WG650232
cis-1,3-Dichloropropene	mg/l	0.0300	0.0291	120.	74-124	2.99	20	WG650232
Di-isopropyl ether	mg/l	0.0314	0.0304	126.	66-129	3.30	20	WG650232
Dibromomethane	mg/l	0.0287	0.0279	115.	77-124	2.98	20	WG650232
Dichlorodifluoromethane	mg/l	0.0268	0.0265	107.	33-173	1.43	20	WG650232
Ethylbenzene	mg/l	0.0279	0.0273	112.	77-124	2.39	20	WG650232
Hexachloro-1,3-butadiene	mg/l	0.0288	0.0281	115.	71-134	2.64	20	WG650232
Isopropylbenzene	mg/l	0.0281	0.0276	112.	74-126	1.69	20	WG650232
Methyl tert-butyl ether	mg/l	0.0286	0.0276	114.	67-127	3.58	20	WG650232
Methylene Chloride	mg/l	0.0276	0.0270	110.	67-122	2.36	20	WG650232
n-Butylbenzene	mg/l	0.0294	0.0287	118.	74-130	2.54	20	WG650232
n-Propylbenzene	mg/l	0.0281	0.0279	112.	77-125	0.810	20	WG650232
Naphthalene	mg/l	0.0258	0.0241	103.	70-134	6.79	20	WG650232
p-Isopropyltoluene	mg/l	0.0285	0.0279	114.	77-132	1.94	20	WG650232
sec-Butylbenzene	mg/l	0.0279	0.0274	112.	77-130	1.78	20	WG650232
Styrene	mg/l	0.0282	0.0277	113.	69-145	1.72	20	WG650232
tert-Butylbenzene	mg/l	0.0278	0.0274	111.	76-131	1.43	20	WG650232
Tetrachloroethene	mg/l	0.0282	0.0283	113.	69-131	0.170	20	WG650232
Toluene	mg/l	0.0282	0.0277	113.	75-114	1.59	20	WG650232
trans-1,2-Dichloroethene	mg/l	0.0282	0.0273	113.	63-127	3.40	20	WG650232
trans-1,3-Dichloropropene	mg/l	0.0287	0.0281	115.	69-124	2.39	20	WG650232
Trichloroethene	mg/l	0.0285	0.0276	114.	69-131	2.97	20	WG650232
Trichlorofluoromethane	mg/l	0.0269	0.0271	108.	53-161	0.710	20	WG650232
Vinyl chloride	mg/l	0.0291	0.0283	116.	55-142	2.73	20	WG650232
Xylenes, Total	mg/l	0.0830	0.0813	111.	77-123	2.11	20	WG650232
4-Bromofluorobenzene				99.22	82-120			WG650232
Dibromofluoromethane				100.6	82-126			WG650232
Toluene-d8				103.6	92-112			WG650232
1,1,1,2-Tetrachloroethane	mg/l	0.0271	0.0267	108.	77-128	1.74	20	WG650236
1,1,1-Trichloroethane	mg/l	0.0232	0.0222	93.0	71-126	4.23	20	WG650236
1,1,2,2-Tetrachloroethane	mg/l	0.0280	0.0273	112.	78-130	2.53	20	WG650236
1,1,2-Trichloroethane	mg/l	0.0257	0.0259	103.	81-121	0.650	20	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	0.0241	0.0231	96.0	53-143	4.39	20	WG650236
1,1-Dichloroethane	mg/l	0.0236	0.0224	94.0	73-123	5.31	20	WG650236
1,1-Dichloroethene	mg/l	0.0251	0.0235	100.	54-134	6.53	20	WG650236
1,1-Dichloropropene	mg/l	0.0240	0.0228	96.0	67-127	5.43	20	WG650236
1,2,3-Trichlorobenzene	mg/l	0.0334	0.0327	134*	77-130	1.98	20	WG650236
1,2,3-Trichloropropane	mg/l	0.0275	0.0243	110.	68-130	12.5	20	WG650236
1,2,3-Trimethylbenzene	mg/l	0.0244	0.0238	98.0	77-126	2.66	20	WG650236
1,2,4-Trichlorobenzene	mg/l	0.0317	0.0312	127.	76-127	1.57	20	WG650236
1,2,4-Trimethylbenzene	mg/l	0.0284	0.0274	114.	77-129	3.61	20	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	0.0262	0.0257	105.	55-142	1.75	20	WG650236
1,2-Dibromoethane	mg/l	0.0265	0.0269	106.	78-124	1.32	20	WG650236
1,2-Dichlorobenzene	mg/l	0.0258	0.0257	103.	82-121	0.470	20	WG650236
1,2-Dichloroethane	mg/l	0.0244	0.0237	97.0	69-128	2.96	20	WG650236
1,2-Dichloropropane	mg/l	0.0245	0.0235	98.0	77-121	4.26	20	WG650236
1,3,5-Trimethylbenzene	mg/l	0.0280	0.0271	112.	78-127	3.43	20	WG650236
1,3-Dichlorobenzene	mg/l	0.0300	0.0292	120.	77-127	2.70	20	WG650236
1,3-Dichloropropane	mg/l	0.0252	0.0253	101.	78-117	0.280	20	WG650236
1,4-Dichlorobenzene	mg/l	0.0249	0.0247	100.	79-117	0.780	20	WG650236
2,2-Dichloropropane	mg/l	0.0234	0.0221	94.0	63-130	5.90	20	WG650236

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Analyte	Units	Laboratory Control Sample Result	Ref	%Rec	Limit	Duplicate RPD	Limit	Batch
2-Butanone (MEK)	mg/l	0.121	0.119	97.0	58-144	1.45	20	WG650236
2-Chloroethyl vinyl ether	mg/l	0.142	0.138	114.	26-172	3.25	22	WG650236
2-Chlorotoluene	mg/l	0.0274	0.0266	110.	78-123	3.01	20	WG650236
4-Chlorotoluene	mg/l	0.0272	0.0263	109.	78-122	3.56	20	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	0.130	0.126	104.	58-147	3.50	20	WG650236
Acetone	mg/l	0.124	0.122	99.0	49-153	1.89	21	WG650236
Acrolein	mg/l	0.135	0.135	108.	10-181	0.240	30	WG650236
Acrylonitrile	mg/l	0.119	0.117	95.0	53-153	1.92	20	WG650236
Benzene	mg/l	0.0236	0.0233	94.0	72-119	1.39	20	WG650236
Bromobenzene	mg/l	0.0263	0.0254	105.	76-121	3.55	20	WG650236
Bromodichloromethane	mg/l	0.0235	0.0229	94.0	75-127	2.50	20	WG650236
Bromoform	mg/l	0.0266	0.0262	106.	61-136	1.57	20	WG650236
Bromomethane	mg/l	0.0346	0.0331	138.	42-172	4.59	20	WG650236
Carbon tetrachloride	mg/l	0.0241	0.0207	96.0	63-129	15.5	20	WG650236
Chlorobenzene	mg/l	0.0267	0.0268	107.	78-123	0.290	20	WG650236
Chlorodibromomethane	mg/l	0.0259	0.0261	104.	73-128	0.680	20	WG650236
Chloroethane	mg/l	0.0248	0.0235	99.0	52-164	5.49	20	WG650236
Chloroform	mg/l	0.0239	0.0235	96.0	76-122	1.89	20	WG650236
Chloromethane	mg/l	0.0219	0.0209	88.0	50-141	4.60	20	WG650236
cis-1,2-Dichloroethene	mg/l	0.0238	0.0234	95.0	75-121	1.85	20	WG650236
cis-1,3-Dichloropropene	mg/l	0.0244	0.0240	98.0	74-124	1.58	20	WG650236
Di-isopropyl ether	mg/l	0.0215	0.0210	86.0	66-129	2.50	20	WG650236
Dibromomethane	mg/l	0.0258	0.0254	103.	77-124	1.60	20	WG650236
Dichlorodifluoromethane	mg/l	0.0227	0.0211	91.0	33-173	7.05	20	WG650236
Ethylbenzene	mg/l	0.0267	0.0266	107.	77-124	0.260	20	WG650236
Hexachloro-1,3-butadiene	mg/l	0.0303	0.0292	121.	71-134	3.68	20	WG650236
Isopropylbenzene	mg/l	0.0273	0.0263	109.	74-126	3.71	20	WG650236
Methyl tert-butyl ether	mg/l	0.0233	0.0225	93.0	67-127	3.31	20	WG650236
Methylene Chloride	mg/l	0.0227	0.0223	91.0	67-122	2.09	20	WG650236
n-Butylbenzene	mg/l	0.0261	0.0256	104.	74-130	2.02	20	WG650236
n-Propylbenzene	mg/l	0.0278	0.0267	111.	77-125	4.11	20	WG650236
Naphthalene	mg/l	0.0289	0.0286	116.	70-134	1.07	20	WG650236
p-Isopropyltoluene	mg/l	0.0301	0.0286	120.	77-132	4.97	20	WG650236
sec-Butylbenzene	mg/l	0.0295	0.0279	118.	77-130	5.63	20	WG650236
Styrene	mg/l	0.0261	0.0258	104.	69-145	1.15	20	WG650236
tert-Butylbenzene	mg/l	0.0288	0.0272	115.	76-131	5.64	20	WG650236
Tetrachloroethene	mg/l	0.0263	0.0265	105.	69-131	0.830	20	WG650236
Toluene	mg/l	0.0251	0.0242	100.	75-114	3.58	20	WG650236
trans-1,2-Dichloroethene	mg/l	0.0231	0.0227	92.0	63-127	1.74	20	WG650236
trans-1,3-Dichloropropene	mg/l	0.0254	0.0253	101.	69-124	0.0800	20	WG650236
Trichloroethene	mg/l	0.0271	0.0263	108.	69-131	3.02	20	WG650236
Trichlorofluoromethane	mg/l	0.0252	0.0238	101.	53-161	5.57	20	WG650236
Vinyl chloride	mg/l	0.0215	0.0203	86.0	55-142	5.61	20	WG650236
Xylenes, Total	mg/l	0.0803	0.0790	107.	77-123	1.68	20	WG650236
4-Bromofluorobenzene				100.0	82-120			WG650236
Dibromofluoromethane				91.49	82-126			WG650236
Toluene-d8				97.54	92-112			WG650236
1,1,1,2-Tetrachloroethane	mg/l	0.0244	0.0245	98.0	77-128	0.400	20	WG650228
1,1,1-Trichloroethane	mg/l	0.0249	0.0242	100.	71-126	2.82	20	WG650228
1,1,2,2-Tetrachloroethane	mg/l	0.0249	0.0256	100.	78-130	2.69	20	WG650228
1,1,2-Trichloroethane	mg/l	0.0249	0.0256	100.	81-121	2.54	20	WG650228
1,1,2-Trichlorotrifluoroethane	mg/l	0.0274	0.0268	110.	53-143	2.32	20	WG650228
1,1-Dichloroethane	mg/l	0.0264	0.0270	105.	73-123	2.39	20	WG650228
1,1-Dichloroethene	mg/l	0.0274	0.0271	109.	54-134	0.860	20	WG650228
1,1-Dichloropropene	mg/l	0.0250	0.0257	100.	67-127	2.88	20	WG650228
1,2,3-Trichlorobenzene	mg/l	0.0274	0.0267	110.	77-130	2.57	20	WG650228
1,2,3-Trichloropropane	mg/l	0.0233	0.0235	93.0	68-130	1.16	20	WG650228

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Tacoma, WA 98402

Quality Assurance Report
Level II

L624126

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,2,3-Trimethylbenzene	mg/l	0.0260	0.0264	104.	77-126	1.55	20	WG650228
1,2,4-Trichlorobenzene	mg/l	0.0266	0.0266	106.	76-127	0.0600	20	WG650228
1,2,4-Trimethylbenzene	mg/l	0.0245	0.0248	98.0	77-129	1.20	20	WG650228
1,2-Dibromo-3-Chloropropane	mg/l	0.0254	0.0280	102.	55-142	9.74	20	WG650228
1,2-Dibromoethane	mg/l	0.0241	0.0243	96.0	78-124	0.920	20	WG650228
1,2-Dichlorobenzene	mg/l	0.0258	0.0264	103.	82-121	2.45	20	WG650228
1,2-Dichloroethane	mg/l	0.0247	0.0249	99.0	69-128	0.880	20	WG650228
1,2-Dichloropropane	mg/l	0.0266	0.0271	106.	77-121	1.80	20	WG650228
1,3,5-Trimethylbenzene	mg/l	0.0241	0.0243	96.0	78-127	1.18	20	WG650228
1,3-Dichlorobenzene	mg/l	0.0234	0.0241	94.0	77-127	3.01	20	WG650228
1,3-Dichloropropane	mg/l	0.0248	0.0257	99.0	78-117	3.87	20	WG650228
1,4-Dichlorobenzene	mg/l	0.0248	0.0256	99.0	79-117	3.17	20	WG650228
2,2-Dichloropropane	mg/l	0.0259	0.0236	103.	63-130	9.30	20	WG650228
2-Butanone (MEK)	mg/l	0.144	0.157	115.	58-144	8.35	20	WG650228
2-Chloroethyl vinyl ether	mg/l	0.134	0.143	107.	26-172	6.27	22	WG650228
2-Chlorotoluene	mg/l	0.0246	0.0249	98.0	78-123	1.47	20	WG650228
4-Chlorotoluene	mg/l	0.0242	0.0244	97.0	78-122	0.860	20	WG650228
4-Methyl-2-pentanone (MIBK)	mg/l	0.129	0.144	103.	58-147	10.9	20	WG650228
Acetone	mg/l	0.161	0.164	128.	49-153	1.87	21	WG650228
Acrolein	mg/l	0.141	0.139	113.	10-181	1.53	30	WG650228
Acrylonitrile	mg/l	0.139	0.144	111.	53-153	3.97	20	WG650228
Benzene	mg/l	0.0260	0.0262	104.	72-119	0.900	20	WG650228
Bromobenzene	mg/l	0.0247	0.0252	99.0	76-121	1.85	20	WG650228
Bromodichloromethane	mg/l	0.0251	0.0256	100.	75-127	2.23	20	WG650228
Bromoform	mg/l	0.0244	0.0247	97.0	61-136	1.50	20	WG650228
Bromomethane	mg/l	0.0268	0.0259	107.	42-172	3.57	20	WG650228
Carbon tetrachloride	mg/l	0.0228	0.0233	91.0	63-129	2.34	20	WG650228
Chlorobenzene	mg/l	0.0243	0.0242	97.0	78-123	0.140	20	WG650228
Chlorodibromomethane	mg/l	0.0247	0.0250	99.0	73-128	1.20	20	WG650228
Chloroethane	mg/l	0.0276	0.0262	110.	52-164	5.19	20	WG650228
Chloroform	mg/l	0.0257	0.0262	103.	76-122	2.13	20	WG650228
Chloromethane	mg/l	0.0267	0.0242	107.	50-141	9.94	20	WG650228
cis-1,2-Dichloroethene	mg/l	0.0248	0.0258	99.0	75-121	3.97	20	WG650228
cis-1,3-Dichloropropene	mg/l	0.0260	0.0267	104.	74-124	2.71	20	WG650228
Di-isopropyl ether	mg/l	0.0278	0.0290	111.	66-129	4.14	20	WG650228
Dibromomethane	mg/l	0.0244	0.0247	98.0	77-124	1.39	20	WG650228
Dichlorodifluoromethane	mg/l	0.0251	0.0259	100.	33-173	3.24	20	WG650228
Ethylbenzene	mg/l	0.0234	0.0249	93.0	77-124	6.16	20	WG650228
Hexachloro-1,3-butadiene	mg/l	0.0277	0.0273	111.	71-134	1.36	20	WG650228
Isopropylbenzene	mg/l	0.0239	0.0246	95.0	74-126	3.05	20	WG650228
Methyl tert-butyl ether	mg/l	0.0257	0.0280	103.	67-127	8.31	20	WG650228
Methylene Chloride	mg/l	0.0282	0.0277	113.	67-122	1.72	20	WG650228
n-Butylbenzene	mg/l	0.0259	0.0275	104.	74-130	6.10	20	WG650228
n-Propylbenzene	mg/l	0.0242	0.0252	97.0	77-125	3.91	20	WG650228
Naphthalene	mg/l	0.0268	0.0269	107.	70-134	0.140	20	WG650228
p-Isopropyltoluene	mg/l	0.0241	0.0252	96.0	77-132	4.37	20	WG650228
sec-Butylbenzene	mg/l	0.0240	0.0244	96.0	77-130	1.52	20	WG650228
Styrene	mg/l	0.0254	0.0259	101.	69-145	2.06	20	WG650228
tert-Butylbenzene	mg/l	0.0239	0.0245	96.0	76-131	2.51	20	WG650228
Tetrachloroethene	mg/l	0.0237	0.0233	95.0	69-131	1.70	20	WG650228
Toluene	mg/l	0.0248	0.0252	99.0	75-114	1.61	20	WG650228
trans-1,2-Dichloroethene	mg/l	0.0255	0.0277	102.	63-127	8.05	20	WG650228
trans-1,3-Dichloropropene	mg/l	0.0262	0.0266	105.	69-124	1.26	20	WG650228
Trichloroethene	mg/l	0.0232	0.0241	93.0	69-131	3.86	20	WG650228
Trichlorofluoromethane	mg/l	0.0271	0.0274	108.	53-161	1.25	20	WG650228
Vinyl chloride	mg/l	0.0281	0.0274	112.	55-142	2.29	20	WG650228
Xylenes, Total	mg/l	0.0736	0.0750	98.0	77-123	1.85	20	WG650228
4-Bromofluorobenzene				98.16	82-120			WG650228
Dibromofluoromethane				105.8	82-126			WG650228

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Quality Assurance Report
Level II

L624126

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Toluene-d8				105.3	92-112			

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0263	0	.025	105.	71-130	L624122-03	WG650232
1,1,1-Trichloroethane	mg/l	0.0281	0	.025	112.	58-137	L624122-03	WG650232
1,1,2,2-Tetrachloroethane	mg/l	0.0261	0	.025	104.	64-149	L624122-03	WG650232
1,1,2-Trichloroethane	mg/l	0.0259	0	.025	104.	73-128	L624122-03	WG650232
1,1,2-Trichlorotrifluoroethane	mg/l	0.0269	0	.025	107.	36-159	L624122-03	WG650232
1,1-Dichloroethane	mg/l	0.0291	0	.025	116.	58-133	L624122-03	WG650232
1,1-Dichloroethene	mg/l	0.0271	0	.025	108.	32-152	L624122-03	WG650232
1,1-Dichloropropene	mg/l	0.0279	0	.025	112.	50-140	L624122-03	WG650232
1,2,3-Trichlorobenzene	mg/l	0.0283	0	.025	113.	68-135	L624122-03	WG650232
1,2,3-Trichloropropane	mg/l	0.0258	0	.025	103.	74-137	L624122-03	WG650232
1,2,3-Trimethylbenzene	mg/l	0.0293	0.00236	.025	108.	67-133	L624122-03	WG650232
1,2,4-Trichlorobenzene	mg/l	0.0292	0	.025	117.	67-133	L624122-03	WG650232
1,2,4-Trimethylbenzene	mg/l	0.0356	0.0102	.025	102.	62-141	L624122-03	WG650232
1,2-Dibromo-3-Chloropropane	mg/l	0.0235	0	.025	94.1	55-148	L624122-03	WG650232
1,2-Dibromoethane	mg/l	0.0254	0	.025	101.	71-129	L624122-03	WG650232
1,2-Dichlorobenzene	mg/l	0.0267	0	.025	107.	75-125	L624122-03	WG650232
1,2-Dichloroethane	mg/l	0.0283	0	.025	113.	59-135	L624122-03	WG650232
1,2-Dichloropropane	mg/l	0.0301	0	.025	120.	68-126	L624122-03	WG650232
1,3,5-Trimethylbenzene	mg/l	0.0274	0.00139	.025	104.	67-136	L624122-03	WG650232
1,3-Dichlorobenzene	mg/l	0.0263	0	.025	105.	69-131	L624122-03	WG650232
1,3-Dichloropropane	mg/l	0.0264	0	.025	105.	70-122	L624122-03	WG650232
1,4-Dichlorobenzene	mg/l	0.0266	0	.025	106.	70-123	L624122-03	WG650232
2,2-Dichloropropane	mg/l	0.0284	0	.025	113.	51-141	L624122-03	WG650232
2-Butanone (MEK)	mg/l	0.0970	0	.125	77.6	51-149	L624122-03	WG650232
2-Chloroethyl vinyl ether	mg/l	0.000852	0	.125	0.680*	10-161	L624122-03	WG650232
2-Chlorotoluene	mg/l	0.0264	0	.025	106.	65-133	L624122-03	WG650232
4-Chlorotoluene	mg/l	0.0262	0	.025	105.	67-129	L624122-03	WG650232
4-Methyl-2-pentanone (MIBK)	mg/l	0.137	0	.125	110.	53-154	L624122-03	WG650232
Acetone	mg/l	0.0673	0.00512	.125	49.8	34-146	L624122-03	WG650232
Acrolein	mg/l	0.121	0	.125	96.4	10-189	L624122-03	WG650232
Acrylonitrile	mg/l	0.150	0	.125	120.	49-162	L624122-03	WG650232
Benzene	mg/l	0.0284	0.00129	.025	108.	51-134	L624122-03	WG650232
Bromobenzene	mg/l	0.0267	0	.025	107.	64-130	L624122-03	WG650232
Bromodichloromethane	mg/l	0.0282	0	.025	113.	67-132	L624122-03	WG650232
Bromoform	mg/l	0.0226	0	.025	90.4	59-137	L624122-03	WG650232
Bromomethane	mg/l	0.0228	0	.025	91.1	23-177	L624122-03	WG650232
Carbon tetrachloride	mg/l	0.0263	0	.025	105.	49-140	L624122-03	WG650232
Chlorobenzene	mg/l	0.0263	0	.025	105.	69-126	L624122-03	WG650232
Chlorodibromomethane	mg/l	0.0258	0	.025	103.	68-130	L624122-03	WG650232
Chloroethane	mg/l	0.0265	0	.025	106.	32-177	L624122-03	WG650232
Chloroform	mg/l	0.0281	0	.025	112.	64-130	L624122-03	WG650232
Chloromethane	mg/l	0.0274	0	.025	110.	27-155	L624122-03	WG650232
cis-1,2-Dichloroethene	mg/l	0.0267	0	.025	107.	54-137	L624122-03	WG650232
cis-1,3-Dichloropropene	mg/l	0.0285	0	.025	114.	63-127	L624122-03	WG650232
Di-isopropyl ether	mg/l	0.0300	0	.025	120.	58-133	L624122-03	WG650232
Dibromomethane	mg/l	0.0278	0	.025	111.	68-131	L624122-03	WG650232
Dichlorodifluoromethane	mg/l	0.0254	0	.025	102.	16-188	L624122-03	WG650232
Ethylbenzene	mg/l	0.0272	0.000815	.025	106.	64-135	L624122-03	WG650232
Hexachloro-1,3-butadiene	mg/l	0.0274	0	.025	110.	64-140	L624122-03	WG650232
Isopropylbenzene	mg/l	0.0272	0.000883	.025	105.	62-134	L624122-03	WG650232
Methyl tert-butyl ether	mg/l	0.0271	0	.025	108.	55-136	L624122-03	WG650232
Methylene Chloride	mg/l	0.0263	0	.025	105.	52-130	L624122-03	WG650232
n-Butylbenzene	mg/l	0.0291	0.000617	.025	114.	62-142	L624122-03	WG650232
n-Propylbenzene	mg/l	0.0276	0.00107	.025	106.	62-137	L624122-03	WG650232

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Quality Assurance Report
Level II

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April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Naphthalene	mg/l	0.0300	0.00690	.025	92.2	65-140	L624122-03	WG650232
p-Isopropyltoluene	mg/l	0.0287	0.00192	.025	107.	64-142	L624122-03	WG650232
sec-Butylbenzene	mg/l	0.0279	0.00207	.025	103.	67-139	L624122-03	WG650232
Styrene	mg/l	0.0262	0	.025	105.	58-152	L624122-03	WG650232
tert-Butylbenzene	mg/l	0.0262	0.000352	.025	104.	66-139	L624122-03	WG650232
Tetrachloroethene	mg/l	0.0266	0	.025	106.	56-139	L624122-03	WG650232
Toluene	mg/l	0.0274	0	.025	110.	61-126	L624122-03	WG650232
trans-1,2-Dichloroethene	mg/l	0.0266	0	.025	106.	45-137	L624122-03	WG650232
trans-1,3-Dichloropropene	mg/l	0.0270	0	.025	108.	59-130	L624122-03	WG650232
Trichloroethene	mg/l	0.0271	0	.025	108.	40-155	L624122-03	WG650232
Trichlorofluoromethane	mg/l	0.0260	0	.025	104.	35-177	L624122-03	WG650232
Vinyl chloride	mg/l	0.0271	0	.025	108.	32-159	L624122-03	WG650232
Xylenes, Total	mg/l	0.0783	0.000576	.075	104.	64-133	L624122-03	WG650232
4-Bromofluorobenzene					97.81	82-120		WG650232
Dibromofluoromethane					102.2	82-126		WG650232
Toluene-d8					105.6	92-112		WG650232
1,1,1,2-Tetrachloroethane	mg/l	0.0223	0	.025	89.4	71-130	L624134-01	WG650236
1,1,1-Trichloroethane	mg/l	0.0196	0	.025	78.6	58-137	L624134-01	WG650236
1,1,2,2-Tetrachloroethane	mg/l	0.0251	0	.025	100.	64-149	L624134-01	WG650236
1,1,2-Trichloroethane	mg/l	0.0228	0	.025	91.1	73-128	L624134-01	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	0.0209	0	.025	83.5	36-159	L624134-01	WG650236
1,1-Dichloroethane	mg/l	0.0197	0	.025	79.0	58-133	L624134-01	WG650236
1,1-Dichloroethene	mg/l	0.0211	0	.025	84.3	32-152	L624134-01	WG650236
1,1-Dichloropropene	mg/l	0.0204	0	.025	81.6	50-140	L624134-01	WG650236
1,2,3-Trichlorobenzene	mg/l	0.0287	0	.025	115.	68-135	L624134-01	WG650236
1,2,3-Trichloropropane	mg/l	0.0243	0	.025	97.3	74-137	L624134-01	WG650236
1,2,3-Trimethylbenzene	mg/l	0.0209	0	.025	83.7	67-133	L624134-01	WG650236
1,2,4-Trichlorobenzene	mg/l	0.0276	0	.025	110.	67-133	L624134-01	WG650236
1,2,4-Trimethylbenzene	mg/l	0.0238	0	.025	95.2	62-141	L624134-01	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	0.0235	0	.025	94.0	55-148	L624134-01	WG650236
1,2-Dibromoethane	mg/l	0.0229	0	.025	91.5	71-129	L624134-01	WG650236
1,2-Dichlorobenzene	mg/l	0.0225	0	.025	90.0	75-125	L624134-01	WG650236
1,2-Dichloroethane	mg/l	0.0213	0	.025	85.4	59-135	L624134-01	WG650236
1,2-Dichloropropane	mg/l	0.0208	0	.025	83.2	68-126	L624134-01	WG650236
1,3,5-Trimethylbenzene	mg/l	0.0239	0	.025	95.8	67-136	L624134-01	WG650236
1,3-Dichlorobenzene	mg/l	0.0251	0	.025	100.	69-131	L624134-01	WG650236
1,3-Dichloropropane	mg/l	0.0219	0	.025	87.6	70-122	L624134-01	WG650236
1,4-Dichlorobenzene	mg/l	0.0217	0	.025	86.7	70-123	L624134-01	WG650236
2,2-Dichloropropane	mg/l	0.0188	0	.025	75.1	51-141	L624134-01	WG650236
2-Butanone (MEK)	mg/l	0.0777	0	.125	62.1	51-149	L624134-01	WG650236
2-Chloroethyl vinyl ether	mg/l	0.000386	0	.125	0.310*	10-161	L624134-01	WG650236
2-Chlorotoluene	mg/l	0.0233	0	.025	93.3	65-133	L624134-01	WG650236
4-Chlorotoluene	mg/l	0.0232	0	.025	92.8	67-129	L624134-01	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	0.117	0	.125	93.5	53-154	L624134-01	WG650236
Acetone	mg/l	0.0519	0.000838	.125	40.8	34-146	L624134-01	WG650236
Acrolein	mg/l	0.174	0	.125	139.	10-189	L624134-01	WG650236
Acrylonitrile	mg/l	0.108	0	.125	86.1	49-162	L624134-01	WG650236
Benzene	mg/l	0.0204	0	.025	81.5	51-134	L624134-01	WG650236
Bromobenzene	mg/l	0.0222	0	.025	88.8	64-130	L624134-01	WG650236
Bromodichloromethane	mg/l	0.0201	0	.025	80.6	67-132	L624134-01	WG650236
Bromoform	mg/l	0.0229	0	.025	91.5	59-137	L624134-01	WG650236
Bromomethane	mg/l	0.0274	0	.025	110.	23-177	L624134-01	WG650236
Carbon tetrachloride	mg/l	0.0206	0	.025	82.5	49-140	L624134-01	WG650236
Chlorobenzene	mg/l	0.0228	0	.025	91.1	69-126	L624134-01	WG650236
Chlorodibromomethane	mg/l	0.0223	0	.025	89.2	68-130	L624134-01	WG650236
Chloroethane	mg/l	0.0208	0	.025	83.0	32-177	L624134-01	WG650236
Chloroform	mg/l	0.0206	0	.025	82.3	64-130	L624134-01	WG650236

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Tacoma, WA 98402

Quality Assurance Report
Level II

L624126

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Chloromethane	mg/l	0.0184	0	.025	73.8	27-155	L624134-01	WG650236
cis-1,2-Dichloroethene	mg/l	0.0203	0	.025	81.0	54-137	L624134-01	WG650236
cis-1,3-Dichloropropene	mg/l	0.0205	0	.025	81.9	63-127	L624134-01	WG650236
Di-isopropyl ether	mg/l	0.0188	0	.025	75.3	58-133	L624134-01	WG650236
Dibromomethane	mg/l	0.0220	0	.025	87.8	68-131	L624134-01	WG650236
Dichlorodifluoromethane	mg/l	0.0193	0	.025	77.0	16-188	L624134-01	WG650236
Ethylbenzene	mg/l	0.0227	0	.025	90.9	64-135	L624134-01	WG650236
Hexachloro-1,3-butadiene	mg/l	0.0255	0	.025	102.	64-140	L624134-01	WG650236
Isopropylbenzene	mg/l	0.0229	0	.025	91.6	62-134	L624134-01	WG650236
Methyl tert-butyl ether	mg/l	0.0206	0	.025	82.6	55-136	L624134-01	WG650236
Methylene Chloride	mg/l	0.0199	0	.025	79.6	52-130	L624134-01	WG650236
n-Butylbenzene	mg/l	0.0224	0	.025	89.7	62-142	L624134-01	WG650236
n-Propylbenzene	mg/l	0.0231	0	.025	92.4	62-137	L624134-01	WG650236
Naphthalene	mg/l	0.0259	0	.025	104.	65-140	L624134-01	WG650236
p-Isopropyltoluene	mg/l	0.0248	0	.025	99.2	64-142	L624134-01	WG650236
sec-Butylbenzene	mg/l	0.0247	0	.025	98.9	67-139	L624134-01	WG650236
Styrene	mg/l	0.0219	0	.025	87.8	58-152	L624134-01	WG650236
tert-Butylbenzene	mg/l	0.0240	0	.025	96.0	66-139	L624134-01	WG650236
Tetrachloroethene	mg/l	0.0229	0	.025	91.7	56-139	L624134-01	WG650236
Toluene	mg/l	0.0212	0	.025	84.8	61-126	L624134-01	WG650236
trans-1,2-Dichloroethene	mg/l	0.0201	0	.025	80.5	45-137	L624134-01	WG650236
trans-1,3-Dichloropropene	mg/l	0.0228	0	.025	91.0	59-130	L624134-01	WG650236
Trichloroethene	mg/l	0.0232	0.000315	.025	91.7	40-155	L624134-01	WG650236
Trichlorofluoromethane	mg/l	0.0214	0	.025	85.6	35-177	L624134-01	WG650236
Vinyl chloride	mg/l	0.0182	0	.025	73.0	32-159	L624134-01	WG650236
Xylenes, Total	mg/l	0.0674	0	.075	89.9	64-133	L624134-01	WG650236
4-Bromofluorobenzene					98.05	82-120		WG650236
Dibromofluoromethane					95.04	82-126		WG650236
Toluene-d8					96.03	92-112		WG650236
1,1,1,2-Tetrachloroethane	mg/l	0.0247	0	.025	98.9	71-130	L624054-01	WG650228
1,1,1-Trichloroethane	mg/l	0.0256	0	.025	102.	58-137	L624054-01	WG650228
1,1,2,2-Tetrachloroethane	mg/l	0.0245	0	.025	97.9	64-149	L624054-01	WG650228
1,1,2-Trichloroethane	mg/l	0.0248	0	.025	99.1	73-128	L624054-01	WG650228
1,1,2-Trichlorotrifluoroethane	mg/l	0.0297	0	.025	119.	36-159	L624054-01	WG650228
1,1-Dichloroethane	mg/l	0.0282	0	.025	113.	58-133	L624054-01	WG650228
1,1-Dichloroethene	mg/l	0.0280	0	.025	112.	32-152	L624054-01	WG650228
1,1-Dichloropropene	mg/l	0.0269	0	.025	108.	50-140	L624054-01	WG650228
1,2,3-Trichlorobenzene	mg/l	0.0251	0	.025	100.	68-135	L624054-01	WG650228
1,2,3-Trichloropropane	mg/l	0.0223	0	.025	89.2	74-137	L624054-01	WG650228
1,2,3-Trimethylbenzene	mg/l	0.0263	0	.025	105.	67-133	L624054-01	WG650228
1,2,4-Trichlorobenzene	mg/l	0.0256	0	.025	102.	67-133	L624054-01	WG650228
1,2,4-Trimethylbenzene	mg/l	0.0256	0	.025	102.	62-141	L624054-01	WG650228
1,2-Dibromo-3-Chloropropane	mg/l	0.0246	0	.025	98.3	55-148	L624054-01	WG650228
1,2-Dibromoethane	mg/l	0.0226	0	.025	90.4	71-129	L624054-01	WG650228
1,2-Dichlorobenzene	mg/l	0.0258	0	.025	103.	75-125	L624054-01	WG650228
1,2-Dichloroethane	mg/l	0.0242	0	.025	96.9	59-135	L624054-01	WG650228
1,2-Dichloropropane	mg/l	0.0262	0	.025	105.	68-126	L624054-01	WG650228
1,3,5-Trimethylbenzene	mg/l	0.0254	0	.025	102.	67-136	L624054-01	WG650228
1,3-Dichlorobenzene	mg/l	0.0245	0	.025	97.8	69-131	L624054-01	WG650228
1,3-Dichloropropane	mg/l	0.0239	0	.025	95.4	70-122	L624054-01	WG650228
1,4-Dichlorobenzene	mg/l	0.0253	0	.025	101.	70-123	L624054-01	WG650228
2,2-Dichloropropane	mg/l	0.0249	0	.025	99.5	51-141	L624054-01	WG650228
2-Butanone (MEK)	mg/l	0.0985	0	.125	78.8	51-149	L624054-01	WG650228
2-Chloroethyl vinyl ether	mg/l	0.00674	0	.125	5.39*	10-161	L624054-01	WG650228
2-Chlorotoluene	mg/l	0.0253	0	.025	101.	65-133	L624054-01	WG650228
4-Chlorotoluene	mg/l	0.0247	0	.025	98.8	67-129	L624054-01	WG650228
4-Methyl-2-pentanone (MIBK)	mg/l	0.123	0	.125	98.4	53-154	L624054-01	WG650228

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Quality Assurance Report
Level II

L624126

April 10, 2013

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Acetone	mg/l	0.0741	0	.125	59.3	34-146	L624054-01	WG650228
Acrolein	mg/l	0.344	0	.125	275.*	10-189	L624054-01	WG650228
Acrylonitrile	mg/l	0.133	0	.125	106.	49-162	L624054-01	WG650228
Benzene	mg/l	0.0261	0	.025	104.	51-134	L624054-01	WG650228
Bromobenzene	mg/l	0.0248	0	.025	99.0	64-130	L624054-01	WG650228
Bromodichloromethane	mg/l	0.0246	0	.025	98.3	67-132	L624054-01	WG650228
Bromoform	mg/l	0.0235	0	.025	94.0	59-137	L624054-01	WG650228
Bromomethane	mg/l	0.0246	0	.025	98.3	23-177	L624054-01	WG650228
Carbon tetrachloride	mg/l	0.0245	0	.025	98.1	49-140	L624054-01	WG650228
Chlorobenzene	mg/l	0.0248	0	.025	99.1	69-126	L624054-01	WG650228
Chlorodibromomethane	mg/l	0.0243	0	.025	97.1	68-130	L624054-01	WG650228
Chloroethane	mg/l	0.0269	0	.025	108.	32-177	L624054-01	WG650228
Chloroform	mg/l	0.0264	0.000568	.025	103.	64-130	L624054-01	WG650228
Chloromethane	mg/l	0.0249	0	.025	99.7	27-155	L624054-01	WG650228
cis-1,2-Dichloroethene	mg/l	0.0252	0	.025	101.	54-137	L624054-01	WG650228
cis-1,3-Dichloropropene	mg/l	0.0254	0	.025	102.	63-127	L624054-01	WG650228
Di-isopropyl ether	mg/l	0.0281	0	.025	112.	58-133	L624054-01	WG650228
Dibromomethane	mg/l	0.0231	0	.025	92.3	68-131	L624054-01	WG650228
Dichlorodifluoromethane	mg/l	0.0270	0	.025	108.	16-188	L624054-01	WG650228
Ethylbenzene	mg/l	0.0256	0	.025	102.	64-135	L624054-01	WG650228
Hexachloro-1,3-butadiene	mg/l	0.0283	0	.025	113.	64-140	L624054-01	WG650228
Isopropylbenzene	mg/l	0.0261	0	.025	104.	62-134	L624054-01	WG650228
Methyl tert-butyl ether	mg/l	0.0265	0	.025	106.	55-136	L624054-01	WG650228
Methylene Chloride	mg/l	0.0261	0	.025	104.	52-130	L624054-01	WG650228
n-Butylbenzene	mg/l	0.0286	0	.025	114.	62-142	L624054-01	WG650228
n-Propylbenzene	mg/l	0.0265	0	.025	106.	62-137	L624054-01	WG650228
Naphthalene	mg/l	0.0241	0	.025	96.2	65-140	L624054-01	WG650228
p-Isopropyltoluene	mg/l	0.0262	0	.025	105.	64-142	L624054-01	WG650228
sec-Butylbenzene	mg/l	0.0259	0	.025	104.	67-139	L624054-01	WG650228
Styrene	mg/l	0.0259	0	.025	104.	58-152	L624054-01	WG650228
tert-Butylbenzene	mg/l	0.0259	0	.025	103.	66-139	L624054-01	WG650228
Tetrachloroethene	mg/l	0.113	0.0849	.025	113.	56-139	L624054-01	WG650228
Toluene	mg/l	0.0254	0	.025	102.	61-126	L624054-01	WG650228
trans-1,2-Dichloroethene	mg/l	0.0282	0	.025	113.	45-137	L624054-01	WG650228
trans-1,3-Dichloropropene	mg/l	0.0253	0	.025	101.	59-130	L624054-01	WG650228
Trichloroethene	mg/l	0.0246	0	.025	98.3	40-155	L624054-01	WG650228
Trichlorofluoromethane	mg/l	0.0293	0	.025	117.	35-177	L624054-01	WG650228
Vinyl chloride	mg/l	0.0280	0	.025	112.	32-159	L624054-01	WG650228
Xylenes, Total	mg/l	0.0761	0	.075	101.	64-133	L624054-01	WG650228
4-Bromofluorobenzene					96.22	82-120		WG650228
Dibromofluoromethane					100.9	82-126		WG650228
Toluene-d8					105.4	92-112		WG650228

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0271	0.0263	108.	71-130	2.87	20	L624122-03	WG650232
1,1,1-Trichloroethane	mg/l	0.0280	0.0281	112.	58-137	0.430	20	L624122-03	WG650232
1,1,2,2-Tetrachloroethane	mg/l	0.0287	0.0261	115.	64-149	9.46	20	L624122-03	WG650232
1,1,2-Trichloroethane	mg/l	0.0275	0.0259	110.	73-128	5.76	20	L624122-03	WG650232
1,1,2-Trichlorotrifluoroethane	mg/l	0.0272	0.0269	109.	36-159	1.32	21	L624122-03	WG650232
1,1-Dichloroethane	mg/l	0.0288	0.0291	115.	58-133	1.03	20	L624122-03	WG650232
1,1-Dichloroethene	mg/l	0.0269	0.0271	108.	32-152	0.620	20	L624122-03	WG650232
1,1-Dichloropropene	mg/l	0.0280	0.0279	112.	50-140	0.0700	20	L624122-03	WG650232
1,2,3-Trichlorobenzene	mg/l	0.0304	0.0283	122.	68-135	7.16	20	L624122-03	WG650232
1,2,3-Trichloropropane	mg/l	0.0272	0.0258	109.	74-137	5.38	20	L624122-03	WG650232
1,2,3-Trimethylbenzene	mg/l	0.0297	0.0293	109.	67-133	1.35	20	L624122-03	WG650232
1,2,4-Trichlorobenzene	mg/l	0.0309	0.0292	124.	67-133	5.77	20	L624122-03	WG650232
1,2,4-Trimethylbenzene	mg/l	0.0365	0.0356	105.	62-141	2.51	20	L624122-03	WG650232

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Quality Assurance Report
Level II

L624126

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,2-Dibromo-3-Chloropropane	mg/l	0.0256	0.0235	102.	55-148	8.63	22	L624122-03	WG650232
1,2-Dibromoethane	mg/l	0.0270	0.0254	108.	71-129	6.33	20	L624122-03	WG650232
1,2-Dichlorobenzene	mg/l	0.0278	0.0267	111.	75-125	3.79	20	L624122-03	WG650232
1,2-Dichloroethane	mg/l	0.0289	0.0283	116.	59-135	2.15	20	L624122-03	WG650232
1,2-Dichloropropane	mg/l	0.0301	0.0301	120.	68-126	0.230	20	L624122-03	WG650232
1,3,5-Trimethylbenzene	mg/l	0.0284	0.0274	108.	67-136	3.64	20	L624122-03	WG650232
1,3-Dichlorobenzene	mg/l	0.0273	0.0263	109.	69-131	3.68	20	L624122-03	WG650232
1,3-Dichloropropane	mg/l	0.0274	0.0264	110.	70-122	3.76	20	L624122-03	WG650232
1,4-Dichlorobenzene	mg/l	0.0275	0.0266	110.	70-123	3.35	20	L624122-03	WG650232
2,2-Dichloropropane	mg/l	0.0286	0.0284	114.	51-141	0.920	20	L624122-03	WG650232
2-Butanone (MEK)	mg/l	0.103	0.0970	82.3	51-149	5.84	22	L624122-03	WG650232
2-Chloroethyl vinyl ether	mg/l	0.000800	0.000852	0.640*	10-161	6.22	40	L624122-03	WG650232
2-Chlorotoluene	mg/l	0.0274	0.0264	109.	65-133	3.48	20	L624122-03	WG650232
4-Chlorotoluene	mg/l	0.0275	0.0262	110.	67-129	5.09	20	L624122-03	WG650232
4-Methyl-2-pentanone (MIBK)	mg/l	0.153	0.137	123.	53-154	11.0	21	L624122-03	WG650232
Acetone	mg/l	0.0714	0.0673	53.0	34-146	5.93	22	L624122-03	WG650232
Acrolein	mg/l	0.128	0.121	102.	10-189	6.17	30	L624122-03	WG650232
Acrylonitrile	mg/l	0.159	0.150	127.	49-162	5.95	20	L624122-03	WG650232
Benzene	mg/l	0.0288	0.0284	110.	51-134	1.44	20	L624122-03	WG650232
Bromobenzene	mg/l	0.0278	0.0267	111.	64-130	4.12	20	L624122-03	WG650232
Bromodichloromethane	mg/l	0.0288	0.0282	115.	67-132	2.34	20	L624122-03	WG650232
Bromoform	mg/l	0.0240	0.0226	96.2	59-137	6.14	20	L624122-03	WG650232
Bromomethane	mg/l	0.0237	0.0228	94.6	23-177	3.85	21	L624122-03	WG650232
Carbon tetrachloride	mg/l	0.0272	0.0263	109.	49-140	3.39	20	L624122-03	WG650232
Chlorobenzene	mg/l	0.0274	0.0263	110.	69-126	4.13	20	L624122-03	WG650232
Chlorodibromomethane	mg/l	0.0269	0.0258	107.	68-130	4.14	20	L624122-03	WG650232
Chloroethane	mg/l	0.0270	0.0265	108.	32-177	1.83	21	L624122-03	WG650232
Chloroform	mg/l	0.0283	0.0281	113.	64-130	0.700	20	L624122-03	WG650232
Chloromethane	mg/l	0.0276	0.0274	110.	27-155	0.780	20	L624122-03	WG650232
cis-1,2-Dichloroethene	mg/l	0.0271	0.0267	108.	54-137	1.30	20	L624122-03	WG650232
cis-1,3-Dichloropropene	mg/l	0.0294	0.0285	117.	63-127	2.84	20	L624122-03	WG650232
Di-isopropyl ether	mg/l	0.0308	0.0300	123.	58-133	2.67	20	L624122-03	WG650232
Dibromomethane	mg/l	0.0283	0.0278	113.	68-131	1.87	20	L624122-03	WG650232
Dichlorodifluoromethane	mg/l	0.0257	0.0254	103.	16-188	1.14	22	L624122-03	WG650232
Ethylbenzene	mg/l	0.0276	0.0272	107.	64-135	1.50	20	L624122-03	WG650232
Hexachloro-1,3-butadiene	mg/l	0.0283	0.0274	113.	64-140	3.26	20	L624122-03	WG650232
Isopropylbenzene	mg/l	0.0282	0.0272	109.	62-134	3.70	20	L624122-03	WG650232
Methyl tert-butyl ether	mg/l	0.0280	0.0271	112.	55-136	3.25	20	L624122-03	WG650232
Methylene Chloride	mg/l	0.0268	0.0263	107.	52-130	1.97	20	L624122-03	WG650232
n-Butylbenzene	mg/l	0.0296	0.0291	116.	62-142	1.51	20	L624122-03	WG650232
n-Propylbenzene	mg/l	0.0286	0.0276	110.	62-137	3.57	20	L624122-03	WG650232
Naphthalene	mg/l	0.0347	0.0300	111.	65-140	14.7	20	L624122-03	WG650232
p-Isopropyltoluene	mg/l	0.0297	0.0287	111.	64-142	3.56	20	L624122-03	WG650232
sec-Butylbenzene	mg/l	0.0286	0.0279	106.	67-139	2.32	20	L624122-03	WG650232
Styrene	mg/l	0.0274	0.0262	110.	58-152	4.43	20	L624122-03	WG650232
tert-Butylbenzene	mg/l	0.0276	0.0262	109.	66-139	4.97	20	L624122-03	WG650232
Tetrachloroethene	mg/l	0.0272	0.0266	109.	56-139	2.47	20	L624122-03	WG650232
Toluene	mg/l	0.0276	0.0274	110.	61-126	0.750	20	L624122-03	WG650232
trans-1,2-Dichloroethene	mg/l	0.0269	0.0266	108.	45-137	1.26	20	L624122-03	WG650232
trans-1,3-Dichloropropene	mg/l	0.0286	0.0270	114.	59-130	5.77	20	L624122-03	WG650232
Trichloroethene	mg/l	0.0279	0.0271	111.	40-155	2.95	20	L624122-03	WG650232
Trichlorofluoromethane	mg/l	0.0265	0.0260	106.	35-177	2.07	23	L624122-03	WG650232
Vinyl chloride	mg/l	0.0271	0.0271	108.	32-159	0.0100	21	L624122-03	WG650232
Xylenes, Total	mg/l	0.0807	0.0783	107.	64-133	3.09	20	L624122-03	WG650232
4-Bromofluorobenzene				98.83	82-120				WG650232
Dibromofluoromethane				100.8	82-126				WG650232
Toluene-d8				104.3	92-112				WG650232

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Quality Assurance Report
Level II

L624126

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0241	0.0223	96.3	71-130	7.51	20	L624134-01	WG650236
1,1,1-Trichloroethane	mg/l	0.0210	0.0196	84.0	58-137	6.67	20	L624134-01	WG650236
1,1,2,2-Tetrachloroethane	mg/l	0.0249	0.0251	99.6	64-149	0.870	20	L624134-01	WG650236
1,1,2-Trichloroethane	mg/l	0.0235	0.0228	93.9	73-128	3.07	20	L624134-01	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	0.0219	0.0209	87.4	36-159	4.57	21	L624134-01	WG650236
1,1-Dichloroethane	mg/l	0.0208	0.0197	83.0	58-133	5.04	20	L624134-01	WG650236
1,1-Dichloroethene	mg/l	0.0218	0.0211	87.2	32-152	3.38	20	L624134-01	WG650236
1,1-Dichloropropene	mg/l	0.0217	0.0204	86.9	50-140	6.23	20	L624134-01	WG650236
1,2,3-Trichlorobenzene	mg/l	0.0300	0.0287	120.	68-135	4.47	20	L624134-01	WG650236
1,2,3-Trichloropropane	mg/l	0.0216	0.0243	86.4	74-137	11.9	20	L624134-01	WG650236
1,2,3-Trimethylbenzene	mg/l	0.0222	0.0209	88.9	67-133	6.03	20	L624134-01	WG650236
1,2,4-Trichlorobenzene	mg/l	0.0288	0.0276	115.	67-133	4.18	20	L624134-01	WG650236
1,2,4-Trimethylbenzene	mg/l	0.0255	0.0238	102.	62-141	6.99	20	L624134-01	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	0.0222	0.0235	88.9	55-148	5.54	22	L624134-01	WG650236
1,2-Dibromoethane	mg/l	0.0239	0.0229	95.7	71-129	4.44	20	L624134-01	WG650236
1,2-Dichlorobenzene	mg/l	0.0241	0.0225	96.6	75-125	7.01	20	L624134-01	WG650236
1,2-Dichloroethane	mg/l	0.0217	0.0213	87.0	59-135	1.89	20	L624134-01	WG650236
1,2-Dichloropropane	mg/l	0.0222	0.0208	88.8	68-126	6.55	20	L624134-01	WG650236
1,3,5-Trimethylbenzene	mg/l	0.0251	0.0239	100.	67-136	4.56	20	L624134-01	WG650236
1,3-Dichlorobenzene	mg/l	0.0268	0.0251	107.	69-131	6.55	20	L624134-01	WG650236
1,3-Dichloropropane	mg/l	0.0225	0.0219	90.2	70-122	2.96	20	L624134-01	WG650236
1,4-Dichlorobenzene	mg/l	0.0232	0.0217	92.9	70-123	6.93	20	L624134-01	WG650236
2,2-Dichloropropane	mg/l	0.0210	0.0188	84.1	51-141	11.4	20	L624134-01	WG650236
2-Butanone (MEK)	mg/l	0.0703	0.0777	56.2	51-149	9.97	22	L624134-01	WG650236
2-Chloroethyl vinyl ether	mg/l	0	0.000386	0*	10-161	200.*	40	L624134-01	WG650236
2-Chlorotoluene	mg/l	0.0248	0.0233	99.0	65-133	5.98	20	L624134-01	WG650236
4-Chlorotoluene	mg/l	0.0246	0.0232	98.6	67-129	5.99	20	L624134-01	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	0.105	0.117	84.4	53-154	10.3	21	L624134-01	WG650236
Acetone	mg/l	0.0472	0.0519	37.1	34-146	9.37	22	L624134-01	WG650236
Acrolein	mg/l	0.160	0.174	128.	10-189	8.01	30	L624134-01	WG650236
Acrylonitrile	mg/l	0.100	0.108	80.1	49-162	7.30	20	L624134-01	WG650236
Benzene	mg/l	0.0217	0.0204	86.9	51-134	6.40	20	L624134-01	WG650236
Bromobenzene	mg/l	0.0235	0.0222	94.2	64-130	5.92	20	L624134-01	WG650236
Bromodichloromethane	mg/l	0.0209	0.0201	83.6	67-132	3.68	20	L624134-01	WG650236
Bromoform	mg/l	0.0230	0.0229	92.0	59-137	0.540	20	L624134-01	WG650236
Bromomethane	mg/l	0.0292	0.0274	117.	23-177	6.32	21	L624134-01	WG650236
Carbon tetrachloride	mg/l	0.0220	0.0206	88.0	49-140	6.43	20	L624134-01	WG650236
Chlorobenzene	mg/l	0.0242	0.0228	96.9	69-126	6.15	20	L624134-01	WG650236
Chlorodibromomethane	mg/l	0.0230	0.0223	92.2	68-130	3.33	20	L624134-01	WG650236
Chloroethane	mg/l	0.0219	0.0208	87.7	32-177	5.50	21	L624134-01	WG650236
Chloroform	mg/l	0.0214	0.0206	85.6	64-130	3.90	20	L624134-01	WG650236
Chloromethane	mg/l	0.0193	0.0184	77.2	27-155	4.46	20	L624134-01	WG650236
cis-1,2-Dichloroethene	mg/l	0.0212	0.0203	84.6	54-137	4.34	20	L624134-01	WG650236
cis-1,3-Dichloropropene	mg/l	0.0214	0.0205	85.8	63-127	4.59	20	L624134-01	WG650236
Di-isopropyl ether	mg/l	0.0195	0.0188	78.1	58-133	3.68	20	L624134-01	WG650236
Dibromomethane	mg/l	0.0225	0.0220	90.0	68-131	2.43	20	L624134-01	WG650236
Dichlorodifluoromethane	mg/l	0.0201	0.0193	80.5	16-188	4.46	22	L624134-01	WG650236
Ethylbenzene	mg/l	0.0243	0.0227	97.3	64-135	6.75	20	L624134-01	WG650236
Hexachloro-1,3-butadiene	mg/l	0.0278	0.0255	111.	64-140	8.38	20	L624134-01	WG650236
Isopropylbenzene	mg/l	0.0244	0.0229	97.7	62-134	6.45	20	L624134-01	WG650236
Methyl tert-butyl ether	mg/l	0.0204	0.0206	81.6	55-136	1.14	20	L624134-01	WG650236
Methylene Chloride	mg/l	0.0200	0.0199	80.0	52-130	0.570	20	L624134-01	WG650236
n-Butylbenzene	mg/l	0.0243	0.0224	97.2	62-142	7.99	20	L624134-01	WG650236
n-Propylbenzene	mg/l	0.0251	0.0231	100.	62-137	8.25	20	L624134-01	WG650236
Naphthalene	mg/l	0.0256	0.0259	102.	65-140	1.13	20	L624134-01	WG650236
p-Isopropyltoluene	mg/l	0.0268	0.0248	107.	64-142	7.56	20	L624134-01	WG650236
sec-Butylbenzene	mg/l	0.0264	0.0247	105.	67-139	6.37	20	L624134-01	WG650236
Styrene	mg/l	0.0233	0.0219	93.2	58-152	6.01	20	L624134-01	WG650236
tert-Butylbenzene	mg/l	0.0257	0.0240	103.	66-139	6.93	20	L624134-01	WG650236

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Quality Assurance Report
Level II

L624126

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Tetrachloroethene	mg/l	0.0251	0.0229	100.	56-139	8.94	20	L624134-01	WG650236
Toluene	mg/l	0.0228	0.0212	91.3	61-126	7.39	20	L624134-01	WG650236
trans-1,2-Dichloroethene	mg/l	0.0207	0.0201	83.0	45-137	3.00	20	L624134-01	WG650236
trans-1,3-Dichloropropene	mg/l	0.0232	0.0228	92.8	59-130	1.98	20	L624134-01	WG650236
Trichloroethene	mg/l	0.0239	0.0232	94.4	40-155	2.86	20	L624134-01	WG650236
Trichlorofluoromethane	mg/l	0.0232	0.0214	92.7	35-177	8.03	23	L624134-01	WG650236
Vinyl chloride	mg/l	0.0192	0.0182	76.6	32-159	4.94	21	L624134-01	WG650236
Xylenes, Total	mg/l	0.0726	0.0674	96.8	64-133	7.39	20	L624134-01	WG650236
4-Bromofluorobenzene				96.89	82-120				WG650236
Dibromofluoromethane				92.48	82-126				WG650236
Toluene-d8				94.86	92-112				WG650236
1,1,1,2-Tetrachloroethane	mg/l	0.0234	0.0247	93.7	71-130	5.44	20	L624054-01	WG650228
1,1,1-Trichloroethane	mg/l	0.0240	0.0256	95.9	58-137	6.53	20	L624054-01	WG650228
1,1,2,2-Tetrachloroethane	mg/l	0.0259	0.0245	103.	64-149	5.51	20	L624054-01	WG650228
1,1,2-Trichloroethane	mg/l	0.0241	0.0248	96.5	73-128	2.64	20	L624054-01	WG650228
1,1,2-Trichlorotrifluoroethane	mg/l	0.0268	0.0297	107.	36-159	10.3	21	L624054-01	WG650228
1,1-Dichloroethane	mg/l	0.0247	0.0282	98.6	58-133	13.6	20	L624054-01	WG650228
1,1-Dichloroethene	mg/l	0.0254	0.0280	102.	32-152	9.81	20	L624054-01	WG650228
1,1-Dichloropropene	mg/l	0.0244	0.0269	97.4	50-140	10.1	20	L624054-01	WG650228
1,2,3-Trichlorobenzene	mg/l	0.0262	0.0251	105.	68-135	4.12	20	L624054-01	WG650228
1,2,3-Trichloropropane	mg/l	0.0239	0.0223	95.6	74-137	6.99	20	L624054-01	WG650228
1,2,3-Trimethylbenzene	mg/l	0.0250	0.0263	100.	67-133	4.81	20	L624054-01	WG650228
1,2,4-Trichlorobenzene	mg/l	0.0256	0.0256	102.	67-133	0.220	20	L624054-01	WG650228
1,2,4-Trimethylbenzene	mg/l	0.0240	0.0256	95.8	62-141	6.70	20	L624054-01	WG650228
1,2-Dibromo-3-Chloropropane	mg/l	0.0281	0.0246	112.	55-148	13.5	22	L624054-01	WG650228
1,2-Dibromoethane	mg/l	0.0230	0.0226	92.0	71-129	1.78	20	L624054-01	WG650228
1,2-Dichlorobenzene	mg/l	0.0247	0.0258	98.6	75-125	4.59	20	L624054-01	WG650228
1,2-Dichloroethane	mg/l	0.0228	0.0242	91.4	59-135	5.84	20	L624054-01	WG650228
1,2-Dichloropropane	mg/l	0.0253	0.0262	101.	68-126	3.51	20	L624054-01	WG650228
1,3,5-Trimethylbenzene	mg/l	0.0239	0.0254	95.4	67-136	6.33	20	L624054-01	WG650228
1,3-Dichlorobenzene	mg/l	0.0233	0.0245	93.1	69-131	4.91	20	L624054-01	WG650228
1,3-Dichloropropane	mg/l	0.0239	0.0239	95.7	70-122	0.310	20	L624054-01	WG650228
1,4-Dichlorobenzene	mg/l	0.0239	0.0253	95.8	70-123	5.53	20	L624054-01	WG650228
2,2-Dichloropropane	mg/l	0.0256	0.0249	102.	51-141	2.97	20	L624054-01	WG650228
2-Butanone (MEK)	mg/l	0.109	0.0985	87.5	51-149	10.5	22	L624054-01	WG650228
2-Chloroethyl vinyl ether	mg/l	0.000977	0.00674	0.782*	10-161	149.*	40	L624054-01	WG650228
2-Chlorotoluene	mg/l	0.0240	0.0253	96.2	65-133	5.17	20	L624054-01	WG650228
4-Chlorotoluene	mg/l	0.0235	0.0247	93.8	67-129	5.13	20	L624054-01	WG650228
4-Methyl-2-pentanone (MIBK)	mg/l	0.138	0.123	110.	53-154	11.3	21	L624054-01	WG650228
Acetone	mg/l	0.0856	0.0741	68.4	34-146	14.4	22	L624054-01	WG650228
Acrolein	mg/l	0.388	0.344	310.*	10-189	11.8	30	L624054-01	WG650228
Acrylonitrile	mg/l	0.144	0.133	115.	49-162	7.98	20	L624054-01	WG650228
Benzene	mg/l	0.0244	0.0261	97.4	51-134	6.88	20	L624054-01	WG650228
Bromobenzene	mg/l	0.0238	0.0248	95.4	64-130	3.73	20	L624054-01	WG650228
Bromodichloromethane	mg/l	0.0237	0.0246	94.9	67-132	3.51	20	L624054-01	WG650228
Bromoform	mg/l	0.0241	0.0235	96.4	59-137	2.42	20	L624054-01	WG650228
Bromomethane	mg/l	0.0240	0.0246	95.8	23-177	2.56	21	L624054-01	WG650228
Carbon tetrachloride	mg/l	0.0227	0.0245	90.8	49-140	7.78	20	L624054-01	WG650228
Chlorobenzene	mg/l	0.0229	0.0248	91.6	69-126	7.91	20	L624054-01	WG650228
Chlorodibromomethane	mg/l	0.0238	0.0243	95.2	68-130	2.05	20	L624054-01	WG650228
Chloroethane	mg/l	0.0259	0.0269	104.	32-177	3.84	21	L624054-01	WG650228
Chloroform	mg/l	0.0250	0.0264	97.7	64-130	5.49	20	L624054-01	WG650228
Chloromethane	mg/l	0.0234	0.0249	93.7	27-155	6.21	20	L624054-01	WG650228
cis-1,2-Dichloroethene	mg/l	0.0231	0.0252	92.6	54-137	8.37	20	L624054-01	WG650228
cis-1,3-Dichloropropene	mg/l	0.0248	0.0254	99.2	63-127	2.61	20	L624054-01	WG650228
Di-isopropyl ether	mg/l	0.0254	0.0281	102.	58-133	9.95	20	L624054-01	WG650228
Dibromomethane	mg/l	0.0238	0.0231	95.3	68-131	3.20	20	L624054-01	WG650228

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Dichlorodifluoromethane	mg/l	0.0252	0.0270	101.	16-188	6.74	22	L624054-01	WG650228
Ethylbenzene	mg/l	0.0236	0.0256	94.5	64-135	8.16	20	L624054-01	WG650228
Hexachloro-1,3-butadiene	mg/l	0.0265	0.0283	106.	64-140	6.52	20	L624054-01	WG650228
Isopropylbenzene	mg/l	0.0244	0.0261	97.5	62-134	6.76	20	L624054-01	WG650228
Methyl tert-butyl ether	mg/l	0.0243	0.0265	97.1	55-136	8.77	20	L624054-01	WG650228
Methylene Chloride	mg/l	0.0236	0.0261	94.3	52-130	10.2	20	L624054-01	WG650228
n-Butylbenzene	mg/l	0.0263	0.0286	105.	62-142	8.52	20	L624054-01	WG650228
n-Propylbenzene	mg/l	0.0242	0.0265	96.9	62-137	8.88	20	L624054-01	WG650228
Naphthalene	mg/l	0.0267	0.0241	107.	65-140	10.5	20	L624054-01	WG650228
p-Isopropyltoluene	mg/l	0.0246	0.0262	98.4	64-142	6.13	20	L624054-01	WG650228
sec-Butylbenzene	mg/l	0.0241	0.0259	96.4	67-139	7.31	20	L624054-01	WG650228
Styrene	mg/l	0.0244	0.0259	97.4	58-152	6.20	20	L624054-01	WG650228
tert-Butylbenzene	mg/l	0.0245	0.0259	97.9	66-139	5.48	20	L624054-01	WG650228
Tetrachloroethene	mg/l	0.106	0.113	83.2	56-139	6.75	20	L624054-01	WG650228
Toluene	mg/l	0.0237	0.0254	94.7	61-126	7.16	20	L624054-01	WG650228
trans-1,2-Dichloroethene	mg/l	0.0242	0.0282	96.9	45-137	15.2	20	L624054-01	WG650228
trans-1,3-Dichloropropene	mg/l	0.0252	0.0253	101.	59-130	0.450	20	L624054-01	WG650228
Trichloroethene	mg/l	0.0229	0.0246	91.8	40-155	6.87	20	L624054-01	WG650228
Trichlorofluoromethane	mg/l	0.0269	0.0293	108.	35-177	8.61	23	L624054-01	WG650228
Vinyl chloride	mg/l	0.0259	0.0280	104.	32-159	7.63	21	L624054-01	WG650228
Xylenes, Total	mg/l	0.0714	0.0761	95.1	64-133	6.37	20	L624054-01	WG650228
4-Bromofluorobenzene				98.25	82-120				WG650228
Dibromofluoromethane				102.0	82-126				WG650228
Toluene-d8				104.5	92-112				WG650228

Batch number /Run number / Sample number cross reference

WG650232: R2576499: L624126-05 06
WG650236: R2576706: L624126-07 08 09 10
WG650228: R2577737: L624126-01 02 03 04

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L624126

April 10, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

A153

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Report to: Nick Rohrbach ~~Scott MacDonald~~

Email nrohrbach ~~smacdonald~~@geoengineers.cc

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0180-121-05 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): Aaron Waggoner

Site/Facility ID#: TUMWATER, WA

P.O.#:

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: Standard TAT

Email? ___No X Yes
FAX? ___No ___Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk	Remarks/Contaminant	Sample # (lab use only)
MW-ES-03 130307	Grab	GW		3/7/13	1025	3	X			L6241126-01
MW-111 130307	Grab	GW		3/7/13	1430	3	X			-02
WDOT-MW-1 130307	Grab	GW		3/7/13	1250	3	X			-03
MW-104A 130307	Grab	GW		3/7/13	1600	3	X			-04
DUP-2	Grab	GW		3/7/13		3	X			-05
MW-ES-04 130308	Grab	GW		3/8/13	1050	3	X			-06
MW-ES-06 130308	Grab	GW		3/8/13	1335	3	X			-07
MW-ES-05 130308	Grab	GW		3/8/13	1450	3	X			-08
RIN-2 130308	Grab	GW		3/8/13		3	X			-09
TB-4 130308				3/8/13		2				-10

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other ___

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

pH ___ Temp ___

Flow ___ Other ___

Quote number: GEOENGTWA021813L

ESC LAB SCIENCES
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T83764/ P419878
Cooler #:
Shipped Via: FedEx Ground

Page 1 of ___

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	3/8/13	1550	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature):

5547 0230 1710

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐

Temp: 2.7°C Bottles Received: 24

Date: 3/9/13 Time: 0930

Condition: (OK) (lab use only) 02

COC Seal Intact: ✓ Y ___ N ___ NA

pH Checked: NCF:

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L624134
Samples Received: 03/09/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 364 130308

Collected By : LL/JD
Collection Date : 03/08/13 09:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l	J6J3	8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 364 130308

Collected By : LL/JD
Collection Date : 03/08/13 09:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	96.3			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	91.1			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	102.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 356 130308

Collected By : LL/JD
Collection Date : 03/08/13 09:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 356 130308

Collected By : LL/JD
Collection Date : 03/08/13 09:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	96.2			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	91.2			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	99.5			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 360 130308

Collected By : LL/JD
Collection Date : 03/08/13 10:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 360 130308

Collected By : LL/JD
Collection Date : 03/08/13 10:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	5.3	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	11.	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	94.5			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	90.1			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	102.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 350 130308

Collected By : LL/JD
Collection Date : 03/08/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 350 130308

Collected By : LL/JD
Collection Date : 03/08/13 10:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	1.1	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	97.1			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	93.3			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 361 130308

Collected By : LL/JD
Collection Date : 03/08/13 10:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 361 130308

Collected By : LL/JD
Collection Date : 03/08/13 10:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	0.83	0.40	1.0	ug/l	J	8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	97.0			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	89.5			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	101.			% Rec.		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 359 130308

Collected By : LL/JD
Collection Date : 03/08/13 12:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l	J3	8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l	J3	8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l	J3	8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l	J4	8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l	J3	8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l	J3	8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 359 130308

Collected By : LL/JD
Collection Date : 03/08/13 12:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l	J3	8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l	J4	8260B	03/10/13	1
Tetrachloroethene	6.5	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	13.	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	99.6			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	87.1			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	117.			% Rec.		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 358 130308

Collected By : LL/JD
Collection Date : 03/08/13 13:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l	J3	8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l	J3	8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l	J3	8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l	J4	8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l	J3	8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l	J3	8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 358 130308

Collected By : LL/JD
Collection Date : 03/08/13 13:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l	J3	8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l	J4	8260B	03/10/13	1
Tetrachloroethene	10.	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	16.	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	99.4			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	86.7			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	120.			% Rec.	J1	8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 357 130308

Collected By : LL/JD
Collection Date : 03/08/13 14:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l	J3	8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l	J3	8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l	J3	8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l	J4	8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l	J3	8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l	J3	8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : 357 130308

Collected By : LL/JD
Collection Date : 03/08/13 14:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l	J3	8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l	J4	8260B	03/10/13	1
Tetrachloroethene	7.5	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	100.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	86.3			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	115.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-3 130308

Collected By : LL/JD
Collection Date : 03/08/13 14:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l	J3	8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l	J3	8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l	J3	8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l	J4	8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l	J3	8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l	J3	8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-3 130308

Collected By : LL/JD
Collection Date : 03/08/13 14:35

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l	J3	8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l	J4	8260B	03/10/13	1
Tetrachloroethene	7.3	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	85.9			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	114.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RIN-3 130308

Collected By : LL/JD
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l	J3	8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l	J3	8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l	J3	8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l	J4	8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l	J3	8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l	J3	8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RIN-3 130308

Collected By : LL/JD
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l	J3	8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l	J4	8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	100.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	87.0			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	116.			% Rec.		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-11

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-5 130308

Collected By : LL/JD
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l	J3	8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l	J3	8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l	J3	8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l	J4	8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l	J3	8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l	J3	8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624134-11

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-5 130308

Collected By : LL/JD
Collection Date : 03/08/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l	J3	8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l	J4	8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	86.6			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	115.			% Rec.		8260B	03/10/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L624134-01	WG650236	SAMP	2-Chloroethyl vinyl ether	R2576706	J6J3
	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
L624134-02	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
L624134-03	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
L624134-04	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
L624134-05	WG650236	SAMP	1,2,3-Trichlorobenzene	R2576706	J4
	WG650236	SAMP	Trichloroethene	R2576706	J
L624134-06	WG650237	SAMP	Acetone	R2577517	J3
	WG650237	SAMP	Acrolein	R2577517	J3
	WG650237	SAMP	Acrylonitrile	R2577517	J3
	WG650237	SAMP	2-Chlorotoluene	R2577517	J4
	WG650237	SAMP	1,1-Dichloroethane	R2577517	J3
	WG650237	SAMP	Di-isopropyl ether	R2577517	J3
	WG650237	SAMP	Methylene Chloride	R2577517	J3
	WG650237	SAMP	Methyl tert-butyl ether	R2577517	J3
	WG650237	SAMP	1,1,2-Trichlorotrifluoroethane	R2577517	J4
L624134-07	WG650237	SAMP	Acetone	R2577517	J3
	WG650237	SAMP	Acrolein	R2577517	J3
	WG650237	SAMP	Acrylonitrile	R2577517	J3
	WG650237	SAMP	2-Chlorotoluene	R2577517	J4
	WG650237	SAMP	1,1-Dichloroethane	R2577517	J3
	WG650237	SAMP	Di-isopropyl ether	R2577517	J3
	WG650237	SAMP	Methylene Chloride	R2577517	J3
	WG650237	SAMP	Methyl tert-butyl ether	R2577517	J3
	WG650237	SAMP	1,1,2-Trichlorotrifluoroethane	R2577517	J4
	WG650237	SAMP	4-Bromofluorobenzene	R2577517	J1
L624134-08	WG650237	SAMP	Acetone	R2577517	J3
	WG650237	SAMP	Acrolein	R2577517	J3
	WG650237	SAMP	Acrylonitrile	R2577517	J3
	WG650237	SAMP	2-Chlorotoluene	R2577517	J4
	WG650237	SAMP	1,1-Dichloroethane	R2577517	J3
	WG650237	SAMP	Di-isopropyl ether	R2577517	J3
	WG650237	SAMP	Methylene Chloride	R2577517	J3
	WG650237	SAMP	Methyl tert-butyl ether	R2577517	J3
	WG650237	SAMP	1,1,2-Trichlorotrifluoroethane	R2577517	J4
L624134-09	WG650237	SAMP	Acetone	R2577517	J3
	WG650237	SAMP	Acrolein	R2577517	J3
	WG650237	SAMP	Acrylonitrile	R2577517	J3
	WG650237	SAMP	2-Chlorotoluene	R2577517	J4
	WG650237	SAMP	1,1-Dichloroethane	R2577517	J3
	WG650237	SAMP	Di-isopropyl ether	R2577517	J3
	WG650237	SAMP	Methylene Chloride	R2577517	J3
	WG650237	SAMP	Methyl tert-butyl ether	R2577517	J3
	WG650237	SAMP	1,1,2-Trichlorotrifluoroethane	R2577517	J4
L624134-10	WG650237	SAMP	Acetone	R2577517	J3
	WG650237	SAMP	Acrolein	R2577517	J3
	WG650237	SAMP	Acrylonitrile	R2577517	J3
	WG650237	SAMP	2-Chlorotoluene	R2577517	J4
	WG650237	SAMP	1,1-Dichloroethane	R2577517	J3
	WG650237	SAMP	Di-isopropyl ether	R2577517	J3
	WG650237	SAMP	Methylene Chloride	R2577517	J3
	WG650237	SAMP	Methyl tert-butyl ether	R2577517	J3
	WG650237	SAMP	1,1,2-Trichlorotrifluoroethane	R2577517	J4
L624134-11	WG650237	SAMP	Acetone	R2577517	J3
	WG650237	SAMP	Acrolein	R2577517	J3
	WG650237	SAMP	Acrylonitrile	R2577517	J3
	WG650237	SAMP	2-Chlorotoluene	R2577517	J4
	WG650237	SAMP	1,1-Dichloroethane	R2577517	J3
	WG650237	SAMP	Di-isopropyl ether	R2577517	J3
	WG650237	SAMP	Methylene Chloride	R2577517	J3
	WG650237	SAMP	Methyl tert-butyl ether	R2577517	J3
	WG650237	SAMP	1,1,2-Trichlorotrifluoroethane	R2577517	J4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 14:08:53

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW Metals by 6020.

Sample: L624134-01 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs. uni 690797 dor 4/4/13.
Sample: L624134-02 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-03 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-04 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-05 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-06 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-07 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-08 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-09 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-10 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L624134-11 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:08
MS/MSD this sample. V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed
QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs

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Quality Assurance Report
Level II

L624134

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,1-Trichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,2-Trichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1-Dichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,1-Dichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
1,1-Dichloropropene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,3-Trichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,3-Trichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
1,2,3-Trimethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,4-Trichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2,4-Trimethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650236	03/10/13 05:52
1,2-Dibromoethane	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dichloroethane	< .001	mg/l			WG650236	03/10/13 05:52
1,2-Dichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
1,3,5-Trimethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,3-Dichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
1,3-Dichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
1,4-Dichlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
2,2-Dichloropropane	< .001	mg/l			WG650236	03/10/13 05:52
2-Butanone (MEK)	< .01	mg/l			WG650236	03/10/13 05:52
2-Chloroethyl vinyl ether	< .05	mg/l			WG650236	03/10/13 05:52
2-Chlorotoluene	< .001	mg/l			WG650236	03/10/13 05:52
4-Chlorotoluene	< .001	mg/l			WG650236	03/10/13 05:52
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650236	03/10/13 05:52
Acetone	< .05	mg/l			WG650236	03/10/13 05:52
Acrolein	< .025	mg/l			WG650236	03/10/13 05:52
Acrylonitrile	< .01	mg/l			WG650236	03/10/13 05:52
Benzene	< .001	mg/l			WG650236	03/10/13 05:52
Bromobenzene	< .001	mg/l			WG650236	03/10/13 05:52
Bromodichloromethane	< .001	mg/l			WG650236	03/10/13 05:52
Bromoform	< .001	mg/l			WG650236	03/10/13 05:52
Bromomethane	< .005	mg/l			WG650236	03/10/13 05:52
Carbon tetrachloride	< .001	mg/l			WG650236	03/10/13 05:52
Chlorobenzene	< .001	mg/l			WG650236	03/10/13 05:52
Chlorodibromomethane	< .001	mg/l			WG650236	03/10/13 05:52
Chloroethane	< .005	mg/l			WG650236	03/10/13 05:52
Chloroform	< .005	mg/l			WG650236	03/10/13 05:52
Chloromethane	< .0025	mg/l			WG650236	03/10/13 05:52
cis-1,2-Dichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
cis-1,3-Dichloropropene	< .001	mg/l			WG650236	03/10/13 05:52
Di-isopropyl ether	< .001	mg/l			WG650236	03/10/13 05:52
Dibromomethane	< .001	mg/l			WG650236	03/10/13 05:52
Dichlorodifluoromethane	< .005	mg/l			WG650236	03/10/13 05:52
Ethylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Hexachloro-1,3-butadiene	< .001	mg/l			WG650236	03/10/13 05:52
Isopropylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Methyl tert-butyl ether	< .001	mg/l			WG650236	03/10/13 05:52
Methylene Chloride	< .005	mg/l			WG650236	03/10/13 05:52
n-Butylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
n-Propylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Naphthalene	< .005	mg/l			WG650236	03/10/13 05:52
p-Isopropyltoluene	< .001	mg/l			WG650236	03/10/13 05:52
sec-Butylbenzene	< .001	mg/l			WG650236	03/10/13 05:52
Styrene	< .001	mg/l			WG650236	03/10/13 05:52
tert-Butylbenzene	< .001	mg/l			WG650236	03/10/13 05:52

* Performance of this Analyte is outside of established criteria.
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Quality Assurance Report
Level II

L624134

April 10, 2013

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG650236	03/10/13 05:52
Toluene	< .005	mg/l			WG650236	03/10/13 05:52
trans-1,2-Dichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
trans-1,3-Dichloropropene	< .001	mg/l			WG650236	03/10/13 05:52
Trichloroethene	< .001	mg/l			WG650236	03/10/13 05:52
Trichlorofluoromethane	< .005	mg/l			WG650236	03/10/13 05:52
Vinyl chloride	< .001	mg/l			WG650236	03/10/13 05:52
Xylenes, Total	< .003	mg/l			WG650236	03/10/13 05:52
4-Bromofluorobenzene		% Rec.	104.9	82-120	WG650236	03/10/13 05:52
Dibromofluoromethane		% Rec.	94.70	82-126	WG650236	03/10/13 05:52
Toluene-d8		% Rec.	97.05	92-112	WG650236	03/10/13 05:52
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650237	03/10/13 06:21
1,1,1-Trichloroethane	< .001	mg/l			WG650237	03/10/13 06:21
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650237	03/10/13 06:21
1,1,2-Trichloroethane	< .001	mg/l			WG650237	03/10/13 06:21
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650237	03/10/13 06:21
1,1-Dichloroethane	< .001	mg/l			WG650237	03/10/13 06:21
1,1-Dichloroethene	< .001	mg/l			WG650237	03/10/13 06:21
1,1-Dichloropropene	< .001	mg/l			WG650237	03/10/13 06:21
1,2,3-Trichlorobenzene	< .001	mg/l			WG650237	03/10/13 06:21
1,2,3-Trichloropropane	< .001	mg/l			WG650237	03/10/13 06:21
1,2,3-Trimethylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
1,2,4-Trichlorobenzene	< .001	mg/l			WG650237	03/10/13 06:21
1,2,4-Trimethylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650237	03/10/13 06:21
1,2-Dibromoethane	< .001	mg/l			WG650237	03/10/13 06:21
1,2-Dichlorobenzene	< .001	mg/l			WG650237	03/10/13 06:21
1,2-Dichloroethane	< .001	mg/l			WG650237	03/10/13 06:21
1,2-Dichloropropane	< .001	mg/l			WG650237	03/10/13 06:21
1,3,5-Trimethylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
1,3-Dichlorobenzene	< .001	mg/l			WG650237	03/10/13 06:21
1,3-Dichloropropane	< .001	mg/l			WG650237	03/10/13 06:21
1,4-Dichlorobenzene	< .001	mg/l			WG650237	03/10/13 06:21
2,2-Dichloropropane	< .001	mg/l			WG650237	03/10/13 06:21
2-Butanone (MEK)	< .01	mg/l			WG650237	03/10/13 06:21
2-Chloroethyl vinyl ether	< .05	mg/l			WG650237	03/10/13 06:21
2-Chlorotoluene	< .001	mg/l			WG650237	03/10/13 06:21
4-Chlorotoluene	< .001	mg/l			WG650237	03/10/13 06:21
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650237	03/10/13 06:21
Acetone	< .05	mg/l			WG650237	03/10/13 06:21
Acrolein	< .025	mg/l			WG650237	03/10/13 06:21
Acrylonitrile	< .01	mg/l			WG650237	03/10/13 06:21
Benzene	< .001	mg/l			WG650237	03/10/13 06:21
Bromobenzene	< .001	mg/l			WG650237	03/10/13 06:21
Bromodichloromethane	< .001	mg/l			WG650237	03/10/13 06:21
Bromoform	< .001	mg/l			WG650237	03/10/13 06:21
Bromomethane	< .005	mg/l			WG650237	03/10/13 06:21
Carbon tetrachloride	< .001	mg/l			WG650237	03/10/13 06:21
Chlorobenzene	< .001	mg/l			WG650237	03/10/13 06:21
Chlorodibromomethane	< .001	mg/l			WG650237	03/10/13 06:21
Chloroethane	< .005	mg/l			WG650237	03/10/13 06:21
Chloroform	< .005	mg/l			WG650237	03/10/13 06:21
Chloromethane	< .0025	mg/l			WG650237	03/10/13 06:21
cis-1,2-Dichloroethene	< .001	mg/l			WG650237	03/10/13 06:21
cis-1,3-Dichloropropene	< .001	mg/l			WG650237	03/10/13 06:21
Di-isopropyl ether	< .001	mg/l			WG650237	03/10/13 06:21
Dibromomethane	< .001	mg/l			WG650237	03/10/13 06:21

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Dichlorodifluoromethane	< .005	mg/l			WG650237	03/10/13 06:21
Ethylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
Hexachloro-1,3-butadiene	< .001	mg/l			WG650237	03/10/13 06:21
Isopropylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
Methyl tert-butyl ether	< .001	mg/l			WG650237	03/10/13 06:21
Methylene Chloride	< .005	mg/l			WG650237	03/10/13 06:21
n-Butylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
n-Propylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
Naphthalene	< .005	mg/l			WG650237	03/10/13 06:21
p-Isopropyltoluene	< .001	mg/l			WG650237	03/10/13 06:21
sec-Butylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
Styrene	< .001	mg/l			WG650237	03/10/13 06:21
tert-Butylbenzene	< .001	mg/l			WG650237	03/10/13 06:21
Tetrachloroethene	< .001	mg/l			WG650237	03/10/13 06:21
Toluene	< .005	mg/l			WG650237	03/10/13 06:21
trans-1,2-Dichloroethene	< .001	mg/l			WG650237	03/10/13 06:21
trans-1,3-Dichloropropene	< .001	mg/l			WG650237	03/10/13 06:21
Trichloroethene	< .001	mg/l			WG650237	03/10/13 06:21
Trichlorofluoromethane	< .005	mg/l			WG650237	03/10/13 06:21
Vinyl chloride	< .001	mg/l			WG650237	03/10/13 06:21
Xylenes, Total	< .003	mg/l			WG650237	03/10/13 06:21
4-Bromofluorobenzene		% Rec.	115.5	82-120	WG650237	03/10/13 06:21
Dibromofluoromethane		% Rec.	85.71	82-126	WG650237	03/10/13 06:21
Toluene-d8		% Rec.	98.68	92-112	WG650237	03/10/13 06:21

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0267	107.	77-128	WG650236
1,1,1-Trichloroethane	mg/l	.025	0.0222	89.0	71-126	WG650236
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0273	109.	78-130	WG650236
1,1,2-Trichloroethane	mg/l	.025	0.0259	104.	81-121	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0231	92.4	53-143	WG650236
1,1-Dichloroethane	mg/l	.025	0.0224	89.6	73-123	WG650236
1,1-Dichloroethene	mg/l	.025	0.0235	94.1	54-134	WG650236
1,1-Dichloropropene	mg/l	.025	0.0228	91.0	67-127	WG650236
1,2,3-Trichlorobenzene	mg/l	.025	0.0327	131.*	77-130	WG650236
1,2,3-Trichloropropane	mg/l	.025	0.0243	97.1	68-130	WG650236
1,2,3-Trimethylbenzene	mg/l	.025	0.0238	95.1	77-126	WG650236
1,2,4-Trichlorobenzene	mg/l	.025	0.0312	125.	76-127	WG650236
1,2,4-Trimethylbenzene	mg/l	.025	0.0274	109.	77-129	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0257	103.	55-142	WG650236
1,2-Dibromoethane	mg/l	.025	0.0269	107.	78-124	WG650236
1,2-Dichlorobenzene	mg/l	.025	0.0257	103.	82-121	WG650236
1,2-Dichloroethane	mg/l	.025	0.0237	94.6	69-128	WG650236
1,2-Dichloropropane	mg/l	.025	0.0235	93.8	77-121	WG650236
1,3,5-Trimethylbenzene	mg/l	.025	0.0271	108.	78-127	WG650236
1,3-Dichlorobenzene	mg/l	.025	0.0292	117.	77-127	WG650236
1,3-Dichloropropane	mg/l	.025	0.0253	101.	78-117	WG650236
1,4-Dichlorobenzene	mg/l	.025	0.0247	98.9	79-117	WG650236
2,2-Dichloropropane	mg/l	.025	0.0221	88.3	63-130	WG650236
2-Butanone (MEK)	mg/l	.125	0.119	95.5	58-144	WG650236
2-Chloroethyl vinyl ether	mg/l	.125	0.138	110.	26-172	WG650236
2-Chlorotoluene	mg/l	.025	0.0266	106.	78-123	WG650236
4-Chlorotoluene	mg/l	.025	0.0263	105.	78-122	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.126	101.	58-147	WG650236
Acetone	mg/l	.125	0.122	97.6	49-153	WG650236
Acrolein	mg/l	.125	0.135	108.	10-181	WG650236
Acrylonitrile	mg/l	.125	0.117	93.3	53-153	WG650236

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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Benzene	mg/l	.025	0.0233	93.3	72-119	WG650236
Bromobenzene	mg/l	.025	0.0254	101.	76-121	WG650236
Bromodichloromethane	mg/l	.025	0.0229	91.7	75-127	WG650236
Bromoform	mg/l	.025	0.0262	105.	61-136	WG650236
Bromomethane	mg/l	.025	0.0331	132.	42-172	WG650236
Carbon tetrachloride	mg/l	.025	0.0207	82.7	63-129	WG650236
Chlorobenzene	mg/l	.025	0.0268	107.	78-123	WG650236
Chlorodibromomethane	mg/l	.025	0.0261	104.	73-128	WG650236
Chloroethane	mg/l	.025	0.0235	93.9	52-164	WG650236
Chloroform	mg/l	.025	0.0235	93.9	76-122	WG650236
Chloromethane	mg/l	.025	0.0209	83.7	50-141	WG650236
cis-1,2-Dichloroethene	mg/l	.025	0.0234	93.6	75-121	WG650236
cis-1,3-Dichloropropene	mg/l	.025	0.0240	96.2	74-124	WG650236
Di-isopropyl ether	mg/l	.025	0.0210	84.1	66-129	WG650236
Dibromomethane	mg/l	.025	0.0254	102.	77-124	WG650236
Dichlorodifluoromethane	mg/l	.025	0.0211	84.6	33-173	WG650236
Ethylbenzene	mg/l	.025	0.0266	107.	77-124	WG650236
Hexachloro-1,3-butadiene	mg/l	.025	0.0292	117.	71-134	WG650236
Isopropylbenzene	mg/l	.025	0.0263	105.	74-126	WG650236
Methyl tert-butyl ether	mg/l	.025	0.0225	90.2	67-127	WG650236
Methylene Chloride	mg/l	.025	0.0223	89.1	67-122	WG650236
n-Butylbenzene	mg/l	.025	0.0256	102.	74-130	WG650236
n-Propylbenzene	mg/l	.025	0.0267	107.	77-125	WG650236
Naphthalene	mg/l	.025	0.0286	115.	70-134	WG650236
p-Isopropyltoluene	mg/l	.025	0.0286	114.	77-132	WG650236
sec-Butylbenzene	mg/l	.025	0.0279	112.	77-130	WG650236
Styrene	mg/l	.025	0.0258	103.	69-145	WG650236
tert-Butylbenzene	mg/l	.025	0.0272	109.	76-131	WG650236
Tetrachloroethene	mg/l	.025	0.0265	106.	69-131	WG650236
Toluene	mg/l	.025	0.0242	96.8	75-114	WG650236
trans-1,2-Dichloroethene	mg/l	.025	0.0227	90.7	63-127	WG650236
trans-1,3-Dichloropropene	mg/l	.025	0.0253	101.	69-124	WG650236
Trichloroethene	mg/l	.025	0.0263	105.	69-131	WG650236
Trichlorofluoromethane	mg/l	.025	0.0238	95.3	53-161	WG650236
Vinyl chloride	mg/l	.025	0.0203	81.3	55-142	WG650236
Xylenes, Total	mg/l	.075	0.0790	105.	77-123	WG650236
4-Bromofluorobenzene				96.23	82-120	WG650236
Dibromofluoromethane				93.85	82-126	WG650236
Toluene-d8				95.26	92-112	WG650236
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0279	111.	77-128	WG650237
1,1,1-Trichloroethane	mg/l	.025	0.0233	93.2	71-126	WG650237
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0250	100.	78-130	WG650237
1,1,2-Trichloroethane	mg/l	.025	0.0258	103.	81-121	WG650237
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0120	48.1*	53-143	WG650237
1,1-Dichloroethane	mg/l	.025	0.0187	74.6	73-123	WG650237
1,1-Dichloroethene	mg/l	.025	0.0177	71.0	54-134	WG650237
1,1-Dichloropropene	mg/l	.025	0.0247	98.9	67-127	WG650237
1,2,3-Trichlorobenzene	mg/l	.025	0.0264	106.	77-130	WG650237
1,2,3-Trichloropropane	mg/l	.025	0.0240	95.9	68-130	WG650237
1,2,3-Trimethylbenzene	mg/l	.025	0.0260	104.	77-126	WG650237
1,2,4-Trichlorobenzene	mg/l	.025	0.0278	111.	76-127	WG650237
1,2,4-Trimethylbenzene	mg/l	.025	0.0288	115.	77-129	WG650237
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0222	89.0	55-142	WG650237
1,2-Dibromoethane	mg/l	.025	0.0253	101.	78-124	WG650237
1,2-Dichlorobenzene	mg/l	.025	0.0266	106.	82-121	WG650237
1,2-Dichloroethane	mg/l	.025	0.0232	93.0	69-128	WG650237
1,2-Dichloropropane	mg/l	.025	0.0243	97.3	77-121	WG650237

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Quality Assurance Report
Level II

L624134

April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,3,5-Trimethylbenzene	mg/l	.025	0.0293	117.	78-127	WG650237
1,3-Dichlorobenzene	mg/l	.025	0.0295	118.	77-127	WG650237
1,3-Dichloropropane	mg/l	.025	0.0243	97.3	78-117	WG650237
1,4-Dichlorobenzene	mg/l	.025	0.0256	102.	79-117	WG650237
2,2-Dichloropropane	mg/l	.025	0.0280	112.	63-130	WG650237
2-Butanone (MEK)	mg/l	.125	0.105	84.4	58-144	WG650237
2-Chloroethyl vinyl ether	mg/l	.125	0.118	94.7	26-172	WG650237
2-Chlorotoluene	mg/l	.025	0.0317	127.*	78-123	WG650237
4-Chlorotoluene	mg/l	.025	0.0280	112.	78-122	WG650237
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.107	85.9	58-147	WG650237
Acetone	mg/l	.125	0.0683	54.6	49-153	WG650237
Acrolein	mg/l	.125	0.0516	41.3	10-181	WG650237
Acrylonitrile	mg/l	.125	0.0799	63.9	53-153	WG650237
Benzene	mg/l	.025	0.0238	95.3	72-119	WG650237
Bromobenzene	mg/l	.025	0.0271	108.	76-121	WG650237
Bromodichloromethane	mg/l	.025	0.0257	103.	75-127	WG650237
Bromoform	mg/l	.025	0.0301	120.	61-136	WG650237
Bromomethane	mg/l	.025	0.0187	74.8	42-172	WG650237
Carbon tetrachloride	mg/l	.025	0.0245	98.1	63-129	WG650237
Chlorobenzene	mg/l	.025	0.0270	108.	78-123	WG650237
Chlorodibromomethane	mg/l	.025	0.0270	108.	73-128	WG650237
Chloroethane	mg/l	.025	0.0188	75.3	52-164	WG650237
Chloroform	mg/l	.025	0.0248	99.2	76-122	WG650237
Chloromethane	mg/l	.025	0.0225	90.1	50-141	WG650237
cis-1,2-Dichloroethene	mg/l	.025	0.0252	101.	75-121	WG650237
cis-1,3-Dichloropropene	mg/l	.025	0.0252	101.	74-124	WG650237
Di-isopropyl ether	mg/l	.025	0.0171	68.3	66-129	WG650237
Dibromomethane	mg/l	.025	0.0245	98.0	77-124	WG650237
Dichlorodifluoromethane	mg/l	.025	0.0234	93.7	33-173	WG650237
Ethylbenzene	mg/l	.025	0.0269	108.	77-124	WG650237
Hexachloro-1,3-butadiene	mg/l	.025	0.0299	120.	71-134	WG650237
Isopropylbenzene	mg/l	.025	0.0285	114.	74-126	WG650237
Methyl tert-butyl ether	mg/l	.025	0.0187	74.8	67-127	WG650237
Methylene Chloride	mg/l	.025	0.0188	75.4	67-122	WG650237
n-Butylbenzene	mg/l	.025	0.0285	114.	74-130	WG650237
n-Propylbenzene	mg/l	.025	0.0284	113.	77-125	WG650237
Naphthalene	mg/l	.025	0.0234	93.5	70-134	WG650237
p-Isopropyltoluene	mg/l	.025	0.0312	125.	77-132	WG650237
sec-Butylbenzene	mg/l	.025	0.0304	122.	77-130	WG650237
Styrene	mg/l	.025	0.0281	112.	69-145	WG650237
tert-Butylbenzene	mg/l	.025	0.0299	120.	76-131	WG650237
Tetrachloroethene	mg/l	.025	0.0277	111.	69-131	WG650237
Toluene	mg/l	.025	0.0239	95.5	75-114	WG650237
trans-1,2-Dichloroethene	mg/l	.025	0.0206	82.3	63-127	WG650237
trans-1,3-Dichloropropene	mg/l	.025	0.0237	94.7	69-124	WG650237
Trichloroethene	mg/l	.025	0.0266	106.	69-131	WG650237
Trichlorofluoromethane	mg/l	.025	0.0187	74.8	53-161	WG650237
Vinyl chloride	mg/l	.025	0.0227	90.8	55-142	WG650237
Xylenes, Total	mg/l	.075	0.0807	108.	77-123	WG650237
4-Bromofluorobenzene				107.9	82-120	WG650237
Dibromofluoromethane				101.3	82-126	WG650237
Toluene-d8				103.7	92-112	WG650237

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0271	0.0267	108.	77-128	1.74	20	WG650236
1,1,1-Trichloroethane	mg/l	0.0232	0.0222	93.0	71-126	4.23	20	WG650236
1,1,2,2-Tetrachloroethane	mg/l	0.0280	0.0273	112.	78-130	2.53	20	WG650236

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Quality Assurance Report
Level II

L624134

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,2-Trichloroethane	mg/l	0.0257	0.0259	103.	81-121	0.650	20	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	0.0241	0.0231	96.0	53-143	4.39	20	WG650236
1,1-Dichloroethane	mg/l	0.0236	0.0224	94.0	73-123	5.31	20	WG650236
1,1-Dichloroethene	mg/l	0.0251	0.0235	100.	54-134	6.53	20	WG650236
1,1-Dichloropropene	mg/l	0.0240	0.0228	96.0	67-127	5.43	20	WG650236
1,2,3-Trichlorobenzene	mg/l	0.0334	0.0327	134*	77-130	1.98	20	WG650236
1,2,3-Trichloropropane	mg/l	0.0275	0.0243	110.	68-130	12.5	20	WG650236
1,2,3-Trimethylbenzene	mg/l	0.0244	0.0238	98.0	77-126	2.66	20	WG650236
1,2,4-Trichlorobenzene	mg/l	0.0317	0.0312	127.	76-127	1.57	20	WG650236
1,2,4-Trimethylbenzene	mg/l	0.0284	0.0274	114.	77-129	3.61	20	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	0.0262	0.0257	105.	55-142	1.75	20	WG650236
1,2-Dibromoethane	mg/l	0.0265	0.0269	106.	78-124	1.32	20	WG650236
1,2-Dichlorobenzene	mg/l	0.0258	0.0257	103.	82-121	0.470	20	WG650236
1,2-Dichloroethane	mg/l	0.0244	0.0237	97.0	69-128	2.96	20	WG650236
1,2-Dichloropropane	mg/l	0.0245	0.0235	98.0	77-121	4.26	20	WG650236
1,3,5-Trimethylbenzene	mg/l	0.0280	0.0271	112.	78-127	3.43	20	WG650236
1,3-Dichlorobenzene	mg/l	0.0300	0.0292	120.	77-127	2.70	20	WG650236
1,3-Dichloropropane	mg/l	0.0252	0.0253	101.	78-117	0.280	20	WG650236
1,4-Dichlorobenzene	mg/l	0.0249	0.0247	100.	79-117	0.780	20	WG650236
2,2-Dichloropropane	mg/l	0.0234	0.0221	94.0	63-130	5.90	20	WG650236
2-Butanone (MEK)	mg/l	0.121	0.119	97.0	58-144	1.45	20	WG650236
2-Chloroethyl vinyl ether	mg/l	0.142	0.138	114.	26-172	3.25	22	WG650236
2-Chlorotoluene	mg/l	0.0274	0.0266	110.	78-123	3.01	20	WG650236
4-Chlorotoluene	mg/l	0.0272	0.0263	109.	78-122	3.56	20	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	0.130	0.126	104.	58-147	3.50	20	WG650236
Acetone	mg/l	0.124	0.122	99.0	49-153	1.89	21	WG650236
Acrolein	mg/l	0.135	0.135	108.	10-181	0.240	30	WG650236
Acrylonitrile	mg/l	0.119	0.117	95.0	53-153	1.92	20	WG650236
Benzene	mg/l	0.0236	0.0233	94.0	72-119	1.39	20	WG650236
Bromobenzene	mg/l	0.0263	0.0254	105.	76-121	3.55	20	WG650236
Bromodichloromethane	mg/l	0.0235	0.0229	94.0	75-127	2.50	20	WG650236
Bromoform	mg/l	0.0266	0.0262	106.	61-136	1.57	20	WG650236
Bromomethane	mg/l	0.0346	0.0331	138.	42-172	4.59	20	WG650236
Carbon tetrachloride	mg/l	0.0241	0.0207	96.0	63-129	15.5	20	WG650236
Chlorobenzene	mg/l	0.0267	0.0268	107.	78-123	0.290	20	WG650236
Chlorodibromomethane	mg/l	0.0259	0.0261	104.	73-128	0.680	20	WG650236
Chloroethane	mg/l	0.0248	0.0235	99.0	52-164	5.49	20	WG650236
Chloroform	mg/l	0.0239	0.0235	96.0	76-122	1.89	20	WG650236
Chloromethane	mg/l	0.0219	0.0209	88.0	50-141	4.60	20	WG650236
cis-1,2-Dichloroethene	mg/l	0.0238	0.0234	95.0	75-121	1.85	20	WG650236
cis-1,3-Dichloropropene	mg/l	0.0244	0.0240	98.0	74-124	1.58	20	WG650236
Di-isopropyl ether	mg/l	0.0215	0.0210	86.0	66-129	2.50	20	WG650236
Dibromomethane	mg/l	0.0258	0.0254	103.	77-124	1.60	20	WG650236
Dichlorodifluoromethane	mg/l	0.0227	0.0211	91.0	33-173	7.05	20	WG650236
Ethylbenzene	mg/l	0.0267	0.0266	107.	77-124	0.260	20	WG650236
Hexachloro-1,3-butadiene	mg/l	0.0303	0.0292	121.	71-134	3.68	20	WG650236
Isopropylbenzene	mg/l	0.0273	0.0263	109.	74-126	3.71	20	WG650236
Methyl tert-butyl ether	mg/l	0.0233	0.0225	93.0	67-127	3.31	20	WG650236
Methylene Chloride	mg/l	0.0227	0.0223	91.0	67-122	2.09	20	WG650236
n-Butylbenzene	mg/l	0.0261	0.0256	104.	74-130	2.02	20	WG650236
n-Propylbenzene	mg/l	0.0278	0.0267	111.	77-125	4.11	20	WG650236
Naphthalene	mg/l	0.0289	0.0286	116.	70-134	1.07	20	WG650236
p-Isopropyltoluene	mg/l	0.0301	0.0286	120.	77-132	4.97	20	WG650236
sec-Butylbenzene	mg/l	0.0295	0.0279	118.	77-130	5.63	20	WG650236
Styrene	mg/l	0.0261	0.0258	104.	69-145	1.15	20	WG650236
tert-Butylbenzene	mg/l	0.0288	0.0272	115.	76-131	5.64	20	WG650236
Tetrachloroethene	mg/l	0.0263	0.0265	105.	69-131	0.830	20	WG650236
Toluene	mg/l	0.0251	0.0242	100.	75-114	3.58	20	WG650236
trans-1,2-Dichloroethene	mg/l	0.0231	0.0227	92.0	63-127	1.74	20	WG650236

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Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
trans-1,3-Dichloropropene	mg/l	0.0254	0.0253	101.	69-124	0.0800	20	WG650236
Trichloroethene	mg/l	0.0271	0.0263	108.	69-131	3.02	20	WG650236
Trichlorofluoromethane	mg/l	0.0252	0.0238	101.	53-161	5.57	20	WG650236
Vinyl chloride	mg/l	0.0215	0.0203	86.0	55-142	5.61	20	WG650236
Xylenes, Total	mg/l	0.0803	0.0790	107.	77-123	1.68	20	WG650236
4-Bromofluorobenzene				100.0	82-120			WG650236
Dibromofluoromethane				91.49	82-126			WG650236
Toluene-d8				97.54	92-112			WG650236
1,1,1,2-Tetrachloroethane	mg/l	0.0287	0.0279	115.	77-128	2.91	20	WG650237
1,1,1-Trichloroethane	mg/l	0.0232	0.0233	93.0	71-126	0.180	20	WG650237
1,1,2,2-Tetrachloroethane	mg/l	0.0254	0.0250	102.	78-130	1.74	20	WG650237
1,1,2-Trichloroethane	mg/l	0.0261	0.0258	104.	81-121	1.08	20	WG650237
1,1,2-Trichlorotrifluoroethane	mg/l	0.0128	0.0120	51*	53-143	6.61	20	WG650237
1,1-Dichloroethane	mg/l	0.0238	0.0187	95.0	73-123	24.3*	20	WG650237
1,1-Dichloroethene	mg/l	0.0193	0.0177	77.0	54-134	8.68	20	WG650237
1,1-Dichloropropene	mg/l	0.0242	0.0247	97.0	67-127	2.13	20	WG650237
1,2,3-Trichlorobenzene	mg/l	0.0266	0.0264	106.	77-130	0.530	20	WG650237
1,2,3-Trichloropropane	mg/l	0.0253	0.0240	101.	68-130	5.35	20	WG650237
1,2,3-Trimethylbenzene	mg/l	0.0258	0.0260	103.	77-126	0.830	20	WG650237
1,2,4-Trichlorobenzene	mg/l	0.0286	0.0278	114.	76-127	2.64	20	WG650237
1,2,4-Trimethylbenzene	mg/l	0.0288	0.0288	115.	77-129	0.190	20	WG650237
1,2-Dibromo-3-Chloropropane	mg/l	0.0224	0.0222	90.0	55-142	0.780	20	WG650237
1,2-Dibromoethane	mg/l	0.0260	0.0253	104.	78-124	2.83	20	WG650237
1,2-Dichlorobenzene	mg/l	0.0267	0.0266	107.	82-121	0.710	20	WG650237
1,2-Dichloroethane	mg/l	0.0235	0.0232	94.0	69-128	1.19	20	WG650237
1,2-Dichloropropane	mg/l	0.0247	0.0243	99.0	77-121	1.71	20	WG650237
1,3,5-Trimethylbenzene	mg/l	0.0295	0.0293	118.	78-127	0.490	20	WG650237
1,3-Dichlorobenzene	mg/l	0.0297	0.0295	119.	77-127	0.440	20	WG650237
1,3-Dichloropropane	mg/l	0.0247	0.0243	99.0	78-117	1.67	20	WG650237
1,4-Dichlorobenzene	mg/l	0.0259	0.0256	104.	79-117	1.07	20	WG650237
2,2-Dichloropropane	mg/l	0.0277	0.0280	111.	63-130	1.16	20	WG650237
2-Butanone (MEK)	mg/l	0.113	0.105	90.0	58-144	7.10	20	WG650237
2-Chloroethyl vinyl ether	mg/l	0.119	0.118	95.0	26-172	0.170	22	WG650237
2-Chlorotoluene	mg/l	0.0278	0.0317	111.	78-123	13.2	20	WG650237
4-Chlorotoluene	mg/l	0.0282	0.0280	113.	78-122	0.550	20	WG650237
4-Methyl-2-pentanone (MIBK)	mg/l	0.114	0.107	91.0	58-147	5.96	20	WG650237
Acetone	mg/l	0.0902	0.0683	72.0	49-153	27.8*	21	WG650237
Acrolein	mg/l	0.0727	0.0516	58.0	10-181	34.0*	30	WG650237
Acrylonitrile	mg/l	0.111	0.0799	88.0	53-153	32.2*	20	WG650237
Benzene	mg/l	0.0238	0.0238	95.0	72-119	0.0300	20	WG650237
Bromobenzene	mg/l	0.0272	0.0271	109.	76-121	0.320	20	WG650237
Bromodichloromethane	mg/l	0.0257	0.0257	103.	75-127	0.0600	20	WG650237
Bromoform	mg/l	0.0317	0.0301	127.	61-136	5.26	20	WG650237
Bromomethane	mg/l	0.0227	0.0187	91.0	42-172	19.5	20	WG650237
Carbon tetrachloride	mg/l	0.0250	0.0245	100.	63-129	1.96	20	WG650237
Chlorobenzene	mg/l	0.0271	0.0270	108.	78-123	0.270	20	WG650237
Chlorodibromomethane	mg/l	0.0271	0.0270	108.	73-128	0.250	20	WG650237
Chloroethane	mg/l	0.0211	0.0188	84.0	52-164	11.3	20	WG650237
Chloroform	mg/l	0.0244	0.0248	98.0	76-122	1.66	20	WG650237
Chloromethane	mg/l	0.0217	0.0225	87.0	50-141	3.96	20	WG650237
cis-1,2-Dichloroethene	mg/l	0.0254	0.0252	102.	75-121	0.750	20	WG650237
cis-1,3-Dichloropropene	mg/l	0.0259	0.0252	104.	74-124	2.83	20	WG650237
Di-isopropyl ether	mg/l	0.0236	0.0171	94.0	66-129	32.2*	20	WG650237
Dibromomethane	mg/l	0.0248	0.0245	99.0	77-124	1.38	20	WG650237
Dichlorodifluoromethane	mg/l	0.0231	0.0234	92.0	33-173	1.31	20	WG650237
Ethylbenzene	mg/l	0.0270	0.0269	108.	77-124	0.370	20	WG650237
Hexachloro-1,3-butadiene	mg/l	0.0281	0.0299	112.	71-134	6.41	20	WG650237

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Est. 1970

GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L624134

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Isopropylbenzene	mg/l	0.0283	0.0285	113.	74-126	0.650	20	WG650237
Methyl tert-butyl ether	mg/l	0.0247	0.0187	99.0	67-127	27.7*	20	WG650237
Methylene Chloride	mg/l	0.0245	0.0188	98.0	67-122	26.3*	20	WG650237
n-Butylbenzene	mg/l	0.0279	0.0285	112.	74-130	2.23	20	WG650237
n-Propylbenzene	mg/l	0.0283	0.0284	113.	77-125	0.380	20	WG650237
Naphthalene	mg/l	0.0246	0.0234	98.0	70-134	5.26	20	WG650237
p-Isopropyltoluene	mg/l	0.0315	0.0312	126.	77-132	0.920	20	WG650237
sec-Butylbenzene	mg/l	0.0304	0.0304	121.	77-130	0.180	20	WG650237
Styrene	mg/l	0.0284	0.0281	114.	69-145	1.05	20	WG650237
tert-Butylbenzene	mg/l	0.0296	0.0299	118.	76-131	0.990	20	WG650237
Tetrachloroethene	mg/l	0.0274	0.0277	110.	69-131	0.930	20	WG650237
Toluene	mg/l	0.0243	0.0239	97.0	75-114	1.85	20	WG650237
trans-1,2-Dichloroethene	mg/l	0.0247	0.0206	99.0	63-127	18.1	20	WG650237
trans-1,3-Dichloropropene	mg/l	0.0241	0.0237	96.0	69-124	1.72	20	WG650237
Trichloroethene	mg/l	0.0262	0.0266	105.	69-131	1.37	20	WG650237
Trichlorofluoromethane	mg/l	0.0197	0.0187	79.0	53-161	5.13	20	WG650237
Vinyl chloride	mg/l	0.0227	0.0227	91.0	55-142	0.120	20	WG650237
Xylenes, Total	mg/l	0.0822	0.0807	110.	77-123	1.81	20	WG650237
4-Bromofluorobenzene				108.0	82-120			WG650237
Dibromofluoromethane				100.0	82-126			WG650237
Toluene-d8				104.8	92-112			WG650237

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0223	0	.025	89.4	71-130	L624134-01	WG650236
1,1,1-Trichloroethane	mg/l	0.0196	0	.025	78.6	58-137	L624134-01	WG650236
1,1,2,2-Tetrachloroethane	mg/l	0.0251	0	.025	100.	64-149	L624134-01	WG650236
1,1,2-Trichloroethane	mg/l	0.0228	0	.025	91.1	73-128	L624134-01	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	0.0209	0	.025	83.5	36-159	L624134-01	WG650236
1,1-Dichloroethane	mg/l	0.0197	0	.025	79.0	58-133	L624134-01	WG650236
1,1-Dichloroethene	mg/l	0.0211	0	.025	84.3	32-152	L624134-01	WG650236
1,1-Dichloropropene	mg/l	0.0204	0	.025	81.6	50-140	L624134-01	WG650236
1,2,3-Trichlorobenzene	mg/l	0.0287	0	.025	115.	68-135	L624134-01	WG650236
1,2,3-Trichloropropane	mg/l	0.0243	0	.025	97.3	74-137	L624134-01	WG650236
1,2,3-Trimethylbenzene	mg/l	0.0209	0	.025	83.7	67-133	L624134-01	WG650236
1,2,4-Trichlorobenzene	mg/l	0.0276	0	.025	110.	67-133	L624134-01	WG650236
1,2,4-Trimethylbenzene	mg/l	0.0238	0	.025	95.2	62-141	L624134-01	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	0.0235	0	.025	94.0	55-148	L624134-01	WG650236
1,2-Dibromoethane	mg/l	0.0229	0	.025	91.5	71-129	L624134-01	WG650236
1,2-Dichlorobenzene	mg/l	0.0225	0	.025	90.0	75-125	L624134-01	WG650236
1,2-Dichloroethane	mg/l	0.0213	0	.025	85.4	59-135	L624134-01	WG650236
1,2-Dichloropropane	mg/l	0.0208	0	.025	83.2	68-126	L624134-01	WG650236
1,3,5-Trimethylbenzene	mg/l	0.0239	0	.025	95.8	67-136	L624134-01	WG650236
1,3-Dichlorobenzene	mg/l	0.0251	0	.025	100.	69-131	L624134-01	WG650236
1,3-Dichloropropane	mg/l	0.0219	0	.025	87.6	70-122	L624134-01	WG650236
1,4-Dichlorobenzene	mg/l	0.0217	0	.025	86.7	70-123	L624134-01	WG650236
2,2-Dichloropropane	mg/l	0.0188	0	.025	75.1	51-141	L624134-01	WG650236
2-Butanone (MEK)	mg/l	0.0777	0	.125	62.1	51-149	L624134-01	WG650236
2-Chloroethyl vinyl ether	mg/l	0.000386	0	.125	0.310*	10-161	L624134-01	WG650236
2-Chlorotoluene	mg/l	0.0233	0	.025	93.3	65-133	L624134-01	WG650236
4-Chlorotoluene	mg/l	0.0232	0	.025	92.8	67-129	L624134-01	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	0.117	0	.125	93.5	53-154	L624134-01	WG650236
Acetone	mg/l	0.0519	0.000838	.125	40.8	34-146	L624134-01	WG650236
Acrolein	mg/l	0.174	0	.125	139.	10-189	L624134-01	WG650236
Acrylonitrile	mg/l	0.108	0	.125	86.1	49-162	L624134-01	WG650236
Benzene	mg/l	0.0204	0	.025	81.5	51-134	L624134-01	WG650236
Bromobenzene	mg/l	0.0222	0	.025	88.8	64-130	L624134-01	WG650236
Bromodichloromethane	mg/l	0.0201	0	.025	80.6	67-132	L624134-01	WG650236

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Quality Assurance Report
Level II

L624134

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Bromoform	mg/l	0.0229	0	.025	91.5	59-137	L624134-01	WG650236
Bromomethane	mg/l	0.0274	0	.025	110.	23-177	L624134-01	WG650236
Carbon tetrachloride	mg/l	0.0206	0	.025	82.5	49-140	L624134-01	WG650236
Chlorobenzene	mg/l	0.0228	0	.025	91.1	69-126	L624134-01	WG650236
Chlorodibromomethane	mg/l	0.0223	0	.025	89.2	68-130	L624134-01	WG650236
Chloroethane	mg/l	0.0208	0	.025	83.0	32-177	L624134-01	WG650236
Chloroform	mg/l	0.0206	0	.025	82.3	64-130	L624134-01	WG650236
Chloromethane	mg/l	0.0184	0	.025	73.8	27-155	L624134-01	WG650236
cis-1,2-Dichloroethene	mg/l	0.0203	0	.025	81.0	54-137	L624134-01	WG650236
cis-1,3-Dichloropropene	mg/l	0.0205	0	.025	81.9	63-127	L624134-01	WG650236
Di-isopropyl ether	mg/l	0.0188	0	.025	75.3	58-133	L624134-01	WG650236
Dibromomethane	mg/l	0.0220	0	.025	87.8	68-131	L624134-01	WG650236
Dichlorodifluoromethane	mg/l	0.0193	0	.025	77.0	16-188	L624134-01	WG650236
Ethylbenzene	mg/l	0.0227	0	.025	90.9	64-135	L624134-01	WG650236
Hexachloro-1,3-butadiene	mg/l	0.0255	0	.025	102.	64-140	L624134-01	WG650236
Isopropylbenzene	mg/l	0.0229	0	.025	91.6	62-134	L624134-01	WG650236
Methyl tert-butyl ether	mg/l	0.0206	0	.025	82.6	55-136	L624134-01	WG650236
Methylene Chloride	mg/l	0.0199	0	.025	79.6	52-130	L624134-01	WG650236
n-Butylbenzene	mg/l	0.0224	0	.025	89.7	62-142	L624134-01	WG650236
n-Propylbenzene	mg/l	0.0231	0	.025	92.4	62-137	L624134-01	WG650236
Naphthalene	mg/l	0.0259	0	.025	104.	65-140	L624134-01	WG650236
p-Isopropyltoluene	mg/l	0.0248	0	.025	99.2	64-142	L624134-01	WG650236
sec-Butylbenzene	mg/l	0.0247	0	.025	98.9	67-139	L624134-01	WG650236
Styrene	mg/l	0.0219	0	.025	87.8	58-152	L624134-01	WG650236
tert-Butylbenzene	mg/l	0.0240	0	.025	96.0	66-139	L624134-01	WG650236
Tetrachloroethene	mg/l	0.0229	0	.025	91.7	56-139	L624134-01	WG650236
Toluene	mg/l	0.0212	0	.025	84.8	61-126	L624134-01	WG650236
trans-1,2-Dichloroethene	mg/l	0.0201	0	.025	80.5	45-137	L624134-01	WG650236
trans-1,3-Dichloropropene	mg/l	0.0228	0	.025	91.0	59-130	L624134-01	WG650236
Trichloroethene	mg/l	0.0232	0.000315	.025	91.7	40-155	L624134-01	WG650236
Trichlorofluoromethane	mg/l	0.0214	0	.025	85.6	35-177	L624134-01	WG650236
Vinyl chloride	mg/l	0.0182	0	.025	73.0	32-159	L624134-01	WG650236
Xylenes, Total	mg/l	0.0674	0	.075	89.9	64-133	L624134-01	WG650236
4-Bromofluorobenzene					98.05	82-120		WG650236
Dibromofluoromethane					95.04	82-126		WG650236
Toluene-d8					96.03	92-112		WG650236
1,1,1,2-Tetrachloroethane	mg/l	0.0280	0	.025	112.	71-130	L624127-01	WG650237
1,1,1-Trichloroethane	mg/l	0.0259	0	.025	104.	58-137	L624127-01	WG650237
1,1,2,2-Tetrachloroethane	mg/l	0.0247	0	.025	98.9	64-149	L624127-01	WG650237
1,1,2-Trichloroethane	mg/l	0.0251	0	.025	100.	73-128	L624127-01	WG650237
1,1,2-Trichlorotrifluoroethane	mg/l	0.0153	0	.025	61.2	36-159	L624127-01	WG650237
1,1-Dichloroethane	mg/l	0.0247	0	.025	98.7	58-133	L624127-01	WG650237
1,1-Dichloroethene	mg/l	0.0209	0	.025	83.7	32-152	L624127-01	WG650237
1,1-Dichloropropene	mg/l	0.0267	0	.025	107.	50-140	L624127-01	WG650237
1,2,3-Trichlorobenzene	mg/l	0.0252	0	.025	101.	68-135	L624127-01	WG650237
1,2,3-Trichloropropane	mg/l	0.0238	0	.025	95.0	74-137	L624127-01	WG650237
1,2,3-Trimethylbenzene	mg/l	0.0262	0	.025	105.	67-133	L624127-01	WG650237
1,2,4-Trichlorobenzene	mg/l	0.0286	0	.025	114.	67-133	L624127-01	WG650237
1,2,4-Trimethylbenzene	mg/l	0.0292	0	.025	117.	62-141	L624127-01	WG650237
1,2-Dibromo-3-Chloropropane	mg/l	0.0207	0	.025	82.8	55-148	L624127-01	WG650237
1,2-Dibromoethane	mg/l	0.0242	0	.025	96.9	71-129	L624127-01	WG650237
1,2-Dichlorobenzene	mg/l	0.0265	0	.025	106.	75-125	L624127-01	WG650237
1,2-Dichloroethane	mg/l	0.0221	0	.025	88.4	59-135	L624127-01	WG650237
1,2-Dichloropropane	mg/l	0.0240	0	.025	96.2	68-126	L624127-01	WG650237
1,3,5-Trimethylbenzene	mg/l	0.0301	0	.025	120.	67-136	L624127-01	WG650237
1,3-Dichlorobenzene	mg/l	0.0290	0	.025	116.	69-131	L624127-01	WG650237
1,3-Dichloropropane	mg/l	0.0229	0	.025	91.5	70-122	L624127-01	WG650237

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Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,4-Dichlorobenzene	mg/l	0.0257	0	.025	103.	70-123	L624127-01	WG650237
2,2-Dichloropropane	mg/l	0.0305	0	.025	122.	51-141	L624127-01	WG650237
2-Butanone (MEK)	mg/l	0.0710	0	.125	56.8	51-149	L624127-01	WG650237
2-Chloroethyl vinyl ether	mg/l	0.0789	0	.125	63.1	10-161	L624127-01	WG650237
2-Chlorotoluene	mg/l	0.0322	0	.025	129.	65-133	L624127-01	WG650237
4-Chlorotoluene	mg/l	0.0282	0	.025	113.	67-129	L624127-01	WG650237
4-Methyl-2-pentanone (MIBK)	mg/l	0.104	0	.125	83.3	53-154	L624127-01	WG650237
Acetone	mg/l	0.0302	0.000589	.125	23.7*	34-146	L624127-01	WG650237
Acrolein	mg/l	0.0657	0	.125	52.6	10-189	L624127-01	WG650237
Acrylonitrile	mg/l	0.0963	0	.125	77.0	49-162	L624127-01	WG650237
Benzene	mg/l	0.0242	0	.025	96.6	51-134	L624127-01	WG650237
Bromobenzene	mg/l	0.0263	0	.025	105.	64-130	L624127-01	WG650237
Bromodichloromethane	mg/l	0.0256	0	.025	102.	67-132	L624127-01	WG650237
Bromoform	mg/l	0.0296	0	.025	118.	59-137	L624127-01	WG650237
Bromomethane	mg/l	0.0189	0	.025	75.5	23-177	L624127-01	WG650237
Carbon tetrachloride	mg/l	0.0278	0.000341	.025	110.	49-140	L624127-01	WG650237
Chlorobenzene	mg/l	0.0269	0	.025	108.	69-126	L624127-01	WG650237
Chlorodibromomethane	mg/l	0.0260	0	.025	104.	68-130	L624127-01	WG650237
Chloroethane	mg/l	0.0211	0	.025	84.5	32-177	L624127-01	WG650237
Chloroform	mg/l	0.0248	0	.025	99.2	64-130	L624127-01	WG650237
Chloromethane	mg/l	0.0217	0	.025	86.6	27-155	L624127-01	WG650237
cis-1,2-Dichloroethene	mg/l	0.0251	0	.025	100.	54-137	L624127-01	WG650237
cis-1,3-Dichloropropene	mg/l	0.0247	0	.025	99.0	63-127	L624127-01	WG650237
Di-isopropyl ether	mg/l	0.0236	0	.025	94.4	58-133	L624127-01	WG650237
Dibromomethane	mg/l	0.0232	0	.025	92.8	68-131	L624127-01	WG650237
Dichlorodifluoromethane	mg/l	0.0272	0	.025	109.	16-188	L624127-01	WG650237
Ethylbenzene	mg/l	0.0285	0	.025	114.	64-135	L624127-01	WG650237
Hexachloro-1,3-butadiene	mg/l	0.0334	0	.025	134.	64-140	L624127-01	WG650237
Isopropylbenzene	mg/l	0.0303	0	.025	121.	62-134	L624127-01	WG650237
Methyl tert-butyl ether	mg/l	0.0234	0	.025	93.5	55-136	L624127-01	WG650237
Methylene Chloride	mg/l	0.0235	0	.025	93.8	52-130	L624127-01	WG650237
n-Butylbenzene	mg/l	0.0314	0	.025	126.	62-142	L624127-01	WG650237
n-Propylbenzene	mg/l	0.0302	0	.025	121.	62-137	L624127-01	WG650237
Naphthalene	mg/l	0.0223	0	.025	89.2	65-140	L624127-01	WG650237
p-Isopropyltoluene	mg/l	0.0335	0	.025	134.	64-142	L624127-01	WG650237
sec-Butylbenzene	mg/l	0.0326	0	.025	130.	67-139	L624127-01	WG650237
Styrene	mg/l	0.0278	0	.025	111.	58-152	L624127-01	WG650237
tert-Butylbenzene	mg/l	0.0319	0	.025	128.	66-139	L624127-01	WG650237
Tetrachloroethene	mg/l	0.0304	0	.025	122.	56-139	L624127-01	WG650237
Toluene	mg/l	0.0251	0	.025	100.	61-126	L624127-01	WG650237
trans-1,2-Dichloroethene	mg/l	0.0253	0	.025	101.	45-137	L624127-01	WG650237
trans-1,3-Dichloropropene	mg/l	0.0231	0	.025	92.6	59-130	L624127-01	WG650237
Trichloroethene	mg/l	0.0275	0	.025	110.	40-155	L624127-01	WG650237
Trichlorofluoromethane	mg/l	0.0240	0	.025	96.1	35-177	L624127-01	WG650237
Vinyl chloride	mg/l	0.0241	0	.025	96.3	32-159	L624127-01	WG650237
Xylenes, Total	mg/l	0.0837	0	.075	112.	64-133	L624127-01	WG650237
4-Bromofluorobenzene					105.8	82-120		WG650237
Dibromofluoromethane					100.3	82-126		WG650237
Toluene-d8					103.8	92-112		WG650237

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0241	0.0223	96.3	71-130	7.51	20	L624134-01	WG650236
1,1,1-Trichloroethane	mg/l	0.0210	0.0196	84.0	58-137	6.67	20	L624134-01	WG650236
1,1,2,2-Tetrachloroethane	mg/l	0.0249	0.0251	99.6	64-149	0.870	20	L624134-01	WG650236
1,1,2-Trichloroethane	mg/l	0.0235	0.0228	93.9	73-128	3.07	20	L624134-01	WG650236
1,1,2-Trichlorotrifluoroethane	mg/l	0.0219	0.0209	87.4	36-159	4.57	21	L624134-01	WG650236
1,1-Dichloroethane	mg/l	0.0208	0.0197	83.0	58-133	5.04	20	L624134-01	WG650236

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GeoEngineers - Tacoma, WA
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Tacoma, WA 98402

Quality Assurance Report
Level II

L624134

April 10, 2013

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1-Dichloroethene	mg/l	0.0218	0.0211	87.2	32-152	3.38	20	L624134-01	WG650236
1,1-Dichloropropene	mg/l	0.0217	0.0204	86.9	50-140	6.23	20	L624134-01	WG650236
1,2,3-Trichlorobenzene	mg/l	0.0300	0.0287	120.	68-135	4.47	20	L624134-01	WG650236
1,2,3-Trichloropropane	mg/l	0.0216	0.0243	86.4	74-137	11.9	20	L624134-01	WG650236
1,2,3-Trimethylbenzene	mg/l	0.0222	0.0209	88.9	67-133	6.03	20	L624134-01	WG650236
1,2,4-Trichlorobenzene	mg/l	0.0288	0.0276	115.	67-133	4.18	20	L624134-01	WG650236
1,2,4-Trimethylbenzene	mg/l	0.0255	0.0238	102.	62-141	6.99	20	L624134-01	WG650236
1,2-Dibromo-3-Chloropropane	mg/l	0.0222	0.0235	88.9	55-148	5.54	22	L624134-01	WG650236
1,2-Dibromoethane	mg/l	0.0239	0.0229	95.7	71-129	4.44	20	L624134-01	WG650236
1,2-Dichlorobenzene	mg/l	0.0241	0.0225	96.6	75-125	7.01	20	L624134-01	WG650236
1,2-Dichloroethane	mg/l	0.0217	0.0213	87.0	59-135	1.89	20	L624134-01	WG650236
1,2-Dichloropropane	mg/l	0.0222	0.0208	88.8	68-126	6.55	20	L624134-01	WG650236
1,3,5-Trimethylbenzene	mg/l	0.0251	0.0239	100.	67-136	4.56	20	L624134-01	WG650236
1,3-Dichlorobenzene	mg/l	0.0268	0.0251	107.	69-131	6.55	20	L624134-01	WG650236
1,3-Dichloropropane	mg/l	0.0225	0.0219	90.2	70-122	2.96	20	L624134-01	WG650236
1,4-Dichlorobenzene	mg/l	0.0232	0.0217	92.9	70-123	6.93	20	L624134-01	WG650236
2,2-Dichloropropane	mg/l	0.0210	0.0188	84.1	51-141	11.4	20	L624134-01	WG650236
2-Butanone (MEK)	mg/l	0.0703	0.0777	56.2	51-149	9.97	22	L624134-01	WG650236
2-Chloroethyl vinyl ether	mg/l	0	0.000386	0*	10-161	200.*	40	L624134-01	WG650236
2-Chlorotoluene	mg/l	0.0248	0.0233	99.0	65-133	5.98	20	L624134-01	WG650236
4-Chlorotoluene	mg/l	0.0246	0.0232	98.6	67-129	5.99	20	L624134-01	WG650236
4-Methyl-2-pentanone (MIBK)	mg/l	0.105	0.117	84.4	53-154	10.3	21	L624134-01	WG650236
Acetone	mg/l	0.0472	0.0519	37.1	34-146	9.37	22	L624134-01	WG650236
Acrolein	mg/l	0.160	0.174	128.	10-189	8.01	30	L624134-01	WG650236
Acrylonitrile	mg/l	0.100	0.108	80.1	49-162	7.30	20	L624134-01	WG650236
Benzene	mg/l	0.0217	0.0204	86.9	51-134	6.40	20	L624134-01	WG650236
Bromobenzene	mg/l	0.0235	0.0222	94.2	64-130	5.92	20	L624134-01	WG650236
Bromodichloromethane	mg/l	0.0209	0.0201	83.6	67-132	3.68	20	L624134-01	WG650236
Bromoform	mg/l	0.0230	0.0229	92.0	59-137	0.540	20	L624134-01	WG650236
Bromomethane	mg/l	0.0292	0.0274	117.	23-177	6.32	21	L624134-01	WG650236
Carbon tetrachloride	mg/l	0.0220	0.0206	88.0	49-140	6.43	20	L624134-01	WG650236
Chlorobenzene	mg/l	0.0242	0.0228	96.9	69-126	6.15	20	L624134-01	WG650236
Chlorodibromomethane	mg/l	0.0230	0.0223	92.2	68-130	3.33	20	L624134-01	WG650236
Chloroethane	mg/l	0.0219	0.0208	87.7	32-177	5.50	21	L624134-01	WG650236
Chloroform	mg/l	0.0214	0.0206	85.6	64-130	3.90	20	L624134-01	WG650236
Chloromethane	mg/l	0.0193	0.0184	77.2	27-155	4.46	20	L624134-01	WG650236
cis-1,2-Dichloroethene	mg/l	0.0212	0.0203	84.6	54-137	4.34	20	L624134-01	WG650236
cis-1,3-Dichloropropene	mg/l	0.0214	0.0205	85.8	63-127	4.59	20	L624134-01	WG650236
Di-isopropyl ether	mg/l	0.0195	0.0188	78.1	58-133	3.68	20	L624134-01	WG650236
Dibromomethane	mg/l	0.0225	0.0220	90.0	68-131	2.43	20	L624134-01	WG650236
Dichlorodifluoromethane	mg/l	0.0201	0.0193	80.5	16-188	4.46	22	L624134-01	WG650236
Ethylbenzene	mg/l	0.0243	0.0227	97.3	64-135	6.75	20	L624134-01	WG650236
Hexachloro-1,3-butadiene	mg/l	0.0278	0.0255	111.	64-140	8.38	20	L624134-01	WG650236
Isopropylbenzene	mg/l	0.0244	0.0229	97.7	62-134	6.45	20	L624134-01	WG650236
Methyl tert-butyl ether	mg/l	0.0204	0.0206	81.6	55-136	1.14	20	L624134-01	WG650236
Methylene Chloride	mg/l	0.0200	0.0199	80.0	52-130	0.570	20	L624134-01	WG650236
n-Butylbenzene	mg/l	0.0243	0.0224	97.2	62-142	7.99	20	L624134-01	WG650236
n-Propylbenzene	mg/l	0.0251	0.0231	100.	62-137	8.25	20	L624134-01	WG650236
Naphthalene	mg/l	0.0256	0.0259	102.	65-140	1.13	20	L624134-01	WG650236
p-Isopropyltoluene	mg/l	0.0268	0.0248	107.	64-142	7.56	20	L624134-01	WG650236
sec-Butylbenzene	mg/l	0.0264	0.0247	105.	67-139	6.37	20	L624134-01	WG650236
Styrene	mg/l	0.0233	0.0219	93.2	58-152	6.01	20	L624134-01	WG650236
tert-Butylbenzene	mg/l	0.0257	0.0240	103.	66-139	6.93	20	L624134-01	WG650236
Tetrachloroethene	mg/l	0.0251	0.0229	100.	56-139	8.94	20	L624134-01	WG650236
Toluene	mg/l	0.0228	0.0212	91.3	61-126	7.39	20	L624134-01	WG650236
trans-1,2-Dichloroethene	mg/l	0.0207	0.0201	83.0	45-137	3.00	20	L624134-01	WG650236
trans-1,3-Dichloropropene	mg/l	0.0232	0.0228	92.8	59-130	1.98	20	L624134-01	WG650236
Trichloroethene	mg/l	0.0239	0.0232	94.4	40-155	2.86	20	L624134-01	WG650236
Trichlorofluoromethane	mg/l	0.0232	0.0214	92.7	35-177	8.03	23	L624134-01	WG650236

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Quality Assurance Report
Level II

L624134

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Vinyl chloride	mg/l	0.0192	0.0182	76.6	32-159	4.94	21	L624134-01	WG650236
Xylenes, Total	mg/l	0.0726	0.0674	96.8	64-133	7.39	20	L624134-01	WG650236
4-Bromofluorobenzene				96.89	82-120				WG650236
Dibromofluoromethane				92.48	82-126				WG650236
Toluene-d8				94.86	92-112				WG650236
1,1,1,2-Tetrachloroethane	mg/l	0.0326	0.0280	130.	71-130	15.2	20	L624127-01	WG650237
1,1,1-Trichloroethane	mg/l	0.0230	0.0259	92.0	58-137	11.9	20	L624127-01	WG650237
1,1,2,2-Tetrachloroethane	mg/l	0.0260	0.0247	104.	64-149	4.94	20	L624127-01	WG650237
1,1,2-Trichloroethane	mg/l	0.0269	0.0251	107.	73-128	6.75	20	L624127-01	WG650237
1,1,2-Trichlorotrifluoroethane	mg/l	0.0154	0.0153	61.6	36-159	0.710	21	L624127-01	WG650237
1,1-Dichloroethane	mg/l	0.0191	0.0247	76.2	58-133	25.7*	20	L624127-01	WG650237
1,1-Dichloroethene	mg/l	0.0199	0.0209	79.8	32-152	4.87	20	L624127-01	WG650237
1,1-Dichloropropene	mg/l	0.0212	0.0267	84.6	50-140	23.1*	20	L624127-01	WG650237
1,2,3-Trichlorobenzene	mg/l	0.0263	0.0252	105.	68-135	4.34	20	L624127-01	WG650237
1,2,3-Trichloropropane	mg/l	0.0276	0.0238	110.	74-137	15.1	20	L624127-01	WG650237
1,2,3-Trimethylbenzene	mg/l	0.0238	0.0262	95.2	67-133	9.72	20	L624127-01	WG650237
1,2,4-Trichlorobenzene	mg/l	0.0291	0.0286	116.	67-133	1.63	20	L624127-01	WG650237
1,2,4-Trimethylbenzene	mg/l	0.0322	0.0292	129.	62-141	9.78	20	L624127-01	WG650237
1,2-Dibromo-3-Chloropropane	mg/l	0.0234	0.0207	93.5	55-148	12.1	22	L624127-01	WG650237
1,2-Dibromoethane	mg/l	0.0273	0.0242	109.	71-129	12.1	20	L624127-01	WG650237
1,2-Dichlorobenzene	mg/l	0.0258	0.0265	103.	75-125	2.62	20	L624127-01	WG650237
1,2-Dichloroethane	mg/l	0.0185	0.0221	73.9	59-135	17.9	20	L624127-01	WG650237
1,2-Dichloropropane	mg/l	0.0213	0.0240	85.4	68-126	11.8	20	L624127-01	WG650237
1,3,5-Trimethylbenzene	mg/l	0.0332	0.0301	133.	67-136	9.65	20	L624127-01	WG650237
1,3-Dichlorobenzene	mg/l	0.0340	0.0290	136.*	69-131	15.9	20	L624127-01	WG650237
1,3-Dichloropropane	mg/l	0.0237	0.0229	94.7	70-122	3.47	20	L624127-01	WG650237
1,4-Dichlorobenzene	mg/l	0.0254	0.0257	102.	70-123	1.04	20	L624127-01	WG650237
2,2-Dichloropropane	mg/l	0.0262	0.0305	105.	51-141	15.1	20	L624127-01	WG650237
2-Butanone (MEK)	mg/l	0.0630	0.0710	50.4*	51-149	11.9	22	L624127-01	WG650237
2-Chloroethyl vinyl ether	mg/l	0.0515	0.0789	41.2	10-161	42.1*	40	L624127-01	WG650237
2-Chlorotoluene	mg/l	0.0345	0.0322	138.*	65-133	6.76	20	L624127-01	WG650237
4-Chlorotoluene	mg/l	0.0300	0.0282	120.	67-129	6.08	20	L624127-01	WG650237
4-Methyl-2-pentanone (MIBK)	mg/l	0.0914	0.104	73.2	53-154	13.0	21	L624127-01	WG650237
Acetone	mg/l	0.0330	0.0302	26.0*	34-146	8.96	22	L624127-01	WG650237
Acrolein	mg/l	0.0537	0.0657	43.0	10-189	20.1	30	L624127-01	WG650237
Acrylonitrile	mg/l	0.0836	0.0963	66.9	49-162	14.1	20	L624127-01	WG650237
Benzene	mg/l	0.0200	0.0242	80.1	51-134	18.7	20	L624127-01	WG650237
Bromobenzene	mg/l	0.0271	0.0263	108.	64-130	3.27	20	L624127-01	WG650237
Bromodichloromethane	mg/l	0.0241	0.0256	96.4	67-132	5.88	20	L624127-01	WG650237
Bromoform	mg/l	0.0360	0.0296	144.*	59-137	19.6	20	L624127-01	WG650237
Bromomethane	mg/l	0.0213	0.0189	85.2	23-177	12.1	21	L624127-01	WG650237
Carbon tetrachloride	mg/l	0.0245	0.0278	96.6	49-140	12.5	20	L624127-01	WG650237
Chlorobenzene	mg/l	0.0301	0.0269	120.	69-126	11.2	20	L624127-01	WG650237
Chlorodibromomethane	mg/l	0.0295	0.0260	118.	68-130	12.8	20	L624127-01	WG650237
Chloroethane	mg/l	0.0219	0.0211	87.8	32-177	3.78	21	L624127-01	WG650237
Chloroform	mg/l	0.0209	0.0248	83.5	64-130	17.2	20	L624127-01	WG650237
Chloromethane	mg/l	0.0221	0.0217	88.2	27-155	1.85	20	L624127-01	WG650237
cis-1,2-Dichloroethene	mg/l	0.0221	0.0251	88.3	54-137	12.6	20	L624127-01	WG650237
cis-1,3-Dichloropropene	mg/l	0.0228	0.0247	91.2	63-127	8.17	20	L624127-01	WG650237
Di-isopropyl ether	mg/l	0.0175	0.0236	69.8	58-133	29.9*	20	L624127-01	WG650237
Dibromomethane	mg/l	0.0225	0.0232	90.1	68-131	3.01	20	L624127-01	WG650237
Dichlorodifluoromethane	mg/l	0.0270	0.0272	108.	16-188	0.430	22	L624127-01	WG650237
Ethylbenzene	mg/l	0.0306	0.0285	122.	64-135	7.05	20	L624127-01	WG650237
Hexachloro-1,3-butadiene	mg/l	0.0353	0.0334	141.*	64-140	5.42	20	L624127-01	WG650237
Isopropylbenzene	mg/l	0.0327	0.0303	131.	62-134	7.81	20	L624127-01	WG650237
Methyl tert-butyl ether	mg/l	0.0198	0.0234	79.4	55-136	16.4	20	L624127-01	WG650237
Methylene Chloride	mg/l	0.0198	0.0235	79.3	52-130	16.7	20	L624127-01	WG650237

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Quality Assurance Report
Level II

L624134

April 10, 2013

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
n-Butylbenzene	mg/l	0.0268	0.0314	107.	62-142	16.0	20	L624127-01	WG650237
n-Propylbenzene	mg/l	0.0313	0.0302	125.	62-137	3.45	20	L624127-01	WG650237
Naphthalene	mg/l	0.0230	0.0223	91.9	65-140	2.97	20	L624127-01	WG650237
p-Isopropyltoluene	mg/l	0.0377	0.0335	151.*	64-142	11.7	20	L624127-01	WG650237
sec-Butylbenzene	mg/l	0.0357	0.0326	143.*	67-139	9.05	20	L624127-01	WG650237
Styrene	mg/l	0.0311	0.0278	124.	58-152	11.2	20	L624127-01	WG650237
tert-Butylbenzene	mg/l	0.0357	0.0319	143.*	66-139	11.4	20	L624127-01	WG650237
Tetrachloroethene	mg/l	0.0362	0.0304	145.*	56-139	17.4	20	L624127-01	WG650237
Toluene	mg/l	0.0236	0.0251	94.6	61-126	6.07	20	L624127-01	WG650237
trans-1,2-Dichloroethene	mg/l	0.0219	0.0253	87.7	45-137	14.4	20	L624127-01	WG650237
trans-1,3-Dichloropropene	mg/l	0.0216	0.0231	86.3	59-130	6.94	20	L624127-01	WG650237
Trichloroethene	mg/l	0.0284	0.0275	114.	40-155	3.36	20	L624127-01	WG650237
Trichlorofluoromethane	mg/l	0.0202	0.0240	80.7	35-177	17.4	23	L624127-01	WG650237
Vinyl chloride	mg/l	0.0251	0.0241	100.	32-159	3.98	21	L624127-01	WG650237
Xylenes, Total	mg/l	0.0930	0.0837	124.	64-133	10.5	20	L624127-01	WG650237
4-Bromofluorobenzene				112.9	82-120				WG650237
Dibromofluoromethane				88.75	82-126				WG650237
Toluene-d8				100.6	92-112				WG650237

Batch number /Run number / Sample number cross reference

WG650236: R2576706: L624134-01 02 03 04 05
WG650237: R2577517: L624134-06 07 08 09 10 11

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Quality Assurance Report
Level II

L624134

April 10, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Analysis/Container/Preservative

A161

n of Custody
1 of 2

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LAB SCIENCES
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Report to: ~~Scott MacDonald~~ Nick Rohrbach

Email: nrohrbach@geoengineers.com ~~smacdonald@geoengineers.co~~

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: OBC-121-08 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): L. Linde / J. Deeds

Site/Facility ID#: TUMWATER, WA

~~P.O.#~~ Stnd 10 day TAT

Collected by (signature): L Linde

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? __No X Yes
FAX? __No __Yes

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T83764/ P419876
Cooler #:
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk	Remarks/Contaminant	Sample # (lab only) L624134
364 130308	Grab	GW		3/8/13	0915	9 ~~3~~	X		MS/MSD-triplicate volume	-01
356 130308	↓	GW		↓	0955	3	X			-02
360 130308	↓	GW		↓	1035	3	X			-03
350 130308	↓	GW		↓	1050	3	X			-04
361 130308	↓	GW		↓	1055	3	X			-05
359 130308	↓	GW		↓	1255	3	X			-06
358 130308	↓	GW		↓	1340	3	X			-07
357 130308	↓	GW		↓	1430	3	X			-08
DUP-3F 130308	↓	GW		↓	1435	3	X			-09

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

QWate # GEOENGTWA02183L

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)
L Linde	3/8/13	1530			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.5c Bottles Received: 38VP	COC Seal Intact: ✓ Y ___ N ___ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Tim Waen	Date: 3/9/13 Time: 0530	pH Checked: NCF:

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Chain of Custody
Page 2 of 2

ESC
L·A·B S·C·I·E·N·C·E·S
12065 Lebanon Road
Mt. Juliet, TN 37122

Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: ~~Scott MacDonald~~ Nick Rohrbach

Email: nrohrback@geoengineers.com ~~smacdonald@geoengineers.co~~

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 19903-001-01

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): L. Linde / J. Deals

Site/Facility ID#: TUMWATER, WA

~~P.O.#~~: Stnd 10 day TAT

Collected by (signature): L. Linde

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? __No X Yes
FAX? __No __Yes

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T83764/ P419879
Cooler #:
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk							Remarks/Contaminant	Sample # (lab only)
RIN-3 130308	Grab	GW		3/8/13		3	X								L624 134	-10
TB-5 130308		GW		↓		2 ~~3~~	X	X								-11
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									
		GW				3	X									

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

Quote # GEOENGTWA02183L

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)
L. Linde	3/8/13	1530			h 04
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 35 Bottles Received: 38 UP	COC Seal Intact: ✓ Y ___ N ___ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 3/9/13 Time: 0530	pH Checked: NCF:

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L624169
Samples Received: 03/09/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-3 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-3 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	96.2			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	108.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-96-15 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 11:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l	J6J3	8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-96-15 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 11:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	95.3			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	105.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-02 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 14:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-02 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 14:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	38.	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	95.6			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	107.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TW-4 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TW-4 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	1.7	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	95.3			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	107.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TW-8 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TW-8 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	94.6			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	107.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : ST-2 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : ST-2 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	94.0			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	106.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TW-5 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-07

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Site ID : TUMWATER, WA

Sample ID : TW-5 130307

Project # : 0180-121-08

Collected By : Linde-Deeds
Collection Date : 03/07/13 15:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	97.2			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/10/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RIN-1 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RIN-1 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	96.5			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	105.			% Rec.		8260B	03/10/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-728 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 16:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/10/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/10/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/10/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/10/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/10/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/10/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/10/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/10/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/10/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/10/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/10/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/10/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/10/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/10/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/10/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/10/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/10/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/10/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
cis-1,2-Dichloroethene	0.31	0.26	1.0	ug/l	J	8260B	03/10/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/10/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/10/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/10/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/10/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/10/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/10/13	1
Ethylbenzene	0.39	0.38	1.0	ug/l	J	8260B	03/10/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/10/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/10/13	1

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REPORT OF ANALYSIS

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GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624169-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 09, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-728 130307

Collected By : Linde-Deeds
Collection Date : 03/07/13 16:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/10/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/10/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/10/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/10/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/10/13	1
Naphthalene	U	1.0	5.0	ug/l	J3	8260B	03/10/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/10/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/10/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/10/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/10/13	1
Toluene	0.84	0.78	5.0	ug/l	J	8260B	03/10/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4J3	8260B	03/10/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l	J3	8260B	03/10/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/10/13	1
Trichloroethene	4.7	0.40	1.0	ug/l		8260B	03/10/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/10/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/10/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/10/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/10/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/10/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/10/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/10/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/10/13	1
Dibromofluoromethane	94.5			% Rec.		8260B	03/10/13	1
4-Bromofluorobenzene	109.			% Rec.		8260B	03/10/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L624169-01	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3
L624169-02	WG650247	SAMP	2-Chloroethyl vinyl ether	R2578083	J6J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4
L624169-03	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3
L624169-04	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3
L624169-05	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3
L624169-06	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3
L624169-07	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3
L624169-08	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3
L624169-09	WG650247	SAMP	cis-1,2-Dichloroethene	R2578083	J
	WG650247	SAMP	Ethylbenzene	R2578083	J
	WG650247	SAMP	Naphthalene	R2578083	J3
	WG650247	SAMP	Toluene	R2578083	J
	WG650247	SAMP	1,2,3-Trichlorobenzene	R2578083	J4J3
	WG650247	SAMP	1,2,4-Trichlorobenzene	R2578083	J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 14:15:51

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW Metals by 6020.

Sample: L624169-01 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs. uni 690905 dor 4/4/13.
Sample: L624169-02 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624169-03 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624169-04 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624169-05 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624169-06 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624169-07 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624169-08 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs
Sample: L624169-09 Account: GEOENGTWA Received: 03/09/13 09:30 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 14:15
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.Removed QC2MODCN and added QC3
Per SR2868 3/21/13 ~gs

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Quality Assurance Report
Level II

L624169

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG650247	03/10/13 03:40
1,1,1-Trichloroethane	< .001	mg/l			WG650247	03/10/13 03:40
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG650247	03/10/13 03:40
1,1,2-Trichloroethane	< .001	mg/l			WG650247	03/10/13 03:40
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG650247	03/10/13 03:40
1,1-Dichloroethane	< .001	mg/l			WG650247	03/10/13 03:40
1,1-Dichloroethene	< .001	mg/l			WG650247	03/10/13 03:40
1,1-Dichloropropene	< .001	mg/l			WG650247	03/10/13 03:40
1,2,3-Trichlorobenzene	< .001	mg/l			WG650247	03/10/13 03:40
1,2,3-Trichloropropane	< .001	mg/l			WG650247	03/10/13 03:40
1,2,3-Trimethylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
1,2,4-Trichlorobenzene	< .001	mg/l			WG650247	03/10/13 03:40
1,2,4-Trimethylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG650247	03/10/13 03:40
1,2-Dibromoethane	< .001	mg/l			WG650247	03/10/13 03:40
1,2-Dichlorobenzene	< .001	mg/l			WG650247	03/10/13 03:40
1,2-Dichloroethane	< .001	mg/l			WG650247	03/10/13 03:40
1,2-Dichloropropane	< .001	mg/l			WG650247	03/10/13 03:40
1,3,5-Trimethylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
1,3-Dichlorobenzene	< .001	mg/l			WG650247	03/10/13 03:40
1,3-Dichloropropane	< .001	mg/l			WG650247	03/10/13 03:40
1,4-Dichlorobenzene	< .001	mg/l			WG650247	03/10/13 03:40
2,2-Dichloropropane	< .001	mg/l			WG650247	03/10/13 03:40
2-Butanone (MEK)	< .01	mg/l			WG650247	03/10/13 03:40
2-Chloroethyl vinyl ether	< .05	mg/l			WG650247	03/10/13 03:40
2-Chlorotoluene	< .001	mg/l			WG650247	03/10/13 03:40
4-Chlorotoluene	< .001	mg/l			WG650247	03/10/13 03:40
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG650247	03/10/13 03:40
Acetone	< .05	mg/l			WG650247	03/10/13 03:40
Acrolein	< .025	mg/l			WG650247	03/10/13 03:40
Acrylonitrile	< .01	mg/l			WG650247	03/10/13 03:40
Benzene	< .001	mg/l			WG650247	03/10/13 03:40
Bromobenzene	< .001	mg/l			WG650247	03/10/13 03:40
Bromodichloromethane	< .001	mg/l			WG650247	03/10/13 03:40
Bromoform	< .001	mg/l			WG650247	03/10/13 03:40
Bromomethane	< .005	mg/l			WG650247	03/10/13 03:40
Carbon tetrachloride	< .001	mg/l			WG650247	03/10/13 03:40
Chlorobenzene	< .001	mg/l			WG650247	03/10/13 03:40
Chlorodibromomethane	< .001	mg/l			WG650247	03/10/13 03:40
Chloroethane	< .005	mg/l			WG650247	03/10/13 03:40
Chloroform	< .005	mg/l			WG650247	03/10/13 03:40
Chloromethane	< .0025	mg/l			WG650247	03/10/13 03:40
cis-1,2-Dichloroethene	< .001	mg/l			WG650247	03/10/13 03:40
cis-1,3-Dichloropropene	< .001	mg/l			WG650247	03/10/13 03:40
Di-isopropyl ether	< .001	mg/l			WG650247	03/10/13 03:40
Dibromomethane	< .001	mg/l			WG650247	03/10/13 03:40
Dichlorodifluoromethane	< .005	mg/l			WG650247	03/10/13 03:40
Ethylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
Hexachloro-1,3-butadiene	< .001	mg/l			WG650247	03/10/13 03:40
Isopropylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
Methyl tert-butyl ether	< .001	mg/l			WG650247	03/10/13 03:40
Methylene Chloride	< .005	mg/l			WG650247	03/10/13 03:40
n-Butylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
n-Propylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
Naphthalene	< .005	mg/l			WG650247	03/10/13 03:40
p-Isopropyltoluene	< .001	mg/l			WG650247	03/10/13 03:40
sec-Butylbenzene	< .001	mg/l			WG650247	03/10/13 03:40
Styrene	< .001	mg/l			WG650247	03/10/13 03:40
tert-Butylbenzene	< .001	mg/l			WG650247	03/10/13 03:40

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Quality Assurance Report
Level II

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April 10, 2013

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG650247	03/10/13 03:40
Toluene	< .005	mg/l			WG650247	03/10/13 03:40
trans-1,2-Dichloroethene	< .001	mg/l			WG650247	03/10/13 03:40
trans-1,3-Dichloropropene	< .001	mg/l			WG650247	03/10/13 03:40
Trichloroethene	< .001	mg/l			WG650247	03/10/13 03:40
Trichlorofluoromethane	< .005	mg/l			WG650247	03/10/13 03:40
Vinyl chloride	< .001	mg/l			WG650247	03/10/13 03:40
Xylenes, Total	< .003	mg/l			WG650247	03/10/13 03:40
4-Bromofluorobenzene		% Rec.	107.4	82-120	WG650247	03/10/13 03:40
Dibromofluoromethane		% Rec.	94.48	82-126	WG650247	03/10/13 03:40
Toluene-d8		% Rec.	104.2	92-112	WG650247	03/10/13 03:40

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0251	101.	77-128	WG650247
1,1,1-Trichloroethane	mg/l	.025	0.0235	94.2	71-126	WG650247
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0227	91.0	78-130	WG650247
1,1,2-Trichloroethane	mg/l	.025	0.0241	96.4	81-121	WG650247
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0233	93.4	53-143	WG650247
1,1-Dichloroethane	mg/l	.025	0.0233	93.3	73-123	WG650247
1,1-Dichloroethene	mg/l	.025	0.0242	96.7	54-134	WG650247
1,1-Dichloropropene	mg/l	.025	0.0236	94.5	67-127	WG650247
1,2,3-Trichlorobenzene	mg/l	.025	0.0186	74.4*	77-130	WG650247
1,2,3-Trichloropropane	mg/l	.025	0.0231	92.6	68-130	WG650247
1,2,3-Trimethylbenzene	mg/l	.025	0.0233	93.3	77-126	WG650247
1,2,4-Trichlorobenzene	mg/l	.025	0.0200	80.1	76-127	WG650247
1,2,4-Trimethylbenzene	mg/l	.025	0.0244	97.6	77-129	WG650247
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0215	86.2	55-142	WG650247
1,2-Dibromoethane	mg/l	.025	0.0239	95.8	78-124	WG650247
1,2-Dichlorobenzene	mg/l	.025	0.0228	91.4	82-121	WG650247
1,2-Dichloroethane	mg/l	.025	0.0226	90.4	69-128	WG650247
1,2-Dichloropropane	mg/l	.025	0.0246	98.5	77-121	WG650247
1,3,5-Trimethylbenzene	mg/l	.025	0.0249	99.5	78-127	WG650247
1,3-Dichlorobenzene	mg/l	.025	0.0239	95.4	77-127	WG650247
1,3-Dichloropropane	mg/l	.025	0.0235	93.8	78-117	WG650247
1,4-Dichlorobenzene	mg/l	.025	0.0233	93.4	79-117	WG650247
2,2-Dichloropropane	mg/l	.025	0.0229	91.5	63-130	WG650247
2-Butanone (MEK)	mg/l	.125	0.107	85.4	58-144	WG650247
2-Chloroethyl vinyl ether	mg/l	.125	0.120	96.3	26-172	WG650247
2-Chlorotoluene	mg/l	.025	0.0244	97.7	78-123	WG650247
4-Chlorotoluene	mg/l	.025	0.0245	97.9	78-122	WG650247
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.115	92.0	58-147	WG650247
Acetone	mg/l	.125	0.0937	75.0	49-153	WG650247
Acrolein	mg/l	.125	0.105	84.4	10-181	WG650247
Acrylonitrile	mg/l	.125	0.106	84.4	53-153	WG650247
Benzene	mg/l	.025	0.0234	93.5	72-119	WG650247
Bromobenzene	mg/l	.025	0.0237	94.8	76-121	WG650247
Bromodichloromethane	mg/l	.025	0.0247	98.9	75-127	WG650247
Bromoform	mg/l	.025	0.0249	99.8	61-136	WG650247
Bromomethane	mg/l	.025	0.0230	92.2	42-172	WG650247
Carbon tetrachloride	mg/l	.025	0.0221	88.6	63-129	WG650247
Chlorobenzene	mg/l	.025	0.0250	99.9	78-123	WG650247
Chlorodibromomethane	mg/l	.025	0.0246	98.4	73-128	WG650247
Chloroethane	mg/l	.025	0.0227	90.8	52-164	WG650247
Chloroform	mg/l	.025	0.0233	93.3	76-122	WG650247
Chloromethane	mg/l	.025	0.0224	89.8	50-141	WG650247
cis-1,2-Dichloroethene	mg/l	.025	0.0233	93.2	75-121	WG650247
cis-1,3-Dichloropropene	mg/l	.025	0.0250	99.9	74-124	WG650247

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Quality Assurance Report
Level II

L624169

April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Di-isopropyl ether	mg/l	.025	0.0236	94.3	66-129	WG650247
Dibromomethane	mg/l	.025	0.0240	96.0	77-124	WG650247
Dichlorodifluoromethane	mg/l	.025	0.0222	88.8	33-173	WG650247
Ethylbenzene	mg/l	.025	0.0255	102.	77-124	WG650247
Hexachloro-1,3-butadiene	mg/l	.025	0.0204	81.7	71-134	WG650247
Isopropylbenzene	mg/l	.025	0.0251	100.	74-126	WG650247
Methyl tert-butyl ether	mg/l	.025	0.0221	88.2	67-127	WG650247
Methylene Chloride	mg/l	.025	0.0225	90.1	67-122	WG650247
n-Butylbenzene	mg/l	.025	0.0233	93.4	74-130	WG650247
n-Propylbenzene	mg/l	.025	0.0247	98.8	77-125	WG650247
Naphthalene	mg/l	.025	0.0195	77.9	70-134	WG650247
p-Isopropyltoluene	mg/l	.025	0.0245	98.1	77-132	WG650247
sec-Butylbenzene	mg/l	.025	0.0246	98.6	77-130	WG650247
Styrene	mg/l	.025	0.0254	102.	69-145	WG650247
tert-Butylbenzene	mg/l	.025	0.0247	98.7	76-131	WG650247
Tetrachloroethene	mg/l	.025	0.0253	101.	69-131	WG650247
Toluene	mg/l	.025	0.0251	100.	75-114	WG650247
trans-1,2-Dichloroethene	mg/l	.025	0.0230	91.9	63-127	WG650247
trans-1,3-Dichloropropene	mg/l	.025	0.0242	96.9	69-124	WG650247
Trichloroethene	mg/l	.025	0.0252	101.	69-131	WG650247
Trichlorofluoromethane	mg/l	.025	0.0231	92.3	53-161	WG650247
Vinyl chloride	mg/l	.025	0.0229	91.5	55-142	WG650247
Xylenes, Total	mg/l	.075	0.0762	102.	77-123	WG650247
4-Bromofluorobenzene				103.5	82-120	WG650247
Dibromofluoromethane				93.32	82-126	WG650247
Toluene-d8				102.3	92-112	WG650247

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0253	0.0251	101.	77-128	0.510	20	WG650247
1,1,1-Trichloroethane	mg/l	0.0236	0.0235	94.0	71-126	0.160	20	WG650247
1,1,2,2-Tetrachloroethane	mg/l	0.0240	0.0227	96.0	78-130	5.22	20	WG650247
1,1,2-Trichloroethane	mg/l	0.0245	0.0241	98.0	81-121	1.71	20	WG650247
1,1,2-Trichlorotrifluoroethane	mg/l	0.0234	0.0233	94.0	53-143	0.280	20	WG650247
1,1-Dichloroethane	mg/l	0.0234	0.0233	94.0	73-123	0.530	20	WG650247
1,1-Dichloroethene	mg/l	0.0237	0.0242	95.0	54-134	1.74	20	WG650247
1,1-Dichloropropene	mg/l	0.0235	0.0236	94.0	67-127	0.310	20	WG650247
1,2,3-Trichlorobenzene	mg/l	0.0245	0.0186	98.0	77-130	27.5*	20	WG650247
1,2,3-Trichloropropane	mg/l	0.0241	0.0231	96.0	68-130	3.91	20	WG650247
1,2,3-Trimethylbenzene	mg/l	0.0243	0.0233	97.0	77-126	4.12	20	WG650247
1,2,4-Trichlorobenzene	mg/l	0.0247	0.0200	99.0	76-127	21.1*	20	WG650247
1,2,4-Trimethylbenzene	mg/l	0.0258	0.0244	103.	77-129	5.52	20	WG650247
1,2-Dibromo-3-Chloropropane	mg/l	0.0234	0.0215	94.0	55-142	8.21	20	WG650247
1,2-Dibromoethane	mg/l	0.0243	0.0239	97.0	78-124	1.42	20	WG650247
1,2-Dichlorobenzene	mg/l	0.0242	0.0228	97.0	82-121	5.71	20	WG650247
1,2-Dichloroethane	mg/l	0.0229	0.0226	92.0	69-128	1.51	20	WG650247
1,2-Dichloropropane	mg/l	0.0251	0.0246	100.	77-121	1.89	20	WG650247
1,3,5-Trimethylbenzene	mg/l	0.0259	0.0249	104.	78-127	3.93	20	WG650247
1,3-Dichlorobenzene	mg/l	0.0250	0.0239	100.	77-127	4.72	20	WG650247
1,3-Dichloropropane	mg/l	0.0236	0.0235	94.0	78-117	0.650	20	WG650247
1,4-Dichlorobenzene	mg/l	0.0240	0.0233	96.0	79-117	2.60	20	WG650247
2,2-Dichloropropane	mg/l	0.0235	0.0229	94.0	63-130	2.72	20	WG650247
2-Butanone (MEK)	mg/l	0.113	0.107	90.0	58-144	5.89	20	WG650247
2-Chloroethyl vinyl ether	mg/l	0.127	0.120	102.	26-172	5.44	22	WG650247
2-Chlorotoluene	mg/l	0.0251	0.0244	100.	78-123	2.55	20	WG650247
4-Chlorotoluene	mg/l	0.0253	0.0245	101.	78-122	3.32	20	WG650247
4-Methyl-2-pentanone (MIBK)	mg/l	0.123	0.115	98.0	58-147	6.66	20	WG650247
Acetone	mg/l	0.0987	0.0937	79.0	49-153	5.15	21	WG650247

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Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Acrolein	mg/l	0.111	0.105	89.0	10-181	5.47	30	WG650247
Acrylonitrile	mg/l	0.113	0.106	90.0	53-153	6.62	20	WG650247
Benzene	mg/l	0.0237	0.0234	95.0	72-119	1.34	20	WG650247
Bromobenzene	mg/l	0.0245	0.0237	98.0	76-121	3.23	20	WG650247
Bromodichloromethane	mg/l	0.0254	0.0247	101.	75-127	2.56	20	WG650247
Bromoform	mg/l	0.0254	0.0249	102.	61-136	1.80	20	WG650247
Bromomethane	mg/l	0.0231	0.0230	92.0	42-172	0.380	20	WG650247
Carbon tetrachloride	mg/l	0.0219	0.0221	88.0	63-129	0.850	20	WG650247
Chlorobenzene	mg/l	0.0253	0.0250	101.	78-123	1.37	20	WG650247
Chlorodibromomethane	mg/l	0.0254	0.0246	102.	73-128	3.22	20	WG650247
Chloroethane	mg/l	0.0225	0.0227	90.0	52-164	0.750	20	WG650247
Chloroform	mg/l	0.0234	0.0233	94.0	76-122	0.400	20	WG650247
Chloromethane	mg/l	0.0228	0.0224	91.0	50-141	1.79	20	WG650247
cis-1,2-Dichloroethene	mg/l	0.0234	0.0233	94.0	75-121	0.600	20	WG650247
cis-1,3-Dichloropropene	mg/l	0.0258	0.0250	103.	74-124	3.35	20	WG650247
Di-isopropyl ether	mg/l	0.0238	0.0236	95.0	66-129	0.740	20	WG650247
Dibromomethane	mg/l	0.0244	0.0240	98.0	77-124	1.70	20	WG650247
Dichlorodifluoromethane	mg/l	0.0227	0.0222	91.0	33-173	1.97	20	WG650247
Ethylbenzene	mg/l	0.0258	0.0255	103.	77-124	1.10	20	WG650247
Hexachloro-1,3-butadiene	mg/l	0.0243	0.0204	97.0	71-134	17.3	20	WG650247
Isopropylbenzene	mg/l	0.0257	0.0251	103.	74-126	2.23	20	WG650247
Methyl tert-butyl ether	mg/l	0.0221	0.0221	88.0	67-127	0.300	20	WG650247
Methylene Chloride	mg/l	0.0228	0.0225	91.0	67-122	1.22	20	WG650247
n-Butylbenzene	mg/l	0.0249	0.0233	100.	74-130	6.43	20	WG650247
n-Propylbenzene	mg/l	0.0254	0.0247	101.	77-125	2.67	20	WG650247
Naphthalene	mg/l	0.0248	0.0195	99.0	70-134	24.2*	20	WG650247
p-Isopropyltoluene	mg/l	0.0260	0.0245	104.	77-132	5.67	20	WG650247
sec-Butylbenzene	mg/l	0.0260	0.0246	104.	77-130	5.21	20	WG650247
Styrene	mg/l	0.0260	0.0254	104.	69-145	2.17	20	WG650247
tert-Butylbenzene	mg/l	0.0256	0.0247	102.	76-131	3.84	20	WG650247
Tetrachloroethene	mg/l	0.0253	0.0253	101.	69-131	0.280	20	WG650247
Toluene	mg/l	0.0254	0.0251	101.	75-114	1.22	20	WG650247
trans-1,2-Dichloroethene	mg/l	0.0230	0.0230	92.0	63-127	0.310	20	WG650247
trans-1,3-Dichloropropene	mg/l	0.0251	0.0242	100.	69-124	3.71	20	WG650247
Trichloroethene	mg/l	0.0256	0.0252	102.	69-131	1.44	20	WG650247
Trichlorofluoromethane	mg/l	0.0230	0.0231	92.0	53-161	0.400	20	WG650247
Vinyl chloride	mg/l	0.0233	0.0229	93.0	55-142	1.93	20	WG650247
Xylenes, Total	mg/l	0.0767	0.0762	102.	77-123	0.730	20	WG650247
4-Bromofluorobenzene				104.1	82-120			WG650247
Dibromofluoromethane				92.62	82-126			WG650247
Toluene-d8				103.0	92-112			WG650247

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0247	0	.025	99.0	71-130	L624169-02	WG650247
1,1,1-Trichloroethane	mg/l	0.0233	0	.025	93.4	58-137	L624169-02	WG650247
1,1,2,2-Tetrachloroethane	mg/l	0.0246	0	.025	98.3	64-149	L624169-02	WG650247
1,1,2-Trichloroethane	mg/l	0.0248	0	.025	99.0	73-128	L624169-02	WG650247
1,1,2-Trichlorotrifluoroethane	mg/l	0.0234	0	.025	93.8	36-159	L624169-02	WG650247
1,1-Dichloroethane	mg/l	0.0232	0	.025	92.6	58-133	L624169-02	WG650247
1,1-Dichloroethene	mg/l	0.0230	0	.025	91.9	32-152	L624169-02	WG650247
1,1-Dichloropropene	mg/l	0.0229	0	.025	91.5	50-140	L624169-02	WG650247
1,2,3-Trichlorobenzene	mg/l	0.0211	0	.025	84.3	68-135	L624169-02	WG650247
1,2,3-Trichloropropane	mg/l	0.0249	0	.025	99.6	74-137	L624169-02	WG650247
1,2,3-Trimethylbenzene	mg/l	0.0232	0	.025	92.8	67-133	L624169-02	WG650247
1,2,4-Trichlorobenzene	mg/l	0.0218	0	.025	87.1	67-133	L624169-02	WG650247
1,2,4-Trimethylbenzene	mg/l	0.0247	0	.025	98.8	62-141	L624169-02	WG650247
1,2-Dibromo-3-Chloropropane	mg/l	0.0231	0	.025	92.6	55-148	L624169-02	WG650247

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Quality Assurance Report
Level II

L624169

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,2-Dibromoethane	mg/l	0.0241	0	.025	96.4	71-129	L624169-02	WG650247
1,2-Dichlorobenzene	mg/l	0.0231	0	.025	92.3	75-125	L624169-02	WG650247
1,2-Dichloroethane	mg/l	0.0226	0	.025	90.5	59-135	L624169-02	WG650247
1,2-Dichloropropane	mg/l	0.0248	0	.025	99.0	68-126	L624169-02	WG650247
1,3,5-Trimethylbenzene	mg/l	0.0250	0	.025	99.9	67-136	L624169-02	WG650247
1,3-Dichlorobenzene	mg/l	0.0242	0	.025	96.9	69-131	L624169-02	WG650247
1,3-Dichloropropane	mg/l	0.0237	0	.025	94.8	70-122	L624169-02	WG650247
1,4-Dichlorobenzene	mg/l	0.0233	0	.025	93.2	70-123	L624169-02	WG650247
2,2-Dichloropropane	mg/l	0.0229	0	.025	91.4	51-141	L624169-02	WG650247
2-Butanone (MEK)	mg/l	0.0868	0	.125	69.4	51-149	L624169-02	WG650247
2-Chloroethyl vinyl ether	mg/l	0.00225	0	.125	1.80*	10-161	L624169-02	WG650247
2-Chlorotoluene	mg/l	0.0246	0	.025	98.3	65-133	L624169-02	WG650247
4-Chlorotoluene	mg/l	0.0246	0	.025	98.5	67-129	L624169-02	WG650247
4-Methyl-2-pentanone (MIBK)	mg/l	0.124	0	.125	99.0	53-154	L624169-02	WG650247
Acetone	mg/l	0.0509	0.00101	.125	40.0	34-146	L624169-02	WG650247
Acrolein	mg/l	0.0972	0	.125	77.8	10-189	L624169-02	WG650247
Acrylonitrile	mg/l	0.114	0	.125	91.5	49-162	L624169-02	WG650247
Benzene	mg/l	0.0229	0	.025	91.6	51-134	L624169-02	WG650247
Bromobenzene	mg/l	0.0239	0	.025	95.7	64-130	L624169-02	WG650247
Bromodichloromethane	mg/l	0.0248	0	.025	99.3	67-132	L624169-02	WG650247
Bromoform	mg/l	0.0257	0	.025	103.	59-137	L624169-02	WG650247
Bromomethane	mg/l	0.0211	0	.025	84.5	23-177	L624169-02	WG650247
Carbon tetrachloride	mg/l	0.0220	0	.025	87.8	49-140	L624169-02	WG650247
Chlorobenzene	mg/l	0.0248	0	.025	99.3	69-126	L624169-02	WG650247
Chlorodibromomethane	mg/l	0.0247	0	.025	98.8	68-130	L624169-02	WG650247
Chloroethane	mg/l	0.0217	0	.025	86.8	32-177	L624169-02	WG650247
Chloroform	mg/l	0.0230	0	.025	92.2	64-130	L624169-02	WG650247
Chloromethane	mg/l	0.0210	0	.025	84.0	27-155	L624169-02	WG650247
cis-1,2-Dichloroethene	mg/l	0.0230	0	.025	91.9	54-137	L624169-02	WG650247
cis-1,3-Dichloropropene	mg/l	0.0246	0	.025	98.5	63-127	L624169-02	WG650247
Di-isopropyl ether	mg/l	0.0234	0	.025	93.4	58-133	L624169-02	WG650247
Dibromomethane	mg/l	0.0242	0	.025	96.8	68-131	L624169-02	WG650247
Dichlorodifluoromethane	mg/l	0.0218	0	.025	87.1	16-188	L624169-02	WG650247
Ethylbenzene	mg/l	0.0253	0	.025	101.	64-135	L624169-02	WG650247
Hexachloro-1,3-butadiene	mg/l	0.0223	0	.025	89.3	64-140	L624169-02	WG650247
Isopropylbenzene	mg/l	0.0252	0	.025	101.	62-134	L624169-02	WG650247
Methyl tert-butyl ether	mg/l	0.0221	0	.025	88.3	55-136	L624169-02	WG650247
Methylene Chloride	mg/l	0.0220	0	.025	88.2	52-130	L624169-02	WG650247
n-Butylbenzene	mg/l	0.0239	0	.025	95.4	62-142	L624169-02	WG650247
n-Propylbenzene	mg/l	0.0248	0	.025	99.4	62-137	L624169-02	WG650247
Naphthalene	mg/l	0.0222	0	.025	88.7	65-140	L624169-02	WG650247
p-Isopropyltoluene	mg/l	0.0251	0	.025	100.	64-142	L624169-02	WG650247
sec-Butylbenzene	mg/l	0.0252	0	.025	101.	67-139	L624169-02	WG650247
Styrene	mg/l	0.0250	0	.025	100.	58-152	L624169-02	WG650247
tert-Butylbenzene	mg/l	0.0252	0	.025	101.	66-139	L624169-02	WG650247
Tetrachloroethene	mg/l	0.0246	0	.025	98.5	56-139	L624169-02	WG650247
Toluene	mg/l	0.0247	0	.025	98.9	61-126	L624169-02	WG650247
trans-1,2-Dichloroethene	mg/l	0.0222	0	.025	88.8	45-137	L624169-02	WG650247
trans-1,3-Dichloropropene	mg/l	0.0244	0	.025	97.6	59-130	L624169-02	WG650247
Trichloroethene	mg/l	0.0250	0	.025	99.8	40-155	L624169-02	WG650247
Trichlorofluoromethane	mg/l	0.0223	0	.025	89.1	35-177	L624169-02	WG650247
Vinyl chloride	mg/l	0.0217	0	.025	86.9	32-159	L624169-02	WG650247
Xylenes, Total	mg/l	0.0754	0	.075	100.	64-133	L624169-02	WG650247
4-Bromofluorobenzene					104.9	82-120		WG650247
Dibromofluoromethane					92.72	82-126		WG650247
Toluene-d8					103.2	92-112		WG650247

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Quality Assurance Report
Level II

L624169

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0257	0.0247	103.	71-130	3.90	20	L624169-02	WG650247
1,1,1-Trichloroethane	mg/l	0.0244	0.0233	97.5	58-137	4.30	20	L624169-02	WG650247
1,1,2,2-Tetrachloroethane	mg/l	0.0255	0.0246	102.	64-149	3.83	20	L624169-02	WG650247
1,1,2-Trichloroethane	mg/l	0.0251	0.0248	100.	73-128	1.58	20	L624169-02	WG650247
1,1,2-Trichlorotrifluoroethane	mg/l	0.0241	0.0234	96.6	36-159	2.93	21	L624169-02	WG650247
1,1-Dichloroethane	mg/l	0.0236	0.0232	94.3	58-133	1.81	20	L624169-02	WG650247
1,1-Dichloroethene	mg/l	0.0235	0.0230	94.0	32-152	2.25	20	L624169-02	WG650247
1,1-Dichloropropene	mg/l	0.0236	0.0229	94.6	50-140	3.34	20	L624169-02	WG650247
1,2,3-Trichlorobenzene	mg/l	0.0240	0.0211	95.8	68-135	12.8	20	L624169-02	WG650247
1,2,3-Trichloropropane	mg/l	0.0260	0.0249	104.	74-137	4.17	20	L624169-02	WG650247
1,2,3-Trimethylbenzene	mg/l	0.0239	0.0232	95.5	67-133	2.87	20	L624169-02	WG650247
1,2,4-Trichlorobenzene	mg/l	0.0245	0.0218	97.9	67-133	11.6	20	L624169-02	WG650247
1,2,4-Trimethylbenzene	mg/l	0.0257	0.0247	103.	62-141	4.00	20	L624169-02	WG650247
1,2-Dibromo-3-Chloropropane	mg/l	0.0255	0.0231	102.	55-148	9.59	22	L624169-02	WG650247
1,2-Dibromoethane	mg/l	0.0248	0.0241	99.0	71-129	2.73	20	L624169-02	WG650247
1,2-Dichlorobenzene	mg/l	0.0239	0.0231	95.5	75-125	3.37	20	L624169-02	WG650247
1,2-Dichloroethane	mg/l	0.0232	0.0226	92.7	59-135	2.45	20	L624169-02	WG650247
1,2-Dichloropropane	mg/l	0.0255	0.0248	102.	68-126	2.92	20	L624169-02	WG650247
1,3,5-Trimethylbenzene	mg/l	0.0260	0.0250	104.	67-136	4.01	20	L624169-02	WG650247
1,3-Dichlorobenzene	mg/l	0.0251	0.0242	100.	69-131	3.51	20	L624169-02	WG650247
1,3-Dichloropropane	mg/l	0.0240	0.0237	95.9	70-122	1.10	20	L624169-02	WG650247
1,4-Dichlorobenzene	mg/l	0.0238	0.0233	95.4	70-123	2.30	20	L624169-02	WG650247
2,2-Dichloropropane	mg/l	0.0238	0.0229	95.0	51-141	3.90	20	L624169-02	WG650247
2-Butanone (MEK)	mg/l	0.0909	0.0868	72.7	51-149	4.62	22	L624169-02	WG650247
2-Chloroethyl vinyl ether	mg/l	0.000646	0.00225	0.516*	10-161	111.*	40	L624169-02	WG650247
2-Chlorotoluene	mg/l	0.0253	0.0246	101.	65-133	3.08	20	L624169-02	WG650247
4-Chlorotoluene	mg/l	0.0254	0.0246	102.	67-129	3.21	20	L624169-02	WG650247
4-Methyl-2-pentanone (MIBK)	mg/l	0.130	0.124	104.	53-154	5.17	21	L624169-02	WG650247
Acetone	mg/l	0.0548	0.0509	43.0	34-146	7.21	22	L624169-02	WG650247
Acrolein	mg/l	0.102	0.0972	81.4	10-189	4.50	30	L624169-02	WG650247
Acrylonitrile	mg/l	0.121	0.114	97.0	49-162	5.85	20	L624169-02	WG650247
Benzene	mg/l	0.0235	0.0229	93.9	51-134	2.47	20	L624169-02	WG650247
Bromobenzene	mg/l	0.0245	0.0239	97.9	64-130	2.23	20	L624169-02	WG650247
Bromodichloromethane	mg/l	0.0259	0.0248	103.	67-132	4.08	20	L624169-02	WG650247
Bromoform	mg/l	0.0263	0.0257	105.	59-137	2.06	20	L624169-02	WG650247
Bromomethane	mg/l	0.0218	0.0211	87.2	23-177	3.19	21	L624169-02	WG650247
Carbon tetrachloride	mg/l	0.0227	0.0220	90.8	49-140	3.36	20	L624169-02	WG650247
Chlorobenzene	mg/l	0.0253	0.0248	101.	69-126	1.76	20	L624169-02	WG650247
Chlorodibromomethane	mg/l	0.0254	0.0247	102.	68-130	2.78	20	L624169-02	WG650247
Chloroethane	mg/l	0.0226	0.0217	90.2	32-177	3.93	21	L624169-02	WG650247
Chloroform	mg/l	0.0239	0.0230	95.5	64-130	3.51	20	L624169-02	WG650247
Chloromethane	mg/l	0.0216	0.0210	86.5	27-155	2.86	20	L624169-02	WG650247
cis-1,2-Dichloroethene	mg/l	0.0234	0.0230	93.5	54-137	1.67	20	L624169-02	WG650247
cis-1,3-Dichloropropene	mg/l	0.0251	0.0246	100.	63-127	1.84	20	L624169-02	WG650247
Di-isopropyl ether	mg/l	0.0240	0.0234	95.9	58-133	2.64	20	L624169-02	WG650247
Dibromomethane	mg/l	0.0250	0.0242	100.	68-131	3.38	20	L624169-02	WG650247
Dichlorodifluoromethane	mg/l	0.0224	0.0218	89.8	16-188	3.04	22	L624169-02	WG650247
Ethylbenzene	mg/l	0.0255	0.0253	102.	64-135	0.910	20	L624169-02	WG650247
Hexachloro-1,3-butadiene	mg/l	0.0250	0.0223	100.	64-140	11.4	20	L624169-02	WG650247
Isopropylbenzene	mg/l	0.0260	0.0252	104.	62-134	3.17	20	L624169-02	WG650247
Methyl tert-butyl ether	mg/l	0.0228	0.0221	91.0	55-136	2.99	20	L624169-02	WG650247
Methylene Chloride	mg/l	0.0227	0.0220	90.6	52-130	2.78	20	L624169-02	WG650247
n-Butylbenzene	mg/l	0.0248	0.0239	99.4	62-142	4.04	20	L624169-02	WG650247
n-Propylbenzene	mg/l	0.0256	0.0248	102.	62-137	2.86	20	L624169-02	WG650247
Naphthalene	mg/l	0.0254	0.0222	102.	65-140	13.6	20	L624169-02	WG650247
p-Isopropyltoluene	mg/l	0.0261	0.0251	104.	64-142	3.68	20	L624169-02	WG650247
sec-Butylbenzene	mg/l	0.0263	0.0252	105.	67-139	4.18	20	L624169-02	WG650247
Styrene	mg/l	0.0257	0.0250	103.	58-152	2.89	20	L624169-02	WG650247
tert-Butylbenzene	mg/l	0.0260	0.0252	104.	66-139	3.17	20	L624169-02	WG650247
Tetrachloroethene	mg/l	0.0250	0.0246	100.	56-139	1.61	20	L624169-02	WG650247

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Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Toluene	mg/l	0.0254	0.0247	102.	61-126	2.60	20	L624169-02	WG650247
trans-1,2-Dichloroethene	mg/l	0.0229	0.0222	91.4	45-137	2.92	20	L624169-02	WG650247
trans-1,3-Dichloropropene	mg/l	0.0251	0.0244	100.	59-130	2.79	20	L624169-02	WG650247
Trichloroethene	mg/l	0.0255	0.0250	102.	40-155	1.96	20	L624169-02	WG650247
Trichlorofluoromethane	mg/l	0.0233	0.0223	93.3	35-177	4.59	23	L624169-02	WG650247
Vinyl chloride	mg/l	0.0225	0.0217	90.0	32-159	3.53	21	L624169-02	WG650247
Xylenes, Total	mg/l	0.0772	0.0754	103.	64-133	2.34	20	L624169-02	WG650247
4-Bromofluorobenzene				105.1	82-120				WG650247
Dibromofluoromethane				94.19	82-126				WG650247
Toluene-d8				103.7	92-112				WG650247

Batch number /Run number / Sample number cross reference

WG650247: R2578083: L624169-01 02 03 04 05 06 07 08 09

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L624169

April 10, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

A157

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma,WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma,WA 98402

Analysis/Container/Preservative

ain of Custody
Page 1 of 1

ESC
LAB SCIENCES
12065 Lebanon Road
Mt. Juliet, TN 37122

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Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: ~~Scott MacDonald~~ Nick Rohrbach

Email: nrohrbach@geoengineers.com ~~smacdonald@geoengineers.cc~~

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0180-121-08 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): L. Linde / J. Deeds

Site/Facility ID#: TUMWATER, WA

~~P.O.#~~ Std 10 day TAT

Collected by (signature): L. Linde

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T83764/ P419876
Cooler #:
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk						Remarks/Contaminant	Sample # (lab only)
TB-3 130307	Grab	GW				2 ~~3~~	X							L624169-01	
MW-96-15 130307		GW		3/7/13	1130	3	X							-02	
MW-ES-02 130307		GW			1405	3	X							-03	
TW-4 130307		GW			1505	3	X							-04	
TW-8 130307		GW			1510	3	X							-05	
ST-2 130307		GW			1515	3	X							-06	
TW-5 130307		GW			1530	3	X							-07	
RIN-1 130307		GW				3	X							-08	
PZ-728 130307		GW			1625	3	X							-09	

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

pH _____ Temp _____

Flow _____ Other _____

Quote # GEOENGTWA02183L

8023 7090

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)
L. Linde	3/8/13	1530			OK
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.7°C Bottles Received: 26 VP	COC Seal Intact: ___ Y ___ N ___ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/9/13 Time: 0930	pH Checked: NCF:

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L624938
Samples Received: 03/14/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-6 130311

Collected By : JD/H/M
Collection Date : 03/11/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-6 130311

Collected By : JD/H/M
Collection Date : 03/11/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.8	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	101.			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	99.3			% Rec.		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-104B 130311

Collected By : JD/H/M
Collection Date : 03/11/13 11:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-104B 130311

Collected By : JD/H/M
Collection Date : 03/11/13 11:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.7	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	1.4	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	100.			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	99.8			% Rec.		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-10 130311

Collected By : JD/H/M
Collection Date : 03/11/13 13:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-10 130311

Collected By : JD/H/M
Collection Date : 03/11/13 13:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.7	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	37.	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	99.6			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	98.0			% Rec.		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-09 130311

Collected By : JD/H/M
Collection Date : 03/11/13 15:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-ES-09 130311

Collected By : JD/H/M
Collection Date : 03/11/13 15:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.7	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	120	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	101.			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	98.0			% Rec.		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-4B 130312

Collected By : JD/H/M
Collection Date : 03/12/13 10:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-4B 130312

Collected By : JD/H/M
Collection Date : 03/12/13 10:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.6	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	100.			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	99.1			% Rec.		8260B	03/15/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-4A 130312

Collected By : JD/H/M
Collection Date : 03/12/13 11:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-4A 130312

Collected By : JD/H/M
Collection Date : 03/12/13 11:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.7	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	101.			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	97.9			% Rec.		8260B	03/15/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-93-02 130312

Collected By : JD/H/M
Collection Date : 03/12/13 14:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : MW-93-02 130312

Collected By : JD/H/M
Collection Date : 03/12/13 14:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.6	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	102.			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	95.5			% Rec.		8260B	03/15/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RPZ-732 130312

Collected By : JD/H/M
Collection Date : 03/12/13 15:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RPZ-732 130312

Collected By : JD/H/M
Collection Date : 03/12/13 15:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.7	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	99.3			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	96.9			% Rec.		8260B	03/15/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-726 130312

Collected By : JD/H/M
Collection Date : 03/12/13 16:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/15/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/15/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/15/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/15/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/15/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/15/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/15/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/15/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/15/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/15/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/15/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/15/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/15/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/15/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/15/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/15/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/15/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/15/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/15/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/15/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/15/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/15/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/15/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/15/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/15/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/15/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/15/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/15/13	1

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REPORT OF ANALYSIS

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GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L624938-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 14, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-726 130312

Collected By : JD/H/M
Collection Date : 03/12/13 16:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/15/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/15/13	1
Methylene Chloride	1.6	1.0	5.0	ug/l	J	8260B	03/15/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/15/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/15/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/15/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/15/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/15/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/15/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/15/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/15/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/15/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/15/13	1
Trichloroethene	2.7	0.40	1.0	ug/l		8260B	03/15/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/15/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/15/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/15/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/15/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/15/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/15/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/15/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/15/13	1
Dibromofluoromethane	101.			% Rec.		8260B	03/15/13	1
4-Bromofluorobenzene	99.3			% Rec.		8260B	03/15/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L624938-01	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-02	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-03	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-04	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-05	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-06	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-07	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-08	WG651042	SAMP	Methylene Chloride	R2582501	J
L624938-09	WG651042	SAMP	Methylene Chloride	R2582501	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 13:31:25

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW Metals by 6020.

Sample: L624938-01 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs. uni 691540 dor 4/4/13.
Sample: L624938-02 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs
Sample: L624938-03 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs
Sample: L624938-04 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs
Sample: L624938-05 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs
Sample: L624938-06 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs
Sample: L624938-07 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs
Sample: L624938-08 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs
Sample: L624938-09 Account: GEOENGTWA Received: 03/14/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:30
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. Added QC3 and removed
QC2MODCN per SR2868 3/20/2013 gs

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Quality Assurance Report
Level II

L624938

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG651042	03/15/13 01:06
1,1,1-Trichloroethane	< .001	mg/l			WG651042	03/15/13 01:06
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG651042	03/15/13 01:06
1,1,2-Trichloroethane	< .001	mg/l			WG651042	03/15/13 01:06
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG651042	03/15/13 01:06
1,1-Dichloroethane	< .001	mg/l			WG651042	03/15/13 01:06
1,1-Dichloroethene	< .001	mg/l			WG651042	03/15/13 01:06
1,1-Dichloropropene	< .001	mg/l			WG651042	03/15/13 01:06
1,2,3-Trichlorobenzene	< .001	mg/l			WG651042	03/15/13 01:06
1,2,3-Trichloropropane	< .001	mg/l			WG651042	03/15/13 01:06
1,2,3-Trimethylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
1,2,4-Trichlorobenzene	< .001	mg/l			WG651042	03/15/13 01:06
1,2,4-Trimethylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG651042	03/15/13 01:06
1,2-Dibromoethane	< .001	mg/l			WG651042	03/15/13 01:06
1,2-Dichlorobenzene	< .001	mg/l			WG651042	03/15/13 01:06
1,2-Dichloroethane	< .001	mg/l			WG651042	03/15/13 01:06
1,2-Dichloropropane	< .001	mg/l			WG651042	03/15/13 01:06
1,3,5-Trimethylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
1,3-Dichlorobenzene	< .001	mg/l			WG651042	03/15/13 01:06
1,3-Dichloropropane	< .001	mg/l			WG651042	03/15/13 01:06
1,4-Dichlorobenzene	< .001	mg/l			WG651042	03/15/13 01:06
2,2-Dichloropropane	< .001	mg/l			WG651042	03/15/13 01:06
2-Butanone (MEK)	< .01	mg/l			WG651042	03/15/13 01:06
2-Chloroethyl vinyl ether	< .05	mg/l			WG651042	03/15/13 01:06
2-Chlorotoluene	< .001	mg/l			WG651042	03/15/13 01:06
4-Chlorotoluene	< .001	mg/l			WG651042	03/15/13 01:06
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG651042	03/15/13 01:06
Acetone	< .05	mg/l			WG651042	03/15/13 01:06
Acrolein	< .025	mg/l			WG651042	03/15/13 01:06
Acrylonitrile	< .01	mg/l			WG651042	03/15/13 01:06
Benzene	< .001	mg/l			WG651042	03/15/13 01:06
Bromobenzene	< .001	mg/l			WG651042	03/15/13 01:06
Bromodichloromethane	< .001	mg/l			WG651042	03/15/13 01:06
Bromoform	< .001	mg/l			WG651042	03/15/13 01:06
Bromomethane	< .005	mg/l			WG651042	03/15/13 01:06
Carbon tetrachloride	< .001	mg/l			WG651042	03/15/13 01:06
Chlorobenzene	< .001	mg/l			WG651042	03/15/13 01:06
Chlorodibromomethane	< .001	mg/l			WG651042	03/15/13 01:06
Chloroethane	< .005	mg/l			WG651042	03/15/13 01:06
Chloroform	< .005	mg/l			WG651042	03/15/13 01:06
Chloromethane	< .0025	mg/l			WG651042	03/15/13 01:06
cis-1,2-Dichloroethene	< .001	mg/l			WG651042	03/15/13 01:06
cis-1,3-Dichloropropene	< .001	mg/l			WG651042	03/15/13 01:06
Di-isopropyl ether	< .001	mg/l			WG651042	03/15/13 01:06
Dibromomethane	< .001	mg/l			WG651042	03/15/13 01:06
Dichlorodifluoromethane	< .005	mg/l			WG651042	03/15/13 01:06
Ethylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
Hexachloro-1,3-butadiene	< .001	mg/l			WG651042	03/15/13 01:06
Isopropylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
Methyl tert-butyl ether	< .001	mg/l			WG651042	03/15/13 01:06
Methylene Chloride	< .005	mg/l			WG651042	03/15/13 01:06
n-Butylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
n-Propylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
Naphthalene	< .005	mg/l			WG651042	03/15/13 01:06
p-Isopropyltoluene	< .001	mg/l			WG651042	03/15/13 01:06
sec-Butylbenzene	< .001	mg/l			WG651042	03/15/13 01:06
Styrene	< .001	mg/l			WG651042	03/15/13 01:06
tert-Butylbenzene	< .001	mg/l			WG651042	03/15/13 01:06

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April 10, 2013

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG651042	03/15/13 01:06
Toluene	< .005	mg/l			WG651042	03/15/13 01:06
trans-1,2-Dichloroethene	< .001	mg/l			WG651042	03/15/13 01:06
trans-1,3-Dichloropropene	< .001	mg/l			WG651042	03/15/13 01:06
Trichloroethene	< .001	mg/l			WG651042	03/15/13 01:06
Trichlorofluoromethane	< .005	mg/l			WG651042	03/15/13 01:06
Vinyl chloride	< .001	mg/l			WG651042	03/15/13 01:06
Xylenes, Total	< .003	mg/l			WG651042	03/15/13 01:06
4-Bromofluorobenzene		% Rec.	99.51	82-120	WG651042	03/15/13 01:06
Dibromofluoromethane		% Rec.	99.68	82-126	WG651042	03/15/13 01:06
Toluene-d8		% Rec.	101.9	92-112	WG651042	03/15/13 01:06

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0263	105.	77-128	WG651042
1,1,1-Trichloroethane	mg/l	.025	0.0275	110.	71-126	WG651042
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0249	99.5	78-130	WG651042
1,1,2-Trichloroethane	mg/l	.025	0.0261	104.	81-121	WG651042
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0271	108.	53-143	WG651042
1,1-Dichloroethane	mg/l	.025	0.0274	110.	73-123	WG651042
1,1-Dichloroethene	mg/l	.025	0.0269	108.	54-134	WG651042
1,1-Dichloropropene	mg/l	.025	0.0275	110.	67-127	WG651042
1,2,3-Trichlorobenzene	mg/l	.025	0.0275	110.	77-130	WG651042
1,2,3-Trichloropropane	mg/l	.025	0.0254	102.	68-130	WG651042
1,2,3-Trimethylbenzene	mg/l	.025	0.0264	106.	77-126	WG651042
1,2,4-Trichlorobenzene	mg/l	.025	0.0271	108.	76-127	WG651042
1,2,4-Trimethylbenzene	mg/l	.025	0.0263	105.	77-129	WG651042
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0230	92.1	55-142	WG651042
1,2-Dibromoethane	mg/l	.025	0.0257	103.	78-124	WG651042
1,2-Dichlorobenzene	mg/l	.025	0.0267	107.	82-121	WG651042
1,2-Dichloroethane	mg/l	.025	0.0268	107.	69-128	WG651042
1,2-Dichloropropane	mg/l	.025	0.0265	106.	77-121	WG651042
1,3,5-Trimethylbenzene	mg/l	.025	0.0259	104.	78-127	WG651042
1,3-Dichlorobenzene	mg/l	.025	0.0259	104.	77-127	WG651042
1,3-Dichloropropane	mg/l	.025	0.0259	104.	78-117	WG651042
1,4-Dichlorobenzene	mg/l	.025	0.0253	101.	79-117	WG651042
2,2-Dichloropropane	mg/l	.025	0.0269	108.	63-130	WG651042
2-Butanone (MEK)	mg/l	.125	0.135	108.	58-144	WG651042
2-Chloroethyl vinyl ether	mg/l	.125	0.128	103.	26-172	WG651042
2-Chlorotoluene	mg/l	.025	0.0253	101.	78-123	WG651042
4-Chlorotoluene	mg/l	.025	0.0262	105.	78-122	WG651042
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.131	105.	58-147	WG651042
Acetone	mg/l	.125	0.142	114.	49-153	WG651042
Acrolein	mg/l	.125	0.170	136.	10-181	WG651042
Acrylonitrile	mg/l	.125	0.131	105.	53-153	WG651042
Benzene	mg/l	.025	0.0268	107.	72-119	WG651042
Bromobenzene	mg/l	.025	0.0262	105.	76-121	WG651042
Bromodichloromethane	mg/l	.025	0.0264	106.	75-127	WG651042
Bromoform	mg/l	.025	0.0252	101.	61-136	WG651042
Bromomethane	mg/l	.025	0.0355	142.	42-172	WG651042
Carbon tetrachloride	mg/l	.025	0.0268	107.	63-129	WG651042
Chlorobenzene	mg/l	.025	0.0263	105.	78-123	WG651042
Chlorodibromomethane	mg/l	.025	0.0259	104.	73-128	WG651042
Chloroethane	mg/l	.025	0.0269	108.	52-164	WG651042
Chloroform	mg/l	.025	0.0268	107.	76-122	WG651042
Chloromethane	mg/l	.025	0.0235	94.0	50-141	WG651042
cis-1,2-Dichloroethene	mg/l	.025	0.0264	106.	75-121	WG651042
cis-1,3-Dichloropropene	mg/l	.025	0.0265	106.	74-124	WG651042

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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Di-isopropyl ether	mg/l	.025	0.0277	111.	66-129	WG651042
Dibromomethane	mg/l	.025	0.0259	103.	77-124	WG651042
Dichlorodifluoromethane	mg/l	.025	0.0250	99.9	33-173	WG651042
Ethylbenzene	mg/l	.025	0.0260	104.	77-124	WG651042
Hexachloro-1,3-butadiene	mg/l	.025	0.0269	108.	71-134	WG651042
Isopropylbenzene	mg/l	.025	0.0262	105.	74-126	WG651042
Methyl tert-butyl ether	mg/l	.025	0.0262	105.	67-127	WG651042
Methylene Chloride	mg/l	.025	0.0256	103.	67-122	WG651042
n-Butylbenzene	mg/l	.025	0.0274	110.	74-130	WG651042
n-Propylbenzene	mg/l	.025	0.0263	105.	77-125	WG651042
Naphthalene	mg/l	.025	0.0256	102.	70-134	WG651042
p-Isopropyltoluene	mg/l	.025	0.0265	106.	77-132	WG651042
sec-Butylbenzene	mg/l	.025	0.0265	106.	77-130	WG651042
Styrene	mg/l	.025	0.0269	107.	69-145	WG651042
tert-Butylbenzene	mg/l	.025	0.0260	104.	76-131	WG651042
Tetrachloroethene	mg/l	.025	0.0258	103.	69-131	WG651042
Toluene	mg/l	.025	0.0254	101.	75-114	WG651042
trans-1,2-Dichloroethene	mg/l	.025	0.0269	107.	63-127	WG651042
trans-1,3-Dichloropropene	mg/l	.025	0.0259	104.	69-124	WG651042
Trichloroethene	mg/l	.025	0.0259	104.	69-131	WG651042
Trichlorofluoromethane	mg/l	.025	0.0281	112.	53-161	WG651042
Vinyl chloride	mg/l	.025	0.0269	108.	55-142	WG651042
Xylenes, Total	mg/l	.075	0.0778	104.	77-123	WG651042
4-Bromofluorobenzene				99.87	82-120	WG651042
Dibromofluoromethane				103.4	82-126	WG651042
Toluene-d8				102.7	92-112	WG651042

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0261	0.0263	104.	77-128	0.490	20	WG651042
1,1,1-Trichloroethane	mg/l	0.0272	0.0275	109.	71-126	1.06	20	WG651042
1,1,2,2-Tetrachloroethane	mg/l	0.0269	0.0249	108.	78-130	7.85	20	WG651042
1,1,2-Trichloroethane	mg/l	0.0263	0.0261	105.	81-121	0.850	20	WG651042
1,1,2-Trichlorotrifluoroethane	mg/l	0.0267	0.0271	107.	53-143	1.44	20	WG651042
1,1-Dichloroethane	mg/l	0.0272	0.0274	109.	73-123	0.880	20	WG651042
1,1-Dichloroethene	mg/l	0.0264	0.0269	106.	54-134	1.87	20	WG651042
1,1-Dichloropropene	mg/l	0.0270	0.0275	108.	67-127	1.77	20	WG651042
1,2,3-Trichlorobenzene	mg/l	0.0289	0.0275	116.	77-130	5.03	20	WG651042
1,2,3-Trichloropropane	mg/l	0.0270	0.0254	108.	68-130	5.84	20	WG651042
1,2,3-Trimethylbenzene	mg/l	0.0270	0.0264	108.	77-126	2.23	20	WG651042
1,2,4-Trichlorobenzene	mg/l	0.0278	0.0271	111.	76-127	2.81	20	WG651042
1,2,4-Trimethylbenzene	mg/l	0.0262	0.0263	105.	77-129	0.280	20	WG651042
1,2-Dibromo-3-Chloropropane	mg/l	0.0271	0.0230	108.	55-142	16.1	20	WG651042
1,2-Dibromoethane	mg/l	0.0267	0.0257	107.	78-124	3.98	20	WG651042
1,2-Dichlorobenzene	mg/l	0.0273	0.0267	109.	82-121	2.28	20	WG651042
1,2-Dichloroethane	mg/l	0.0275	0.0268	110.	69-128	2.69	20	WG651042
1,2-Dichloropropane	mg/l	0.0275	0.0265	110.	77-121	3.67	20	WG651042
1,3,5-Trimethylbenzene	mg/l	0.0261	0.0259	104.	78-127	0.630	20	WG651042
1,3-Dichlorobenzene	mg/l	0.0255	0.0259	102.	77-127	1.50	20	WG651042
1,3-Dichloropropane	mg/l	0.0266	0.0259	106.	78-117	2.72	20	WG651042
1,4-Dichlorobenzene	mg/l	0.0259	0.0253	104.	79-117	2.15	20	WG651042
2,2-Dichloropropane	mg/l	0.0265	0.0269	106.	63-130	1.41	20	WG651042
2-Butanone (MEK)	mg/l	0.144	0.135	115.	58-144	6.31	20	WG651042
2-Chloroethyl vinyl ether	mg/l	0.139	0.128	111.	26-172	7.83	22	WG651042
2-Chlorotoluene	mg/l	0.0252	0.0253	101.	78-123	0.540	20	WG651042
4-Chlorotoluene	mg/l	0.0262	0.0262	105.	78-122	0.240	20	WG651042
4-Methyl-2-pentanone (MIBK)	mg/l	0.149	0.131	119.	58-147	12.4	20	WG651042
Acetone	mg/l	0.146	0.142	117.	49-153	2.95	21	WG651042

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Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Acrolein	mg/l	0.182	0.170	146.	10-181	6.78	30	WG651042
Acrylonitrile	mg/l	0.144	0.131	115.	53-153	9.54	20	WG651042
Benzene	mg/l	0.0266	0.0268	106.	72-119	0.840	20	WG651042
Bromobenzene	mg/l	0.0260	0.0262	104.	76-121	1.13	20	WG651042
Bromodichloromethane	mg/l	0.0268	0.0264	107.	75-127	1.51	20	WG651042
Bromoform	mg/l	0.0262	0.0252	105.	61-136	4.14	20	WG651042
Bromomethane	mg/l	0.0347	0.0355	139.	42-172	2.01	20	WG651042
Carbon tetrachloride	mg/l	0.0265	0.0268	106.	63-129	1.28	20	WG651042
Chlorobenzene	mg/l	0.0266	0.0263	106.	78-123	1.11	20	WG651042
Chlorodibromomethane	mg/l	0.0265	0.0259	106.	73-128	2.06	20	WG651042
Chloroethane	mg/l	0.0265	0.0269	106.	52-164	1.49	20	WG651042
Chloroform	mg/l	0.0266	0.0268	106.	76-122	0.820	20	WG651042
Chloromethane	mg/l	0.0230	0.0235	92.0	50-141	2.26	20	WG651042
cis-1,2-Dichloroethene	mg/l	0.0260	0.0264	104.	75-121	1.47	20	WG651042
cis-1,3-Dichloropropene	mg/l	0.0272	0.0265	109.	74-124	2.80	20	WG651042
Di-isopropyl ether	mg/l	0.0281	0.0277	112.	66-129	1.50	20	WG651042
Dibromomethane	mg/l	0.0264	0.0259	105.	77-124	1.88	20	WG651042
Dichlorodifluoromethane	mg/l	0.0245	0.0250	98.0	33-173	1.75	20	WG651042
Ethylbenzene	mg/l	0.0260	0.0260	104.	77-124	0.100	20	WG651042
Hexachloro-1,3-butadiene	mg/l	0.0268	0.0269	107.	71-134	0.180	20	WG651042
Isopropylbenzene	mg/l	0.0261	0.0262	104.	74-126	0.400	20	WG651042
Methyl tert-butyl ether	mg/l	0.0269	0.0262	108.	67-127	2.53	20	WG651042
Methylene Chloride	mg/l	0.0252	0.0256	101.	67-122	1.53	20	WG651042
n-Butylbenzene	mg/l	0.0277	0.0274	111.	74-130	1.30	20	WG651042
n-Propylbenzene	mg/l	0.0263	0.0263	105.	77-125	0.260	20	WG651042
Naphthalene	mg/l	0.0289	0.0256	116.	70-134	12.2	20	WG651042
p-Isopropyltoluene	mg/l	0.0265	0.0265	106.	77-132	0.250	20	WG651042
sec-Butylbenzene	mg/l	0.0263	0.0265	105.	77-130	0.580	20	WG651042
Styrene	mg/l	0.0271	0.0269	108.	69-145	0.900	20	WG651042
tert-Butylbenzene	mg/l	0.0259	0.0260	104.	76-131	0.450	20	WG651042
Tetrachloroethene	mg/l	0.0254	0.0258	102.	69-131	1.81	20	WG651042
Toluene	mg/l	0.0255	0.0254	102.	75-114	0.650	20	WG651042
trans-1,2-Dichloroethene	mg/l	0.0257	0.0269	103.	63-127	4.54	20	WG651042
trans-1,3-Dichloropropene	mg/l	0.0271	0.0259	108.	69-124	4.35	20	WG651042
Trichloroethene	mg/l	0.0265	0.0259	106.	69-131	2.27	20	WG651042
Trichlorofluoromethane	mg/l	0.0273	0.0281	109.	53-161	3.02	20	WG651042
Vinyl chloride	mg/l	0.0266	0.0269	106.	55-142	1.25	20	WG651042
Xylenes, Total	mg/l	0.0774	0.0778	103.	77-123	0.540	20	WG651042
4-Bromofluorobenzene				96.56	82-120			WG651042
Dibromofluoromethane				102.5	82-126			WG651042
Toluene-d8				103.2	92-112			WG651042

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0260	0	.025	104.	71-130	L624908-01	WG651042
1,1,1-Trichloroethane	mg/l	0.0248	0	.025	99.3	58-137	L624908-01	WG651042
1,1,2,2-Tetrachloroethane	mg/l	0.0285	0	.025	114.	64-149	L624908-01	WG651042
1,1,2-Trichloroethane	mg/l	0.0259	0	.025	104.	73-128	L624908-01	WG651042
1,1,2-Trichlorotrifluoroethane	mg/l	0.0239	0	.025	95.8	36-159	L624908-01	WG651042
1,1-Dichloroethane	mg/l	0.0247	0	.025	98.8	58-133	L624908-01	WG651042
1,1-Dichloroethene	mg/l	0.0221	0	.025	88.6	32-152	L624908-01	WG651042
1,1-Dichloropropene	mg/l	0.0236	0	.025	94.6	50-140	L624908-01	WG651042
1,2,3-Trichlorobenzene	mg/l	0.0267	0	.025	107.	68-135	L624908-01	WG651042
1,2,3-Trichloropropane	mg/l	0.0261	0	.025	104.	74-137	L624908-01	WG651042
1,2,3-Trimethylbenzene	mg/l	0.0253	0	.025	101.	67-133	L624908-01	WG651042
1,2,4-Trichlorobenzene	mg/l	0.0271	0	.025	108.	67-133	L624908-01	WG651042
1,2,4-Trimethylbenzene	mg/l	0.0259	0	.025	104.	62-141	L624908-01	WG651042
1,2-Dibromo-3-Chloropropane	mg/l	0.0247	0	.025	99.0	55-148	L624908-01	WG651042

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Quality Assurance Report
Level II

L624938

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,2-Dibromoethane	mg/l	0.0248	0	.025	99.1	71-129	L624908-01	WG651042
1,2-Dichlorobenzene	mg/l	0.0258	0	.025	103.	75-125	L624908-01	WG651042
1,2-Dichloroethane	mg/l	0.0253	0	.025	101.	59-135	L624908-01	WG651042
1,2-Dichloropropane	mg/l	0.0252	0	.025	101.	68-126	L624908-01	WG651042
1,3,5-Trimethylbenzene	mg/l	0.0255	0	.025	102.	67-136	L624908-01	WG651042
1,3-Dichlorobenzene	mg/l	0.0250	0	.025	99.9	69-131	L624908-01	WG651042
1,3-Dichloropropane	mg/l	0.0252	0	.025	101.	70-122	L624908-01	WG651042
1,4-Dichlorobenzene	mg/l	0.0247	0	.025	98.8	70-123	L624908-01	WG651042
2,2-Dichloropropane	mg/l	0.0252	0	.025	101.	51-141	L624908-01	WG651042
2-Butanone (MEK)	mg/l	0.0924	0	.125	74.0	51-149	L624908-01	WG651042
2-Chloroethyl vinyl ether	mg/l	0.0695	0	.125	55.6	10-161	L624908-01	WG651042
2-Chlorotoluene	mg/l	0.0251	0	.025	100.	65-133	L624908-01	WG651042
4-Chlorotoluene	mg/l	0.0255	0	.025	102.	67-129	L624908-01	WG651042
4-Methyl-2-pentanone (MIBK)	mg/l	0.135	0	.125	108.	53-154	L624908-01	WG651042
Acetone	mg/l	0.117	0.0465	.125	56.4	34-146	L624908-01	WG651042
Acrolein	mg/l	0.354	0	.125	283.*	10-189	L624908-01	WG651042
Acrylonitrile	mg/l	0.134	0	.125	107.	49-162	L624908-01	WG651042
Benzene	mg/l	0.0235	0	.025	94.1	51-134	L624908-01	WG651042
Bromobenzene	mg/l	0.0256	0	.025	102.	64-130	L624908-01	WG651042
Bromodichloromethane	mg/l	0.0255	0	.025	102.	67-132	L624908-01	WG651042
Bromoform	mg/l	0.0254	0	.025	102.	59-137	L624908-01	WG651042
Bromomethane	mg/l	0.0268	0	.025	107.	23-177	L624908-01	WG651042
Carbon tetrachloride	mg/l	0.0239	0	.025	95.6	49-140	L624908-01	WG651042
Chlorobenzene	mg/l	0.0252	0	.025	101.	69-126	L624908-01	WG651042
Chlorodibromomethane	mg/l	0.0258	0	.025	103.	68-130	L624908-01	WG651042
Chloroethane	mg/l	0.0211	0	.025	84.4	32-177	L624908-01	WG651042
Chloroform	mg/l	0.0252	0	.025	101.	64-130	L624908-01	WG651042
Chloromethane	mg/l	0.0171	0	.025	68.4	27-155	L624908-01	WG651042
cis-1,2-Dichloroethene	mg/l	0.0242	0	.025	97.0	54-137	L624908-01	WG651042
cis-1,3-Dichloropropene	mg/l	0.0256	0	.025	102.	63-127	L624908-01	WG651042
Di-isopropyl ether	mg/l	0.0258	0	.025	103.	58-133	L624908-01	WG651042
Dibromomethane	mg/l	0.0246	0	.025	98.5	68-131	L624908-01	WG651042
Dichlorodifluoromethane	mg/l	0.0207	0	.025	82.8	16-188	L624908-01	WG651042
Ethylbenzene	mg/l	0.0253	0	.025	101.	64-135	L624908-01	WG651042
Hexachloro-1,3-butadiene	mg/l	0.0264	0	.025	105.	64-140	L624908-01	WG651042
Isopropylbenzene	mg/l	0.0254	0	.025	102.	62-134	L624908-01	WG651042
Methyl tert-butyl ether	mg/l	0.0255	0	.025	102.	55-136	L624908-01	WG651042
Methylene Chloride	mg/l	0.0239	0.00157	.025	89.2	52-130	L624908-01	WG651042
n-Butylbenzene	mg/l	0.0268	0	.025	107.	62-142	L624908-01	WG651042
n-Propylbenzene	mg/l	0.0256	0	.025	102.	62-137	L624908-01	WG651042
Naphthalene	mg/l	0.0245	0	.025	98.0	65-140	L624908-01	WG651042
p-Isopropyltoluene	mg/l	0.0261	0	.025	104.	64-142	L624908-01	WG651042
sec-Butylbenzene	mg/l	0.0258	0	.025	103.	67-139	L624908-01	WG651042
Styrene	mg/l	0.0262	0	.025	105.	58-152	L624908-01	WG651042
tert-Butylbenzene	mg/l	0.0253	0	.025	101.	66-139	L624908-01	WG651042
Tetrachloroethene	mg/l	0.0234	0	.025	93.5	56-139	L624908-01	WG651042
Toluene	mg/l	0.0235	0	.025	93.8	61-126	L624908-01	WG651042
trans-1,2-Dichloroethene	mg/l	0.0215	0	.025	86.0	45-137	L624908-01	WG651042
trans-1,3-Dichloropropene	mg/l	0.0252	0	.025	101.	59-130	L624908-01	WG651042
Trichloroethene	mg/l	0.0223	0	.025	89.3	40-155	L624908-01	WG651042
Trichlorofluoromethane	mg/l	0.0246	0	.025	98.2	35-177	L624908-01	WG651042
Vinyl chloride	mg/l	0.0207	0	.025	82.9	32-159	L624908-01	WG651042
Xylenes, Total	mg/l	0.0746	0	.075	99.5	64-133	L624908-01	WG651042
4-Bromofluorobenzene					99.35	82-120		WG651042
Dibromofluoromethane					104.0	82-126		WG651042
Toluene-d8					103.0	92-112		WG651042

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April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0263	0.0260	105.	71-130	0.910	20	L624908-01	WG651042
1,1,1-Trichloroethane	mg/l	0.0251	0.0248	100.	58-137	1.14	20	L624908-01	WG651042
1,1,2,2-Tetrachloroethane	mg/l	0.0295	0.0285	118.	64-149	3.54	20	L624908-01	WG651042
1,1,2-Trichloroethane	mg/l	0.0264	0.0259	105.	73-128	1.79	20	L624908-01	WG651042
1,1,2-Trichlorotrifluoroethane	mg/l	0.0243	0.0239	97.0	36-159	1.34	21	L624908-01	WG651042
1,1-Dichloroethane	mg/l	0.0252	0.0247	101.	58-133	2.13	20	L624908-01	WG651042
1,1-Dichloroethene	mg/l	0.0224	0.0221	89.5	32-152	1.03	20	L624908-01	WG651042
1,1-Dichloropropene	mg/l	0.0242	0.0236	96.9	50-140	2.45	20	L624908-01	WG651042
1,2,3-Trichlorobenzene	mg/l	0.0292	0.0267	117.	68-135	8.86	20	L624908-01	WG651042
1,2,3-Trichloropropane	mg/l	0.0276	0.0261	110.	74-137	5.49	20	L624908-01	WG651042
1,2,3-Trimethylbenzene	mg/l	0.0263	0.0253	105.	67-133	4.13	20	L624908-01	WG651042
1,2,4-Trichlorobenzene	mg/l	0.0289	0.0271	116.	67-133	6.55	20	L624908-01	WG651042
1,2,4-Trimethylbenzene	mg/l	0.0260	0.0259	104.	62-141	0.210	20	L624908-01	WG651042
1,2-Dibromo-3-Chloropropane	mg/l	0.0268	0.0247	107.	55-148	7.99	22	L624908-01	WG651042
1,2-Dibromoethane	mg/l	0.0255	0.0248	102.	71-129	2.70	20	L624908-01	WG651042
1,2-Dichlorobenzene	mg/l	0.0267	0.0258	107.	75-125	3.36	20	L624908-01	WG651042
1,2-Dichloroethane	mg/l	0.0257	0.0253	103.	59-135	1.82	20	L624908-01	WG651042
1,2-Dichloropropane	mg/l	0.0255	0.0252	102.	68-126	1.33	20	L624908-01	WG651042
1,3,5-Trimethylbenzene	mg/l	0.0258	0.0255	103.	67-136	1.15	20	L624908-01	WG651042
1,3-Dichlorobenzene	mg/l	0.0256	0.0250	102.	69-131	2.35	20	L624908-01	WG651042
1,3-Dichloropropane	mg/l	0.0255	0.0252	102.	70-122	1.26	20	L624908-01	WG651042
1,4-Dichlorobenzene	mg/l	0.0258	0.0247	103.	70-123	4.22	20	L624908-01	WG651042
2,2-Dichloropropane	mg/l	0.0258	0.0252	103.	51-141	2.71	20	L624908-01	WG651042
2-Butanone (MEK)	mg/l	0.101	0.0924	81.1	51-149	9.20	22	L624908-01	WG651042
2-Chloroethyl vinyl ether	mg/l	0.0212	0.0695	17.0	10-161	107.*	40	L624908-01	WG651042
2-Chlorotoluene	mg/l	0.0249	0.0251	99.7	65-133	0.730	20	L624908-01	WG651042
4-Chlorotoluene	mg/l	0.0257	0.0255	103.	67-129	0.670	20	L624908-01	WG651042
4-Methyl-2-pentanone (MIBK)	mg/l	0.143	0.135	114.	53-154	5.67	21	L624908-01	WG651042
Acetone	mg/l	0.120	0.117	59.2	34-146	2.93	22	L624908-01	WG651042
Acrolein	mg/l	0.364	0.354	291.*	10-189	2.80	30	L624908-01	WG651042
Acrylonitrile	mg/l	0.140	0.134	112.	49-162	4.69	20	L624908-01	WG651042
Benzene	mg/l	0.0238	0.0235	95.3	51-134	1.25	20	L624908-01	WG651042
Bromobenzene	mg/l	0.0256	0.0256	102.	64-130	0.0600	20	L624908-01	WG651042
Bromodichloromethane	mg/l	0.0258	0.0255	103.	67-132	1.32	20	L624908-01	WG651042
Bromoform	mg/l	0.0265	0.0254	106.	59-137	4.15	20	L624908-01	WG651042
Bromomethane	mg/l	0.0273	0.0268	109.	23-177	1.87	21	L624908-01	WG651042
Carbon tetrachloride	mg/l	0.0241	0.0239	96.6	49-140	1.03	20	L624908-01	WG651042
Chlorobenzene	mg/l	0.0255	0.0252	102.	69-126	0.820	20	L624908-01	WG651042
Chlorodibromomethane	mg/l	0.0262	0.0258	105.	68-130	1.70	20	L624908-01	WG651042
Chloroethane	mg/l	0.0221	0.0211	88.2	32-177	4.49	21	L624908-01	WG651042
Chloroform	mg/l	0.0254	0.0252	101.	64-130	0.730	20	L624908-01	WG651042
Chloromethane	mg/l	0.0170	0.0171	67.8	27-155	0.810	20	L624908-01	WG651042
cis-1,2-Dichloroethene	mg/l	0.0241	0.0242	96.6	54-137	0.360	20	L624908-01	WG651042
cis-1,3-Dichloropropene	mg/l	0.0259	0.0256	104.	63-127	1.17	20	L624908-01	WG651042
Di-isopropyl ether	mg/l	0.0264	0.0258	106.	58-133	2.41	20	L624908-01	WG651042
Dibromomethane	mg/l	0.0254	0.0246	102.	68-131	3.07	20	L624908-01	WG651042
Dichlorodifluoromethane	mg/l	0.0202	0.0207	80.9	16-188	2.23	22	L624908-01	WG651042
Ethylbenzene	mg/l	0.0250	0.0253	100.	64-135	1.12	20	L624908-01	WG651042
Hexachloro-1,3-butadiene	mg/l	0.0269	0.0264	108.	64-140	1.99	20	L624908-01	WG651042
Isopropylbenzene	mg/l	0.0257	0.0254	103.	62-134	1.10	20	L624908-01	WG651042
Methyl tert-butyl ether	mg/l	0.0263	0.0255	105.	55-136	3.02	20	L624908-01	WG651042
Methylene Chloride	mg/l	0.0241	0.0239	90.0	52-130	0.840	20	L624908-01	WG651042
n-Butylbenzene	mg/l	0.0276	0.0268	110.	62-142	2.78	20	L624908-01	WG651042
n-Propylbenzene	mg/l	0.0257	0.0256	103.	62-137	0.340	20	L624908-01	WG651042
Naphthalene	mg/l	0.0288	0.0245	115.	65-140	16.0	20	L624908-01	WG651042
p-Isopropyltoluene	mg/l	0.0264	0.0261	106.	64-142	1.14	20	L624908-01	WG651042
sec-Butylbenzene	mg/l	0.0260	0.0258	104.	67-139	0.970	20	L624908-01	WG651042
Styrene	mg/l	0.0260	0.0262	104.	58-152	0.500	20	L624908-01	WG651042
tert-Butylbenzene	mg/l	0.0255	0.0253	102.	66-139	0.810	20	L624908-01	WG651042
Tetrachloroethene	mg/l	0.0230	0.0234	92.0	56-139	1.59	20	L624908-01	WG651042

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Quality Assurance Report
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April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Toluene	mg/l	0.0236	0.0235	94.3	61-126	0.480	20	L624908-01	WG651042
trans-1,2-Dichloroethene	mg/l	0.0222	0.0215	88.9	45-137	3.34	20	L624908-01	WG651042
trans-1,3-Dichloropropene	mg/l	0.0256	0.0252	102.	59-130	1.60	20	L624908-01	WG651042
Trichloroethene	mg/l	0.0226	0.0223	90.5	40-155	1.30	20	L624908-01	WG651042
Trichlorofluoromethane	mg/l	0.0244	0.0246	97.5	35-177	0.750	23	L624908-01	WG651042
Vinyl chloride	mg/l	0.0208	0.0207	83.4	32-159	0.520	21	L624908-01	WG651042
Xylenes, Total	mg/l	0.0746	0.0746	99.5	64-133	0.0200	20	L624908-01	WG651042
4-Bromofluorobenzene				98.69	82-120				WG651042
Dibromofluoromethane				104.6	82-126				WG651042
Toluene-d8				103.2	92-112				WG651042

Batch number /Run number / Sample number cross reference

WG651042: R2582501: L624938-01 02 03 04 05 06 07 08 09

* * Calculations are performed prior to rounding of reported values.
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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L624938

April 10, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Analysis/Container/Preservative

Chain of Custody
Page 1 of 1

B183

ESC LAB SCIENCES
12065 Lebanon Road
Mt. Juliet, TN 37122

Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: Nick Rohrback

Email: nrohrbach@geoengineers.com

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0180-306-00 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): John Dewey / Tanner McDonald

Site/Facility ID#: TUMWATER, WA

P.O.#:

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T84796/ P420852
Cooler #: 2/18 [initials]
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk							Remarks/Contaminant	Sample # (lab only)
TB-6 130311		GW	—	3/11/13	—	3	X	X							L624938-01	
MW-104B 130311		GW			1130	3	X								L624938-02	
MW-ES-10 130311		GW			1355	3	X									03
MW-ES-09 130311		GW			1530	3	X									04
MW-4B 130312		GW		3/12/13	1005	3	X									05
MW-4A 130312		GW			1130	3	X									06
MW-93-02 130312		GW			1410	3	X									07
RPZ-732 130312		GW			1545	3	X									08
PZ-726 130312		GW			1645	3	X									09

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Flow _____ Other _____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

Quote # GEOENGTWA021813L Standard Turnaround

5527023.1754

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐	Condition: (lab use only)
[signature]	3/12/13	1715			TD
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1°C Bottles Received: 26	COC Seal Intact: ✓ Y ___ N ___ NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 3-14-13 Time: 0900	pH Checked: NCF:

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L625509
Samples Received: 03/16/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-01

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Site ID : TUMWATER, WA

Sample ID : TB-7 0130313

Project # : 0180-121-08

Collected By : JD/H/M
Collection Date : 03/13/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	29.	10.	50.	ug/l	J	8260B	03/18/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/18/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/18/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/18/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/18/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/18/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/18/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/18/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/18/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/18/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/18/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/18/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/18/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/18/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/18/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/18/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/18/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l	J4	8260B	03/18/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/18/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/18/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/18/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/18/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
The reported analytical results relate only to the sample submitted.
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-01

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Site ID : TUMWATER, WA

Sample ID : TB-7 0130313

Project # : 0180-121-08

Collected By : JD/H/M
Collection Date : 03/13/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/18/13	1
Methylene Chloride	3.0	1.0	5.0	ug/l	J	8260B	03/18/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/18/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/18/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/18/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/18/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/18/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/18/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/18/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/18/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/18/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/18/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/18/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/18/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/18/13	1
Dibromofluoromethane	102.			% Rec.		8260B	03/18/13	1
4-Bromofluorobenzene	116.			% Rec.		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-704 130313

Collected By : JD/H/M
Collection Date : 03/13/13 12:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/18/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/18/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/18/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/18/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/18/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/18/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/18/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/18/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/18/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/18/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/18/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/18/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/18/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/18/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/18/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/18/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/18/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l	J4	8260B	03/18/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/18/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/18/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/18/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/18/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/18/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-704 130313

Collected By : JD/H/M
Collection Date : 03/13/13 12:15

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/18/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/18/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/18/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/18/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/18/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/18/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/18/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/18/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/18/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/18/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/18/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/18/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/18/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/18/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/18/13	1
Dibromofluoromethane	109.			% Rec.		8260B	03/18/13	1
4-Bromofluorobenzene	110.			% Rec.		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-709 130313

Collected By : JD/H/M
Collection Date : 03/13/13 12:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	11.	10.	50.	ug/l	J	8260B	03/18/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/18/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/18/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/18/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/18/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/18/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/18/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/18/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/18/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/18/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/18/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/18/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/18/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/18/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichlorobenzene	0.38	0.22	1.0	ug/l	J	8260B	03/18/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/18/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/18/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l	J4	8260B	03/18/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/18/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/18/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/18/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/18/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-709 130313

Collected By : JD/H/M
Collection Date : 03/13/13 12:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/18/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/18/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/18/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/18/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/18/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/18/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/18/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/18/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/18/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/18/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/18/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/18/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/18/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/18/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/18/13	1
Dibromofluoromethane	107.			% Rec.		8260B	03/18/13	1
4-Bromofluorobenzene	109.			% Rec.		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-04

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Site ID : TUMWATER, WA

Sample ID : RPZ-730 130313

Project # : 0180-121-08

Collected By : JD/H/M
Collection Date : 03/13/13 15:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/18/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/18/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/18/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/18/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/18/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/18/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/18/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/18/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/18/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/18/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/18/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/18/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/18/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/18/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/18/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/18/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/18/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l	J4	8260B	03/18/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/18/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/18/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/18/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/18/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/18/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RPZ-730 130313

Collected By : JD/H/M
Collection Date : 03/13/13 15:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/18/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/18/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/18/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/18/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/18/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/18/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/18/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/18/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/18/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/18/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/18/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/18/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/18/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/18/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/18/13	1
Dibromofluoromethane	110.			% Rec.		8260B	03/18/13	1
4-Bromofluorobenzene	107.			% Rec.		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-715 130313

Collected By : JD/H/M
Collection Date : 03/13/13 11:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/18/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/18/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/18/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/18/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/18/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/18/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/18/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/18/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/18/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/18/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/18/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/18/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/18/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/18/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichlorobenzene	0.65	0.22	1.0	ug/l	J	8260B	03/18/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/18/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/18/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l	J4	8260B	03/18/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/18/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/18/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/18/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/18/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-715 130313

Collected By : JD/H/M
Collection Date : 03/13/13 11:05

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/18/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/18/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/18/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/18/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/18/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/18/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/18/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/18/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/18/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/18/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/18/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/18/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/18/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/18/13	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/18/13	1
Dibromofluoromethane	106.			% Rec.		8260B	03/18/13	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RPZ-731 130313

Collected By : JD/H/M
Collection Date : 03/13/13 16:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/18/13	1
Acrolein	U	8.9	50.	ug/l	J5	8260B	03/18/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/18/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/18/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/18/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/18/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/18/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/18/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/18/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l	J6J3	8260B	03/18/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/18/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/18/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/18/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/18/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l	J5	8260B	03/18/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/18/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/18/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/18/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l	J4J5	8260B	03/18/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/18/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/18/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/18/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/18/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/18/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : RPZ-731 130313

Collected By : JD/H/M
Collection Date : 03/13/13 16:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/18/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/18/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/18/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/18/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/18/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/18/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/18/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/18/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/18/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Trichloroethene	0.60	0.40	1.0	ug/l	J	8260B	03/18/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/18/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/18/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/18/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/18/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/18/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/18/13	1
Dibromofluoromethane	103.			% Rec.		8260B	03/18/13	1
4-Bromofluorobenzene	117.			% Rec.		8260B	03/18/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-723 130314

Collected By : JD/H/M
Collection Date : 03/14/13 10:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/18/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/18/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/18/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/18/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/18/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/18/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/18/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/18/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/18/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/18/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/18/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/18/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/18/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/18/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/18/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/18/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/18/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/18/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/18/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l	J4	8260B	03/18/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/18/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/18/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/18/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/18/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/18/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-07

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-723 130314

Collected By : JD/H/M
Collection Date : 03/14/13 10:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/18/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/18/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/18/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/18/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/18/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/18/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/18/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/18/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/18/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/18/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/18/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/18/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/18/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/18/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/18/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/18/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/18/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/18/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/18/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/18/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/18/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/18/13	1
Dibromofluoromethane	110.			% Rec.		8260B	03/18/13	1
4-Bromofluorobenzene	105.			% Rec.		8260B	03/18/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-724 130314

Collected By : JD/H/M
Collection Date : 03/14/13 10:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/17/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/17/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/17/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/17/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/17/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/17/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/17/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/17/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/17/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/17/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/17/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/17/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/17/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/17/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/17/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/17/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/17/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/17/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/17/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/17/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/17/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/17/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/17/13	1
cis-1,2-Dichloroethene	1.2	0.26	1.0	ug/l		8260B	03/17/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/17/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/17/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/17/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/17/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/17/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/17/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/17/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/17/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/17/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/17/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-08

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-724 130314

Collected By : JD/H/M
Collection Date : 03/14/13 10:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/17/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/17/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/17/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/17/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/17/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/17/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/17/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/17/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/17/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/17/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/17/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/17/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/17/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/17/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
Trichloroethene	32.	0.40	1.0	ug/l		8260B	03/17/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/17/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/17/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/17/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/17/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/17/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/17/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/17/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/17/13	1
Dibromofluoromethane	109.			% Rec.		8260B	03/17/13	1
4-Bromofluorobenzene	99.8			% Rec.		8260B	03/17/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-719 130314

Collected By : JD/H/M
Collection Date : 03/14/13 11:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/17/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/17/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/17/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/17/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/17/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/17/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/17/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/17/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/17/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/17/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/17/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/17/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/17/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/17/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/17/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/17/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/17/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/17/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/17/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/17/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/17/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/17/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/17/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/17/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/17/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/17/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/17/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/17/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/17/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/17/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/17/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/17/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/17/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/17/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/17/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-09

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-719 130314

Collected By : JD/H/M
Collection Date : 03/14/13 11:45

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/17/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/17/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/17/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/17/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/17/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/17/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/17/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/17/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/17/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/17/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/17/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/17/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/17/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/17/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/17/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/17/13	1
Trichloroethene	1.6	0.40	1.0	ug/l		8260B	03/17/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/17/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/17/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/17/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/17/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/17/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/17/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/17/13	1
Surrogate Recovery								
Toluene-d8	100.			% Rec.		8260B	03/17/13	1
Dibromofluoromethane	111.			% Rec.		8260B	03/17/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/17/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-720 130314

Collected By : JD/H/M
Collection Date : 03/14/13 12:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/19/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/19/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/19/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/19/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/19/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/19/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/19/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/19/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/19/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/19/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/19/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/19/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/19/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/19/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/19/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/19/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/19/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/19/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/19/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/19/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/19/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/19/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/19/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/19/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-10

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-720 130314

Collected By : JD/H/M
Collection Date : 03/14/13 12:50

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/19/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/19/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/19/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/19/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/19/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/19/13	1
Tetrachloroethene	0.38	0.37	1.0	ug/l	J	8260B	03/19/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/19/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/19/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Trichloroethene	5.0	0.40	1.0	ug/l		8260B	03/19/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/19/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/19/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/19/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/19/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/19/13	1
Surrogate Recovery								
Toluene-d8	103.			% Rec.		8260B	03/19/13	1
Dibromofluoromethane	102.			% Rec.		8260B	03/19/13	1
4-Bromofluorobenzene	99.6			% Rec.		8260B	03/19/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-11

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-722 130314

Collected By : JD/H/M
Collection Date : 03/14/13 13:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/19/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/19/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/19/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/19/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/19/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/19/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/19/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/19/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/19/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/19/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/19/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/19/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/19/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/19/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/19/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/19/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/19/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/19/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/19/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/19/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/19/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/19/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/19/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/19/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-11

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-722 130314

Collected By : JD/H/M
Collection Date : 03/14/13 13:30

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/19/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/19/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/19/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/19/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/19/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/19/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/19/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/19/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/19/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/19/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/19/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/19/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/19/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/19/13	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	03/19/13	1
Dibromofluoromethane	101.			% Rec.		8260B	03/19/13	1
4-Bromofluorobenzene	101.			% Rec.		8260B	03/19/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-12

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-721 130314

Collected By : JD/H/M
Collection Date : 03/14/13 14:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/19/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/19/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/19/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/19/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/19/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/19/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/19/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/19/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/19/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/19/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/19/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/19/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/19/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/19/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/19/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/19/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/19/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/19/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/19/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/19/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/19/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/19/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/19/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/19/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-12

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-721 130314

Collected By : JD/H/M
Collection Date : 03/14/13 14:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/19/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/19/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/19/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/19/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/19/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/19/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/19/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/19/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/19/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Trichloroethene	30.	0.40	1.0	ug/l		8260B	03/19/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/19/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/19/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/19/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/19/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/19/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/19/13	1
Dibromofluoromethane	101.			% Rec.		8260B	03/19/13	1
4-Bromofluorobenzene	98.8			% Rec.		8260B	03/19/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-13

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-725 130314

Collected By : JD/H/M
Collection Date : 03/14/13 15:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/19/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/19/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/19/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/19/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/19/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/19/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/19/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/19/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/19/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/19/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/19/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/19/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/19/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/19/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/19/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/19/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/19/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/19/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/19/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/19/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/19/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/19/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/19/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/19/13	1

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MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-13

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : PZ-725 130314

Collected By : JD/H/M
Collection Date : 03/14/13 15:10

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/19/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/19/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/19/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/19/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/19/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/19/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/19/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/19/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/19/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/19/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/19/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/19/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/19/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/19/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/19/13	1
Dibromofluoromethane	102.			% Rec.		8260B	03/19/13	1
4-Bromofluorobenzene	101.			% Rec.		8260B	03/19/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-14

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-4 130314

Collected By : JD/H/M
Collection Date : 03/14/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/19/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/19/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/19/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/19/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/19/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/19/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/19/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/19/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/19/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/19/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/19/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/19/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/19/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/19/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/19/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/19/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l		8260B	03/19/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/19/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/19/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/19/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/19/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/19/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/19/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/19/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/19/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/19/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/19/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/19/13	1

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REPORT OF ANALYSIS

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GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L625509-14

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 16, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-4 130314

Collected By : JD/H/M
Collection Date : 03/14/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/19/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/19/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/19/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/19/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/19/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/19/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/19/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/19/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/19/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/19/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l		8260B	03/19/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/19/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/19/13	1
Trichloroethene	1.5	0.40	1.0	ug/l		8260B	03/19/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/19/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/19/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/19/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/19/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/19/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/19/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/19/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/19/13	1
Dibromofluoromethane	103.			% Rec.		8260B	03/19/13	1
4-Bromofluorobenzene	99.1			% Rec.		8260B	03/19/13	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L625509-01	WG651361	SAMP	Acetone	R2587037	J
	WG651361	SAMP	1,3-Dichloropropane	R2587037	J4
	WG651361	SAMP	Methylene Chloride	R2587037	J
L625509-02	WG651361	SAMP	1,3-Dichloropropane	R2587037	J4
L625509-03	WG651361	SAMP	Acetone	R2587037	J
	WG651361	SAMP	1,3-Dichlorobenzene	R2587037	J
	WG651361	SAMP	1,3-Dichloropropane	R2587037	J4
L625509-04	WG651361	SAMP	1,3-Dichloropropane	R2587037	J4
L625509-05	WG651361	SAMP	1,3-Dichlorobenzene	R2587037	J
	WG651361	SAMP	1,3-Dichloropropane	R2587037	J4
L625509-06	WG651361	SAMP	Acrolein	R2587037	J5
	WG651361	SAMP	2-Chloroethyl vinyl ether	R2587037	J6J3
	WG651361	SAMP	1,2-Dibromoethane	R2587037	J5
	WG651361	SAMP	1,3-Dichloropropane	R2587037	J4J5
	WG651361	SAMP	Trichloroethene	R2587037	J
L625509-07	WG651361	SAMP	1,3-Dichloropropane	R2587037	J4
L625509-10	WG651677	SAMP	Tetrachloroethene	R2587617	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 13:21:55

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW Metals by 6020.

Sample: L625509-01 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs. uni 691998 dor 4/4/13.
Sample: L625509-02 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-03 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-04 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-05 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-06 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-07 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-08 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-09 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-10 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-11 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-12 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-13 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs
Sample: L625509-14 Account: GEOENGTWA Received: 03/16/13 09:45 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:20
Removed QC2MODCN and added QC3 Per SR2868 3/21/13 ~gs

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Quality Assurance Report
Level II

L625509

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG651334	03/17/13 03:49
1,1,1-Trichloroethane	< .001	mg/l			WG651334	03/17/13 03:49
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG651334	03/17/13 03:49
1,1,2-Trichloroethane	< .001	mg/l			WG651334	03/17/13 03:49
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG651334	03/17/13 03:49
1,1-Dichloroethane	< .001	mg/l			WG651334	03/17/13 03:49
1,1-Dichloroethene	< .001	mg/l			WG651334	03/17/13 03:49
1,1-Dichloropropene	< .001	mg/l			WG651334	03/17/13 03:49
1,2,3-Trichlorobenzene	< .001	mg/l			WG651334	03/17/13 03:49
1,2,3-Trichloropropane	< .001	mg/l			WG651334	03/17/13 03:49
1,2,3-Trimethylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
1,2,4-Trichlorobenzene	< .001	mg/l			WG651334	03/17/13 03:49
1,2,4-Trimethylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG651334	03/17/13 03:49
1,2-Dibromoethane	< .001	mg/l			WG651334	03/17/13 03:49
1,2-Dichlorobenzene	< .001	mg/l			WG651334	03/17/13 03:49
1,2-Dichloroethane	< .001	mg/l			WG651334	03/17/13 03:49
1,2-Dichloropropane	< .001	mg/l			WG651334	03/17/13 03:49
1,3,5-Trimethylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
1,3-Dichlorobenzene	< .001	mg/l			WG651334	03/17/13 03:49
1,3-Dichloropropane	< .001	mg/l			WG651334	03/17/13 03:49
1,4-Dichlorobenzene	< .001	mg/l			WG651334	03/17/13 03:49
2,2-Dichloropropane	< .001	mg/l			WG651334	03/17/13 03:49
2-Butanone (MEK)	< .01	mg/l			WG651334	03/17/13 03:49
2-Chloroethyl vinyl ether	< .05	mg/l			WG651334	03/17/13 03:49
2-Chlorotoluene	< .001	mg/l			WG651334	03/17/13 03:49
4-Chlorotoluene	< .001	mg/l			WG651334	03/17/13 03:49
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG651334	03/17/13 03:49
Acetone	< .05	mg/l			WG651334	03/17/13 03:49
Acrolein	< .025	mg/l			WG651334	03/17/13 03:49
Acrylonitrile	< .01	mg/l			WG651334	03/17/13 03:49
Benzene	< .001	mg/l			WG651334	03/17/13 03:49
Bromobenzene	< .001	mg/l			WG651334	03/17/13 03:49
Bromodichloromethane	< .001	mg/l			WG651334	03/17/13 03:49
Bromoform	< .001	mg/l			WG651334	03/17/13 03:49
Bromomethane	< .005	mg/l			WG651334	03/17/13 03:49
Carbon tetrachloride	< .001	mg/l			WG651334	03/17/13 03:49
Chlorobenzene	< .001	mg/l			WG651334	03/17/13 03:49
Chlorodibromomethane	< .001	mg/l			WG651334	03/17/13 03:49
Chloroethane	< .005	mg/l			WG651334	03/17/13 03:49
Chloroform	< .005	mg/l			WG651334	03/17/13 03:49
Chloromethane	< .0025	mg/l			WG651334	03/17/13 03:49
cis-1,2-Dichloroethene	< .001	mg/l			WG651334	03/17/13 03:49
cis-1,3-Dichloropropene	< .001	mg/l			WG651334	03/17/13 03:49
Di-isopropyl ether	< .001	mg/l			WG651334	03/17/13 03:49
Dibromomethane	< .001	mg/l			WG651334	03/17/13 03:49
Dichlorodifluoromethane	< .005	mg/l			WG651334	03/17/13 03:49
Ethylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
Hexachloro-1,3-butadiene	< .001	mg/l			WG651334	03/17/13 03:49
Isopropylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
Methyl tert-butyl ether	< .001	mg/l			WG651334	03/17/13 03:49
Methylene Chloride	< .005	mg/l			WG651334	03/17/13 03:49
n-Butylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
n-Propylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
Naphthalene	< .005	mg/l			WG651334	03/17/13 03:49
p-Isopropyltoluene	< .001	mg/l			WG651334	03/17/13 03:49
sec-Butylbenzene	< .001	mg/l			WG651334	03/17/13 03:49
Styrene	< .001	mg/l			WG651334	03/17/13 03:49
tert-Butylbenzene	< .001	mg/l			WG651334	03/17/13 03:49

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG651334	03/17/13 03:49
Toluene	< .005	mg/l			WG651334	03/17/13 03:49
trans-1,2-Dichloroethene	< .001	mg/l			WG651334	03/17/13 03:49
trans-1,3-Dichloropropene	< .001	mg/l			WG651334	03/17/13 03:49
Trichloroethene	< .001	mg/l			WG651334	03/17/13 03:49
Trichlorofluoromethane	< .005	mg/l			WG651334	03/17/13 03:49
Vinyl chloride	< .001	mg/l			WG651334	03/17/13 03:49
Xylenes, Total	< .003	mg/l			WG651334	03/17/13 03:49
4-Bromofluorobenzene		% Rec.	99.58	82-120	WG651334	03/17/13 03:49
Dibromofluoromethane		% Rec.	113.5	82-126	WG651334	03/17/13 03:49
Toluene-d8		% Rec.	99.81	92-112	WG651334	03/17/13 03:49
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG651361	03/18/13 12:55
1,1,1-Trichloroethane	< .001	mg/l			WG651361	03/18/13 12:55
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG651361	03/18/13 12:55
1,1,2-Trichloroethane	< .001	mg/l			WG651361	03/18/13 12:55
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG651361	03/18/13 12:55
1,1-Dichloroethane	< .001	mg/l			WG651361	03/18/13 12:55
1,1-Dichloroethene	< .001	mg/l			WG651361	03/18/13 12:55
1,1-Dichloropropene	< .001	mg/l			WG651361	03/18/13 12:55
1,2,3-Trichlorobenzene	< .001	mg/l			WG651361	03/18/13 12:55
1,2,3-Trichloropropane	< .001	mg/l			WG651361	03/18/13 12:55
1,2,3-Trimethylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
1,2,4-Trichlorobenzene	< .001	mg/l			WG651361	03/18/13 12:55
1,2,4-Trimethylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG651361	03/18/13 12:55
1,2-Dibromoethane	< .001	mg/l			WG651361	03/18/13 12:55
1,2-Dichlorobenzene	< .001	mg/l			WG651361	03/18/13 12:55
1,2-Dichloroethane	< .001	mg/l			WG651361	03/18/13 12:55
1,2-Dichloropropane	< .001	mg/l			WG651361	03/18/13 12:55
1,3,5-Trimethylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
1,3-Dichlorobenzene	< .001	mg/l			WG651361	03/18/13 12:55
1,3-Dichloropropane	< .001	mg/l			WG651361	03/18/13 12:55
1,4-Dichlorobenzene	< .001	mg/l			WG651361	03/18/13 12:55
2,2-Dichloropropane	< .001	mg/l			WG651361	03/18/13 12:55
2-Butanone (MEK)	< .01	mg/l			WG651361	03/18/13 12:55
2-Chloroethyl vinyl ether	< .05	mg/l			WG651361	03/18/13 12:55
2-Chlorotoluene	< .001	mg/l			WG651361	03/18/13 12:55
4-Chlorotoluene	< .001	mg/l			WG651361	03/18/13 12:55
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG651361	03/18/13 12:55
Acetone	< .05	mg/l			WG651361	03/18/13 12:55
Acrolein	< .025	mg/l			WG651361	03/18/13 12:55
Acrylonitrile	< .01	mg/l			WG651361	03/18/13 12:55
Benzene	< .001	mg/l			WG651361	03/18/13 12:55
Bromobenzene	< .001	mg/l			WG651361	03/18/13 12:55
Bromodichloromethane	< .001	mg/l			WG651361	03/18/13 12:55
Bromoform	< .001	mg/l			WG651361	03/18/13 12:55
Bromomethane	< .005	mg/l			WG651361	03/18/13 12:55
Carbon tetrachloride	< .001	mg/l			WG651361	03/18/13 12:55
Chlorobenzene	< .001	mg/l			WG651361	03/18/13 12:55
Chlorodibromomethane	< .001	mg/l			WG651361	03/18/13 12:55
Chloroethane	< .005	mg/l			WG651361	03/18/13 12:55
Chloroform	< .005	mg/l			WG651361	03/18/13 12:55
Chloromethane	< .0025	mg/l			WG651361	03/18/13 12:55
cis-1,2-Dichloroethene	< .001	mg/l			WG651361	03/18/13 12:55
cis-1,3-Dichloropropene	< .001	mg/l			WG651361	03/18/13 12:55
Di-isopropyl ether	< .001	mg/l			WG651361	03/18/13 12:55
Dibromomethane	< .001	mg/l			WG651361	03/18/13 12:55

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Dichlorodifluoromethane	< .005	mg/l			WG651361	03/18/13 12:55
Ethylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
Hexachloro-1,3-butadiene	< .001	mg/l			WG651361	03/18/13 12:55
Isopropylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
Methyl tert-butyl ether	< .001	mg/l			WG651361	03/18/13 12:55
Methylene Chloride	< .005	mg/l			WG651361	03/18/13 12:55
n-Butylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
n-Propylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
Naphthalene	< .005	mg/l			WG651361	03/18/13 12:55
p-Isopropyltoluene	< .001	mg/l			WG651361	03/18/13 12:55
sec-Butylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
Styrene	< .001	mg/l			WG651361	03/18/13 12:55
tert-Butylbenzene	< .001	mg/l			WG651361	03/18/13 12:55
Tetrachloroethene	< .001	mg/l			WG651361	03/18/13 12:55
Toluene	< .005	mg/l			WG651361	03/18/13 12:55
trans-1,2-Dichloroethene	< .001	mg/l			WG651361	03/18/13 12:55
trans-1,3-Dichloropropene	< .001	mg/l			WG651361	03/18/13 12:55
Trichloroethene	< .001	mg/l			WG651361	03/18/13 12:55
Trichlorofluoromethane	< .005	mg/l			WG651361	03/18/13 12:55
Vinyl chloride	< .001	mg/l			WG651361	03/18/13 12:55
Xylenes, Total	< .003	mg/l			WG651361	03/18/13 12:55
4-Bromofluorobenzene		% Rec.	114.9	82-120	WG651361	03/18/13 12:55
Dibromofluoromethane		% Rec.	101.2	82-126	WG651361	03/18/13 12:55
Toluene-d8		% Rec.	104.6	92-112	WG651361	03/18/13 12:55
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG651677	03/19/13 14:29
1,1,1-Trichloroethane	< .001	mg/l			WG651677	03/19/13 14:29
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG651677	03/19/13 14:29
1,1,2-Trichloroethane	< .001	mg/l			WG651677	03/19/13 14:29
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG651677	03/19/13 14:29
1,1-Dichloroethane	< .001	mg/l			WG651677	03/19/13 14:29
1,1-Dichloroethene	< .001	mg/l			WG651677	03/19/13 14:29
1,1-Dichloropropene	< .001	mg/l			WG651677	03/19/13 14:29
1,2,3-Trichlorobenzene	< .001	mg/l			WG651677	03/19/13 14:29
1,2,3-Trichloropropane	< .001	mg/l			WG651677	03/19/13 14:29
1,2,3-Trimethylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
1,2,4-Trichlorobenzene	< .001	mg/l			WG651677	03/19/13 14:29
1,2,4-Trimethylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG651677	03/19/13 14:29
1,2-Dibromoethane	< .001	mg/l			WG651677	03/19/13 14:29
1,2-Dichlorobenzene	< .001	mg/l			WG651677	03/19/13 14:29
1,2-Dichloroethane	< .001	mg/l			WG651677	03/19/13 14:29
1,2-Dichloropropane	< .001	mg/l			WG651677	03/19/13 14:29
1,3,5-Trimethylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
1,3-Dichlorobenzene	< .001	mg/l			WG651677	03/19/13 14:29
1,3-Dichloropropane	< .001	mg/l			WG651677	03/19/13 14:29
1,4-Dichlorobenzene	< .001	mg/l			WG651677	03/19/13 14:29
2,2-Dichloropropane	< .001	mg/l			WG651677	03/19/13 14:29
2-Butanone (MEK)	< .01	mg/l			WG651677	03/19/13 14:29
2-Chloroethyl vinyl ether	< .05	mg/l			WG651677	03/19/13 14:29
2-Chlorotoluene	< .001	mg/l			WG651677	03/19/13 14:29
4-Chlorotoluene	< .001	mg/l			WG651677	03/19/13 14:29
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG651677	03/19/13 14:29
Acetone	< .05	mg/l			WG651677	03/19/13 14:29
Acrolein	< .025	mg/l			WG651677	03/19/13 14:29
Acrylonitrile	< .01	mg/l			WG651677	03/19/13 14:29
Benzene	< .001	mg/l			WG651677	03/19/13 14:29
Bromobenzene	< .001	mg/l			WG651677	03/19/13 14:29

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Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Bromodichloromethane	< .001	mg/l			WG651677	03/19/13 14:29
Bromoform	< .001	mg/l			WG651677	03/19/13 14:29
Bromomethane	< .005	mg/l			WG651677	03/19/13 14:29
Carbon tetrachloride	< .001	mg/l			WG651677	03/19/13 14:29
Chlorobenzene	< .001	mg/l			WG651677	03/19/13 14:29
Chlorodibromomethane	< .001	mg/l			WG651677	03/19/13 14:29
Chloroethane	< .005	mg/l			WG651677	03/19/13 14:29
Chloroform	< .005	mg/l			WG651677	03/19/13 14:29
Chloromethane	< .0025	mg/l			WG651677	03/19/13 14:29
cis-1,2-Dichloroethene	< .001	mg/l			WG651677	03/19/13 14:29
cis-1,3-Dichloropropene	< .001	mg/l			WG651677	03/19/13 14:29
Di-isopropyl ether	< .001	mg/l			WG651677	03/19/13 14:29
Dibromomethane	< .001	mg/l			WG651677	03/19/13 14:29
Dichlorodifluoromethane	< .005	mg/l			WG651677	03/19/13 14:29
Ethylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
Hexachloro-1,3-butadiene	< .001	mg/l			WG651677	03/19/13 14:29
Isopropylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
Methyl tert-butyl ether	< .001	mg/l			WG651677	03/19/13 14:29
Methylene Chloride	< .005	mg/l			WG651677	03/19/13 14:29
n-Butylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
n-Propylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
Naphthalene	< .005	mg/l			WG651677	03/19/13 14:29
p-Isopropyltoluene	< .001	mg/l			WG651677	03/19/13 14:29
sec-Butylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
Styrene	< .001	mg/l			WG651677	03/19/13 14:29
tert-Butylbenzene	< .001	mg/l			WG651677	03/19/13 14:29
Tetrachloroethene	< .001	mg/l			WG651677	03/19/13 14:29
Toluene	< .005	mg/l			WG651677	03/19/13 14:29
trans-1,2-Dichloroethene	< .001	mg/l			WG651677	03/19/13 14:29
trans-1,3-Dichloropropene	< .001	mg/l			WG651677	03/19/13 14:29
Trichloroethene	< .001	mg/l			WG651677	03/19/13 14:29
Trichlorofluoromethane	< .005	mg/l			WG651677	03/19/13 14:29
Vinyl chloride	< .001	mg/l			WG651677	03/19/13 14:29
Xylenes, Total	< .003	mg/l			WG651677	03/19/13 14:29
4-Bromofluorobenzene		% Rec.	102.9	82-120	WG651677	03/19/13 14:29
Dibromofluoromethane		% Rec.	100.5	82-126	WG651677	03/19/13 14:29
Toluene-d8		% Rec.	103.8	92-112	WG651677	03/19/13 14:29

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0276	110.	77-128	WG651334
1,1,1-Trichloroethane	mg/l	.025	0.0292	117.	71-126	WG651334
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0264	106.	78-130	WG651334
1,1,2-Trichloroethane	mg/l	.025	0.0267	107.	81-121	WG651334
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0299	119.	53-143	WG651334
1,1-Dichloroethane	mg/l	.025	0.0288	115.	73-123	WG651334
1,1-Dichloroethene	mg/l	.025	0.0292	117.	54-134	WG651334
1,1-Dichloropropene	mg/l	.025	0.0288	115.	67-127	WG651334
1,2,3-Trichlorobenzene	mg/l	.025	0.0273	109.	77-130	WG651334
1,2,3-Trichloropropane	mg/l	.025	0.0267	107.	68-130	WG651334
1,2,3-Trimethylbenzene	mg/l	.025	0.0274	110.	77-126	WG651334
1,2,4-Trichlorobenzene	mg/l	.025	0.0261	104.	76-127	WG651334
1,2,4-Trimethylbenzene	mg/l	.025	0.0275	110.	77-129	WG651334
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0253	101.	55-142	WG651334
1,2-Dibromoethane	mg/l	.025	0.0273	109.	78-124	WG651334
1,2-Dichlorobenzene	mg/l	.025	0.0261	104.	82-121	WG651334
1,2-Dichloroethane	mg/l	.025	0.0303	121.	69-128	WG651334
1,2-Dichloropropane	mg/l	.025	0.0271	108.	77-121	WG651334

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Quality Assurance Report
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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,3,5-Trimethylbenzene	mg/l	.025	0.0275	110.	78-127	WG651334
1,3-Dichlorobenzene	mg/l	.025	0.0253	101.	77-127	WG651334
1,3-Dichloropropane	mg/l	.025	0.0263	105.	78-117	WG651334
1,4-Dichlorobenzene	mg/l	.025	0.0255	102.	79-117	WG651334
2,2-Dichloropropane	mg/l	.025	0.0302	121.	63-130	WG651334
2-Butanone (MEK)	mg/l	.125	0.152	121.	58-144	WG651334
2-Chloroethyl vinyl ether	mg/l	.125	0.132	106.	26-172	WG651334
2-Chlorotoluene	mg/l	.025	0.0274	110.	78-123	WG651334
4-Chlorotoluene	mg/l	.025	0.0265	106.	78-122	WG651334
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.139	111.	58-147	WG651334
Acetone	mg/l	.125	0.170	136.	49-153	WG651334
Acrolein	mg/l	.125	0.195	156.	10-181	WG651334
Acrylonitrile	mg/l	.125	0.150	120.	53-153	WG651334
Benzene	mg/l	.025	0.0287	115.	72-119	WG651334
Bromobenzene	mg/l	.025	0.0266	106.	76-121	WG651334
Bromodichloromethane	mg/l	.025	0.0276	110.	75-127	WG651334
Bromoform	mg/l	.025	0.0255	102.	61-136	WG651334
Bromomethane	mg/l	.025	0.0301	120.	42-172	WG651334
Carbon tetrachloride	mg/l	.025	0.0289	116.	63-129	WG651334
Chlorobenzene	mg/l	.025	0.0263	105.	78-123	WG651334
Chlorodibromomethane	mg/l	.025	0.0270	108.	73-128	WG651334
Chloroethane	mg/l	.025	0.0321	128.	52-164	WG651334
Chloroform	mg/l	.025	0.0289	115.	76-122	WG651334
Chloromethane	mg/l	.025	0.0285	114.	50-141	WG651334
cis-1,2-Dichloroethene	mg/l	.025	0.0282	113.	75-121	WG651334
cis-1,3-Dichloropropene	mg/l	.025	0.0276	110.	74-124	WG651334
Di-isopropyl ether	mg/l	.025	0.0288	115.	66-129	WG651334
Dibromomethane	mg/l	.025	0.0273	109.	77-124	WG651334
Dichlorodifluoromethane	mg/l	.025	0.0286	115.	33-173	WG651334
Ethylbenzene	mg/l	.025	0.0274	110.	77-124	WG651334
Hexachloro-1,3-butadiene	mg/l	.025	0.0263	105.	71-134	WG651334
Isopropylbenzene	mg/l	.025	0.0280	112.	74-126	WG651334
Methyl tert-butyl ether	mg/l	.025	0.0278	111.	67-127	WG651334
Methylene Chloride	mg/l	.025	0.0300	120.	67-122	WG651334
n-Butylbenzene	mg/l	.025	0.0277	111.	74-130	WG651334
n-Propylbenzene	mg/l	.025	0.0271	108.	77-125	WG651334
Naphthalene	mg/l	.025	0.0266	107.	70-134	WG651334
p-Isopropyltoluene	mg/l	.025	0.0274	109.	77-132	WG651334
sec-Butylbenzene	mg/l	.025	0.0274	109.	77-130	WG651334
Styrene	mg/l	.025	0.0276	110.	69-145	WG651334
tert-Butylbenzene	mg/l	.025	0.0275	110.	76-131	WG651334
Tetrachloroethene	mg/l	.025	0.0257	103.	69-131	WG651334
Toluene	mg/l	.025	0.0262	105.	75-114	WG651334
trans-1,2-Dichloroethene	mg/l	.025	0.0283	113.	63-127	WG651334
trans-1,3-Dichloropropene	mg/l	.025	0.0263	105.	69-124	WG651334
Trichloroethene	mg/l	.025	0.0259	104.	69-131	WG651334
Trichlorofluoromethane	mg/l	.025	0.0303	121.	53-161	WG651334
Vinyl chloride	mg/l	.025	0.0304	121.	55-142	WG651334
Xylenes, Total	mg/l	.075	0.0820	109.	77-123	WG651334
4-Bromofluorobenzene				99.23	82-120	WG651334
Dibromofluoromethane				106.8	82-126	WG651334
Toluene-d8				103.7	92-112	WG651334
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0252	101.	77-128	WG651361
1,1,1-Trichloroethane	mg/l	.025	0.0250	100.	71-126	WG651361
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0240	95.9	78-130	WG651361
1,1,2-Trichloroethane	mg/l	.025	0.0272	109.	81-121	WG651361
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0257	103.	53-143	WG651361

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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
1,1-Dichloroethane	mg/l	.025	0.0245	98.2	73-123	WG651361
1,1-Dichloroethene	mg/l	.025	0.0257	103.	54-134	WG651361
1,1-Dichloropropene	mg/l	.025	0.0261	104.	67-127	WG651361
1,2,3-Trichlorobenzene	mg/l	.025	0.0239	95.6	77-130	WG651361
1,2,3-Trichloropropane	mg/l	.025	0.0242	97.0	68-130	WG651361
1,2,3-Trimethylbenzene	mg/l	.025	0.0243	97.0	77-126	WG651361
1,2,4-Trichlorobenzene	mg/l	.025	0.0230	92.1	76-127	WG651361
1,2,4-Trimethylbenzene	mg/l	.025	0.0258	103.	77-129	WG651361
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0218	87.2	55-142	WG651361
1,2-Dibromoethane	mg/l	.025	0.0282	113.	78-124	WG651361
1,2-Dichlorobenzene	mg/l	.025	0.0230	91.9	82-121	WG651361
1,2-Dichloroethane	mg/l	.025	0.0265	106.	69-128	WG651361
1,2-Dichloropropane	mg/l	.025	0.0242	96.7	77-121	WG651361
1,3,5-Trimethylbenzene	mg/l	.025	0.0257	103.	78-127	WG651361
1,3-Dichlorobenzene	mg/l	.025	0.0234	93.7	77-127	WG651361
1,3-Dichloropropane	mg/l	.025	0.0275	110.	78-117	WG651361
1,4-Dichlorobenzene	mg/l	.025	0.0227	90.9	79-117	WG651361
2,2-Dichloropropane	mg/l	.025	0.0246	98.5	63-130	WG651361
2-Butanone (MEK)	mg/l	.125	0.145	116.	58-144	WG651361
2-Chloroethyl vinyl ether	mg/l	.125	0.140	112.	26-172	WG651361
2-Chlorotoluene	mg/l	.025	0.0252	101.	78-123	WG651361
4-Chlorotoluene	mg/l	.025	0.0252	101.	78-122	WG651361
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.123	98.8	58-147	WG651361
Acetone	mg/l	.125	0.142	114.	49-153	WG651361
Acrolein	mg/l	.125	0.180	144.	10-181	WG651361
Acrylonitrile	mg/l	.125	0.125	99.8	53-153	WG651361
Benzene	mg/l	.025	0.0256	102.	72-119	WG651361
Bromobenzene	mg/l	.025	0.0252	101.	76-121	WG651361
Bromodichloromethane	mg/l	.025	0.0246	98.5	75-127	WG651361
Bromoform	mg/l	.025	0.0254	102.	61-136	WG651361
Bromomethane	mg/l	.025	0.0238	95.3	42-172	WG651361
Carbon tetrachloride	mg/l	.025	0.0256	102.	63-129	WG651361
Chlorobenzene	mg/l	.025	0.0268	107.	78-123	WG651361
Chlorodibromomethane	mg/l	.025	0.0267	107.	73-128	WG651361
Chloroethane	mg/l	.025	0.0255	102.	52-164	WG651361
Chloroform	mg/l	.025	0.0250	99.9	76-122	WG651361
Chloromethane	mg/l	.025	0.0216	86.5	50-141	WG651361
cis-1,2-Dichloroethene	mg/l	.025	0.0244	97.5	75-121	WG651361
cis-1,3-Dichloropropene	mg/l	.025	0.0265	106.	74-124	WG651361
Di-isopropyl ether	mg/l	.025	0.0249	99.5	66-129	WG651361
Dibromomethane	mg/l	.025	0.0241	96.4	77-124	WG651361
Dichlorodifluoromethane	mg/l	.025	0.0201	80.6	33-173	WG651361
Ethylbenzene	mg/l	.025	0.0276	110.	77-124	WG651361
Hexachloro-1,3-butadiene	mg/l	.025	0.0243	97.1	71-134	WG651361
Isopropylbenzene	mg/l	.025	0.0266	106.	74-126	WG651361
Methyl tert-butyl ether	mg/l	.025	0.0237	94.9	67-127	WG651361
Methylene Chloride	mg/l	.025	0.0239	95.5	67-122	WG651361
n-Butylbenzene	mg/l	.025	0.0251	100.	74-130	WG651361
n-Propylbenzene	mg/l	.025	0.0257	103.	77-125	WG651361
Naphthalene	mg/l	.025	0.0228	91.2	70-134	WG651361
p-Isopropyltoluene	mg/l	.025	0.0256	102.	77-132	WG651361
sec-Butylbenzene	mg/l	.025	0.0260	104.	77-130	WG651361
Styrene	mg/l	.025	0.0270	108.	69-145	WG651361
tert-Butylbenzene	mg/l	.025	0.0259	103.	76-131	WG651361
Tetrachloroethene	mg/l	.025	0.0265	106.	69-131	WG651361
Toluene	mg/l	.025	0.0243	97.3	75-114	WG651361
trans-1,2-Dichloroethene	mg/l	.025	0.0246	98.5	63-127	WG651361
trans-1,3-Dichloropropene	mg/l	.025	0.0268	107.	69-124	WG651361
Trichloroethene	mg/l	.025	0.0234	93.6	69-131	WG651361

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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Trichlorofluoromethane	mg/l	.025	0.0253	101.	53-161	WG651361
Vinyl chloride	mg/l	.025	0.0240	95.9	55-142	WG651361
Xylenes, Total	mg/l	.075	0.0803	107.	77-123	WG651361
4-Bromofluorobenzene				107.4	82-120	WG651361
Dibromofluoromethane				102.1	82-126	WG651361
Toluene-d8				104.1	92-112	WG651361
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0254	102.	77-128	WG651677
1,1,1-Trichloroethane	mg/l	.025	0.0227	90.8	71-126	WG651677
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0243	97.4	78-130	WG651677
1,1,2-Trichloroethane	mg/l	.025	0.0249	99.5	81-121	WG651677
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0212	84.6	53-143	WG651677
1,1-Dichloroethane	mg/l	.025	0.0232	92.6	73-123	WG651677
1,1-Dichloroethene	mg/l	.025	0.0218	87.0	54-134	WG651677
1,1-Dichloropropene	mg/l	.025	0.0228	91.0	67-127	WG651677
1,2,3-Trichlorobenzene	mg/l	.025	0.0254	102.	77-130	WG651677
1,2,3-Trichloropropane	mg/l	.025	0.0238	95.1	68-130	WG651677
1,2,3-Trimethylbenzene	mg/l	.025	0.0242	96.8	77-126	WG651677
1,2,4-Trichlorobenzene	mg/l	.025	0.0245	98.1	76-127	WG651677
1,2,4-Trimethylbenzene	mg/l	.025	0.0243	97.2	77-129	WG651677
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0271	108.	55-142	WG651677
1,2-Dibromoethane	mg/l	.025	0.0240	95.9	78-124	WG651677
1,2-Dichlorobenzene	mg/l	.025	0.0247	98.9	82-121	WG651677
1,2-Dichloroethane	mg/l	.025	0.0230	91.9	69-128	WG651677
1,2-Dichloropropane	mg/l	.025	0.0239	95.6	77-121	WG651677
1,3,5-Trimethylbenzene	mg/l	.025	0.0239	95.7	78-127	WG651677
1,3-Dichlorobenzene	mg/l	.025	0.0240	96.2	77-127	WG651677
1,3-Dichloropropane	mg/l	.025	0.0248	99.3	78-117	WG651677
1,4-Dichlorobenzene	mg/l	.025	0.0235	94.1	79-117	WG651677
2,2-Dichloropropane	mg/l	.025	0.0239	95.5	63-130	WG651677
2-Butanone (MEK)	mg/l	.125	0.128	102.	58-144	WG651677
2-Chloroethyl vinyl ether	mg/l	.125	0.123	98.8	26-172	WG651677
2-Chlorotoluene	mg/l	.025	0.0238	95.1	78-123	WG651677
4-Chlorotoluene	mg/l	.025	0.0239	95.6	78-122	WG651677
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.114	91.5	58-147	WG651677
Acetone	mg/l	.125	0.126	101.	49-153	WG651677
Acrolein	mg/l	.125	0.103	82.0	10-181	WG651677
Acrylonitrile	mg/l	.125	0.122	97.4	53-153	WG651677
Benzene	mg/l	.025	0.0233	93.1	72-119	WG651677
Bromobenzene	mg/l	.025	0.0242	96.8	76-121	WG651677
Bromodichloromethane	mg/l	.025	0.0244	97.5	75-127	WG651677
Bromoform	mg/l	.025	0.0253	101.	61-136	WG651677
Bromomethane	mg/l	.025	0.0204	81.6	42-172	WG651677
Carbon tetrachloride	mg/l	.025	0.0211	84.6	63-129	WG651677
Chlorobenzene	mg/l	.025	0.0248	99.3	78-123	WG651677
Chlorodibromomethane	mg/l	.025	0.0256	103.	73-128	WG651677
Chloroethane	mg/l	.025	0.0218	87.1	52-164	WG651677
Chloroform	mg/l	.025	0.0235	93.8	76-122	WG651677
Chloromethane	mg/l	.025	0.0221	88.4	50-141	WG651677
cis-1,2-Dichloroethene	mg/l	.025	0.0232	92.9	75-121	WG651677
cis-1,3-Dichloropropene	mg/l	.025	0.0242	96.6	74-124	WG651677
Di-isopropyl ether	mg/l	.025	0.0237	95.0	66-129	WG651677
Dibromomethane	mg/l	.025	0.0241	96.4	77-124	WG651677
Dichlorodifluoromethane	mg/l	.025	0.0208	83.4	33-173	WG651677
Ethylbenzene	mg/l	.025	0.0240	96.0	77-124	WG651677
Hexachloro-1,3-butadiene	mg/l	.025	0.0249	99.6	71-134	WG651677
Isopropylbenzene	mg/l	.025	0.0243	97.2	74-126	WG651677
Methyl tert-butyl ether	mg/l	.025	0.0239	95.7	67-127	WG651677

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Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Methylene Chloride	mg/l	.025	0.0251	100.	67-122	WG651677
n-Butylbenzene	mg/l	.025	0.0233	93.2	74-130	WG651677
n-Propylbenzene	mg/l	.025	0.0235	94.0	77-125	WG651677
Naphthalene	mg/l	.025	0.0257	103.	70-134	WG651677
p-Isopropyltoluene	mg/l	.025	0.0240	96.0	77-132	WG651677
sec-Butylbenzene	mg/l	.025	0.0231	92.5	77-130	WG651677
Styrene	mg/l	.025	0.0254	102.	69-145	WG651677
tert-Butylbenzene	mg/l	.025	0.0239	95.7	76-131	WG651677
Tetrachloroethene	mg/l	.025	0.0238	95.1	69-131	WG651677
Toluene	mg/l	.025	0.0233	93.4	75-114	WG651677
trans-1,2-Dichloroethene	mg/l	.025	0.0238	95.3	63-127	WG651677
trans-1,3-Dichloropropene	mg/l	.025	0.0242	96.6	69-124	WG651677
Trichloroethene	mg/l	.025	0.0229	91.5	69-131	WG651677
Trichlorofluoromethane	mg/l	.025	0.0207	82.8	53-161	WG651677
Vinyl chloride	mg/l	.025	0.0223	89.3	55-142	WG651677
Xylenes, Total	mg/l	.075	0.0723	96.3	77-123	WG651677
4-Bromofluorobenzene				101.2	82-120	WG651677
Dibromofluoromethane				101.4	82-126	WG651677
Toluene-d8				104.0	92-112	WG651677

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0277	0.0276	111.	77-128	0.380	20	WG651334
1,1,1-Trichloroethane	mg/l	0.0296	0.0292	118.	71-126	1.17	20	WG651334
1,1,2,2-Tetrachloroethane	mg/l	0.0269	0.0264	108.	78-130	2.16	20	WG651334
1,1,2-Trichloroethane	mg/l	0.0272	0.0267	109.	81-121	2.09	20	WG651334
1,1,2-Trichlorotrifluoroethane	mg/l	0.0304	0.0299	121.	53-143	1.65	20	WG651334
1,1-Dichloroethane	mg/l	0.0293	0.0288	117.	73-123	1.75	20	WG651334
1,1-Dichloroethene	mg/l	0.0301	0.0292	120.	54-134	3.03	20	WG651334
1,1-Dichloropropene	mg/l	0.0294	0.0288	117.	67-127	1.83	20	WG651334
1,2,3-Trichlorobenzene	mg/l	0.0279	0.0273	111.	77-130	1.96	20	WG651334
1,2,3-Trichloropropane	mg/l	0.0263	0.0267	105.	68-130	1.37	20	WG651334
1,2,3-Trimethylbenzene	mg/l	0.0276	0.0274	110.	77-126	0.700	20	WG651334
1,2,4-Trichlorobenzene	mg/l	0.0265	0.0261	106.	76-127	1.59	20	WG651334
1,2,4-Trimethylbenzene	mg/l	0.0283	0.0275	113.	77-129	2.71	20	WG651334
1,2-Dibromo-3-Chloropropane	mg/l	0.0251	0.0253	100.	55-142	0.510	20	WG651334
1,2-Dibromoethane	mg/l	0.0276	0.0273	110.	78-124	1.05	20	WG651334
1,2-Dichlorobenzene	mg/l	0.0262	0.0261	105.	82-121	0.420	20	WG651334
1,2-Dichloroethane	mg/l	0.0300	0.0303	120.	69-128	1.13	20	WG651334
1,2-Dichloropropane	mg/l	0.0279	0.0271	112.	77-121	2.87	20	WG651334
1,3,5-Trimethylbenzene	mg/l	0.0279	0.0275	112.	78-127	1.25	20	WG651334
1,3-Dichlorobenzene	mg/l	0.0260	0.0253	104.	77-127	2.37	20	WG651334
1,3-Dichloropropane	mg/l	0.0272	0.0263	109.	78-117	3.17	20	WG651334
1,4-Dichlorobenzene	mg/l	0.0253	0.0255	101.	79-117	0.700	20	WG651334
2,2-Dichloropropane	mg/l	0.0299	0.0302	120.	63-130	0.980	20	WG651334
2-Butanone (MEK)	mg/l	0.144	0.152	116.	58-144	4.78	20	WG651334
2-Chloroethyl vinyl ether	mg/l	0.134	0.132	108.	26-172	1.77	22	WG651334
2-Chlorotoluene	mg/l	0.0279	0.0274	111.	78-123	1.71	20	WG651334
4-Chlorotoluene	mg/l	0.0273	0.0265	109.	78-122	2.96	20	WG651334
4-Methyl-2-pentanone (MIBK)	mg/l	0.138	0.139	110.	58-147	0.930	20	WG651334
Acetone	mg/l	0.162	0.170	129.	49-153	5.14	21	WG651334
Acrolein	mg/l	0.188	0.195	150.	10-181	3.88	30	WG651334
Acrylonitrile	mg/l	0.149	0.150	119.	53-153	0.580	20	WG651334
Benzene	mg/l	0.0289	0.0287	116.	72-119	0.830	20	WG651334
Bromobenzene	mg/l	0.0274	0.0266	109.	76-121	2.80	20	WG651334
Bromodichloromethane	mg/l	0.0281	0.0276	112.	75-127	1.70	20	WG651334
Bromoform	mg/l	0.0258	0.0255	103.	61-136	1.00	20	WG651334
Bromomethane	mg/l	0.0293	0.0301	117.	42-172	2.51	20	WG651334

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Quality Assurance Report
Level II

L625509

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Carbon tetrachloride	mg/l	0.0295	0.0289	118.	63-129	1.94	20	WG651334
Chlorobenzene	mg/l	0.0270	0.0263	108.	78-123	2.89	20	WG651334
Chlorodibromomethane	mg/l	0.0271	0.0270	108.	73-128	0.120	20	WG651334
Chloroethane	mg/l	0.0315	0.0321	126.	52-164	1.69	20	WG651334
Chloroform	mg/l	0.0292	0.0289	117.	76-122	1.04	20	WG651334
Chloromethane	mg/l	0.0284	0.0285	114.	50-141	0.410	20	WG651334
cis-1,2-Dichloroethene	mg/l	0.0285	0.0282	114.	75-121	0.940	20	WG651334
cis-1,3-Dichloropropene	mg/l	0.0279	0.0276	112.	74-124	1.28	20	WG651334
Di-isopropyl ether	mg/l	0.0293	0.0288	117.	66-129	1.95	20	WG651334
Dibromomethane	mg/l	0.0273	0.0273	109.	77-124	0.130	20	WG651334
Dichlorodifluoromethane	mg/l	0.0297	0.0286	119.	33-173	3.73	20	WG651334
Ethylbenzene	mg/l	0.0281	0.0274	112.	77-124	2.51	20	WG651334
Hexachloro-1,3-butadiene	mg/l	0.0273	0.0263	109.	71-134	3.97	20	WG651334
Isopropylbenzene	mg/l	0.0286	0.0280	114.	74-126	2.30	20	WG651334
Methyl tert-butyl ether	mg/l	0.0280	0.0278	112.	67-127	0.440	20	WG651334
Methylene Chloride	mg/l	0.0302	0.0300	121.	67-122	0.910	20	WG651334
n-Butylbenzene	mg/l	0.0284	0.0277	114.	74-130	2.39	20	WG651334
n-Propylbenzene	mg/l	0.0280	0.0271	112.	77-125	3.24	20	WG651334
Naphthalene	mg/l	0.0268	0.0266	107.	70-134	0.790	20	WG651334
p-Isopropyltoluene	mg/l	0.0282	0.0274	113.	77-132	3.00	20	WG651334
sec-Butylbenzene	mg/l	0.0283	0.0274	113.	77-130	3.44	20	WG651334
Styrene	mg/l	0.0276	0.0276	110.	69-145	0.150	20	WG651334
tert-Butylbenzene	mg/l	0.0279	0.0275	112.	76-131	1.24	20	WG651334
Tetrachloroethene	mg/l	0.0262	0.0257	105.	69-131	2.02	20	WG651334
Toluene	mg/l	0.0267	0.0262	107.	75-114	1.98	20	WG651334
trans-1,2-Dichloroethene	mg/l	0.0286	0.0283	114.	63-127	1.22	20	WG651334
trans-1,3-Dichloropropene	mg/l	0.0264	0.0263	106.	69-124	0.230	20	WG651334
Trichloroethene	mg/l	0.0262	0.0259	105.	69-131	1.21	20	WG651334
Trichlorofluoromethane	mg/l	0.0309	0.0303	124.	53-161	2.18	20	WG651334
Vinyl chloride	mg/l	0.0313	0.0304	125.	55-142	2.89	20	WG651334
Xylenes, Total	mg/l	0.0836	0.0820	111.	77-123	1.90	20	WG651334
4-Bromofluorobenzene				99.59	82-120			WG651334
Dibromofluoromethane				106.9	82-126			WG651334
Toluene-d8				103.0	92-112			WG651334
1,1,1,2-Tetrachloroethane	mg/l	0.0300	0.0252	120.	77-128	17.4	20	WG651361
1,1,1-Trichloroethane	mg/l	0.0292	0.0250	117.	71-126	15.5	20	WG651361
1,1,2,2-Tetrachloroethane	mg/l	0.0286	0.0240	114.	78-130	17.5	20	WG651361
1,1,2-Trichloroethane	mg/l	0.0298	0.0272	119.	81-121	9.15	20	WG651361
1,1,2-Trichlorotrifluoroethane	mg/l	0.0301	0.0257	120.	53-143	15.7	20	WG651361
1,1-Dichloroethane	mg/l	0.0286	0.0245	114.	73-123	15.1	20	WG651361
1,1-Dichloroethene	mg/l	0.0298	0.0257	119.	54-134	14.5	20	WG651361
1,1-Dichloropropene	mg/l	0.0293	0.0261	117.	67-127	11.4	20	WG651361
1,2,3-Trichlorobenzene	mg/l	0.0271	0.0239	108.	77-130	12.4	20	WG651361
1,2,3-Trichloropropane	mg/l	0.0284	0.0242	114.	68-130	15.9	20	WG651361
1,2,3-Trimethylbenzene	mg/l	0.0270	0.0243	108.	77-126	10.6	20	WG651361
1,2,4-Trichlorobenzene	mg/l	0.0262	0.0230	105.	76-127	13.0	20	WG651361
1,2,4-Trimethylbenzene	mg/l	0.0305	0.0258	122.	77-129	16.5	20	WG651361
1,2-Dibromo-3-Chloropropane	mg/l	0.0257	0.0218	103.	55-142	16.4	20	WG651361
1,2-Dibromoethane	mg/l	0.0303	0.0282	121.	78-124	7.27	20	WG651361
1,2-Dichlorobenzene	mg/l	0.0260	0.0230	104.	82-121	12.3	20	WG651361
1,2-Dichloroethane	mg/l	0.0293	0.0265	117.	69-128	10.2	20	WG651361
1,2-Dichloropropane	mg/l	0.0277	0.0242	111.	77-121	13.6	20	WG651361
1,3,5-Trimethylbenzene	mg/l	0.0301	0.0257	120.	78-127	15.7	20	WG651361
1,3-Dichlorobenzene	mg/l	0.0279	0.0234	112.	77-127	17.6	20	WG651361
1,3-Dichloropropane	mg/l	0.0295	0.0275	118*	78-117	7.10	20	WG651361
1,4-Dichlorobenzene	mg/l	0.0252	0.0227	101.	79-117	10.5	20	WG651361
2,2-Dichloropropane	mg/l	0.0298	0.0246	119.	63-130	18.9	20	WG651361

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Quality Assurance Report
Level II

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April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
2-Butanone (MEK)	mg/l	0.154	0.145	123.	58-144	5.84	20	WG651361
2-Chloroethyl vinyl ether	mg/l	0.136	0.140	109.	26-172	2.29	22	WG651361
2-Chlorotoluene	mg/l	0.0298	0.0252	119.	78-123	16.6	20	WG651361
4-Chlorotoluene	mg/l	0.0291	0.0252	116.	78-122	14.3	20	WG651361
4-Methyl-2-pentanone (MIBK)	mg/l	0.140	0.123	112.	58-147	12.7	20	WG651361
Acetone	mg/l	0.166	0.142	133.	49-153	15.5	21	WG651361
Acrolein	mg/l	0.201	0.180	161.	10-181	11.2	30	WG651361
Acrylonitrile	mg/l	0.145	0.125	116.	53-153	15.3	20	WG651361
Benzene	mg/l	0.0286	0.0256	114.	72-119	10.9	20	WG651361
Bromobenzene	mg/l	0.0290	0.0252	116.	76-121	14.1	20	WG651361
Bromodichloromethane	mg/l	0.0276	0.0246	110.	75-127	11.4	20	WG651361
Bromoform	mg/l	0.0296	0.0254	118.	61-136	15.2	20	WG651361
Bromomethane	mg/l	0.0285	0.0238	114.	42-172	17.8	20	WG651361
Carbon tetrachloride	mg/l	0.0298	0.0256	119.	63-129	15.3	20	WG651361
Chlorobenzene	mg/l	0.0296	0.0268	118.	78-123	10.1	20	WG651361
Chlorodibromomethane	mg/l	0.0303	0.0267	121.	73-128	12.5	20	WG651361
Chloroethane	mg/l	0.0301	0.0255	120.	52-164	16.7	20	WG651361
Chloroform	mg/l	0.0287	0.0250	115.	76-122	13.8	20	WG651361
Chloromethane	mg/l	0.0254	0.0216	102.	50-141	16.1	20	WG651361
cis-1,2-Dichloroethene	mg/l	0.0285	0.0244	114.	75-121	15.5	20	WG651361
cis-1,3-Dichloropropene	mg/l	0.0282	0.0265	113.	74-124	6.17	20	WG651361
Di-isopropyl ether	mg/l	0.0290	0.0249	116.	66-129	15.4	20	WG651361
Dibromomethane	mg/l	0.0274	0.0241	109.	77-124	12.7	20	WG651361
Dichlorodifluoromethane	mg/l	0.0232	0.0201	93.0	33-173	14.2	20	WG651361
Ethylbenzene	mg/l	0.0306	0.0276	122.	77-124	10.3	20	WG651361
Hexachloro-1,3-butadiene	mg/l	0.0279	0.0243	112.	71-134	13.9	20	WG651361
Isopropylbenzene	mg/l	0.0309	0.0266	123.	74-126	14.9	20	WG651361
Methyl tert-butyl ether	mg/l	0.0282	0.0237	113.	67-127	17.1	20	WG651361
Methylene Chloride	mg/l	0.0279	0.0239	112.	67-122	15.6	20	WG651361
n-Butylbenzene	mg/l	0.0277	0.0251	111.	74-130	9.80	20	WG651361
n-Propylbenzene	mg/l	0.0297	0.0257	119.	77-125	14.5	20	WG651361
Naphthalene	mg/l	0.0259	0.0228	104.	70-134	12.7	20	WG651361
p-Isopropyltoluene	mg/l	0.0303	0.0256	121.	77-132	16.8	20	WG651361
sec-Butylbenzene	mg/l	0.0303	0.0260	121.	77-130	15.4	20	WG651361
Styrene	mg/l	0.0299	0.0270	120.	69-145	10.4	20	WG651361
tert-Butylbenzene	mg/l	0.0302	0.0259	121.	76-131	15.5	20	WG651361
Tetrachloroethene	mg/l	0.0293	0.0265	117.	69-131	10.2	20	WG651361
Toluene	mg/l	0.0263	0.0243	105.	75-114	7.83	20	WG651361
trans-1,2-Dichloroethene	mg/l	0.0287	0.0246	115.	63-127	15.3	20	WG651361
trans-1,3-Dichloropropene	mg/l	0.0280	0.0268	112.	69-124	4.34	20	WG651361
Trichloroethene	mg/l	0.0270	0.0234	108.	69-131	14.2	20	WG651361
Trichlorofluoromethane	mg/l	0.0296	0.0253	118.	53-161	15.5	20	WG651361
Vinyl chloride	mg/l	0.0284	0.0240	113.	55-142	16.8	20	WG651361
Xylenes, Total	mg/l	0.0910	0.0803	121.	77-123	12.6	20	WG651361
4-Bromofluorobenzene				109.9	82-120			WG651361
Dibromofluoromethane				106.2	82-126			WG651361
Toluene-d8				101.3	92-112			WG651361
1,1,1,2-Tetrachloroethane	mg/l	0.0254	0.0254	102.	77-128	0.0400	20	WG651677
1,1,1-Trichloroethane	mg/l	0.0241	0.0227	96.0	71-126	6.17	20	WG651677
1,1,2,2-Tetrachloroethane	mg/l	0.0246	0.0243	98.0	78-130	1.00	20	WG651677
1,1,2-Trichloroethane	mg/l	0.0257	0.0249	103.	81-121	3.08	20	WG651677
1,1,2-Trichlorotrifluoroethane	mg/l	0.0219	0.0212	88.0	53-143	3.36	20	WG651677
1,1-Dichloroethane	mg/l	0.0237	0.0232	95.0	73-123	2.17	20	WG651677
1,1-Dichloroethene	mg/l	0.0216	0.0218	86.0	54-134	0.540	20	WG651677
1,1-Dichloropropene	mg/l	0.0235	0.0228	94.0	67-127	3.16	20	WG651677
1,2,3-Trichlorobenzene	mg/l	0.0250	0.0254	100.	77-130	1.44	20	WG651677
1,2,3-Trichloropropane	mg/l	0.0239	0.0238	96.0	68-130	0.630	20	WG651677

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Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,2,3-Trimethylbenzene	mg/l	0.0243	0.0242	97.0	77-126	0.520	20	WG651677
1,2,4-Trichlorobenzene	mg/l	0.0237	0.0245	95.0	76-127	3.60	20	WG651677
1,2,4-Trimethylbenzene	mg/l	0.0242	0.0243	97.0	77-129	0.610	20	WG651677
1,2-Dibromo-3-Chloropropane	mg/l	0.0265	0.0271	106.	55-142	1.95	20	WG651677
1,2-Dibromoethane	mg/l	0.0250	0.0240	100.	78-124	4.30	20	WG651677
1,2-Dichlorobenzene	mg/l	0.0248	0.0247	99.0	82-121	0.260	20	WG651677
1,2-Dichloroethane	mg/l	0.0250	0.0230	100.	69-128	8.32	20	WG651677
1,2-Dichloropropane	mg/l	0.0246	0.0239	98.0	77-121	2.82	20	WG651677
1,3,5-Trimethylbenzene	mg/l	0.0233	0.0239	93.0	78-127	2.78	20	WG651677
1,3-Dichlorobenzene	mg/l	0.0239	0.0240	96.0	77-127	0.450	20	WG651677
1,3-Dichloropropane	mg/l	0.0247	0.0248	99.0	78-117	0.560	20	WG651677
1,4-Dichlorobenzene	mg/l	0.0241	0.0235	96.0	79-117	2.56	20	WG651677
2,2-Dichloropropane	mg/l	0.0255	0.0239	102.	63-130	6.41	20	WG651677
2-Butanone (MEK)	mg/l	0.130	0.128	104.	58-144	2.07	20	WG651677
2-Chloroethyl vinyl ether	mg/l	0.127	0.123	102.	26-172	3.10	22	WG651677
2-Chlorotoluene	mg/l	0.0237	0.0238	95.0	78-123	0.210	20	WG651677
4-Chlorotoluene	mg/l	0.0238	0.0239	95.0	78-122	0.530	20	WG651677
4-Methyl-2-pentanone (MIBK)	mg/l	0.120	0.114	96.0	58-147	4.98	20	WG651677
Acetone	mg/l	0.127	0.126	102.	49-153	0.840	21	WG651677
Acrolein	mg/l	0.117	0.103	94.0	10-181	13.5	30	WG651677
Acrylonitrile	mg/l	0.126	0.122	101.	53-153	3.67	20	WG651677
Benzene	mg/l	0.0240	0.0233	96.0	72-119	2.91	20	WG651677
Bromobenzene	mg/l	0.0239	0.0242	96.0	76-121	1.22	20	WG651677
Bromodichloromethane	mg/l	0.0250	0.0244	100.	75-127	2.45	20	WG651677
Bromoform	mg/l	0.0260	0.0253	104.	61-136	2.94	20	WG651677
Bromomethane	mg/l	0.0222	0.0204	89.0	42-172	8.61	20	WG651677
Carbon tetrachloride	mg/l	0.0222	0.0211	89.0	63-129	4.79	20	WG651677
Chlorobenzene	mg/l	0.0246	0.0248	98.0	78-123	0.880	20	WG651677
Chlorodibromomethane	mg/l	0.0260	0.0256	104.	73-128	1.39	20	WG651677
Chloroethane	mg/l	0.0222	0.0218	89.0	52-164	2.03	20	WG651677
Chloroform	mg/l	0.0240	0.0235	96.0	76-122	2.43	20	WG651677
Chloromethane	mg/l	0.0232	0.0221	93.0	50-141	4.97	20	WG651677
cis-1,2-Dichloroethene	mg/l	0.0241	0.0232	96.0	75-121	3.55	20	WG651677
cis-1,3-Dichloropropene	mg/l	0.0249	0.0242	100.	74-124	2.92	20	WG651677
Di-isopropyl ether	mg/l	0.0246	0.0237	98.0	66-129	3.65	20	WG651677
Dibromomethane	mg/l	0.0248	0.0241	99.0	77-124	2.95	20	WG651677
Dichlorodifluoromethane	mg/l	0.0210	0.0208	84.0	33-173	0.580	20	WG651677
Ethylbenzene	mg/l	0.0241	0.0240	96.0	77-124	0.480	20	WG651677
Hexachloro-1,3-butadiene	mg/l	0.0239	0.0249	96.0	71-134	4.17	20	WG651677
Isopropylbenzene	mg/l	0.0237	0.0243	95.0	74-126	2.44	20	WG651677
Methyl tert-butyl ether	mg/l	0.0250	0.0239	100.	67-127	4.30	20	WG651677
Methylene Chloride	mg/l	0.0252	0.0251	101.	67-122	0.420	20	WG651677
n-Butylbenzene	mg/l	0.0234	0.0233	94.0	74-130	0.630	20	WG651677
n-Propylbenzene	mg/l	0.0232	0.0235	93.0	77-125	1.22	20	WG651677
Naphthalene	mg/l	0.0252	0.0257	101.	70-134	1.89	20	WG651677
p-Isopropyltoluene	mg/l	0.0235	0.0240	94.0	77-132	1.91	20	WG651677
sec-Butylbenzene	mg/l	0.0231	0.0231	92.0	77-130	0.200	20	WG651677
Styrene	mg/l	0.0253	0.0254	101.	69-145	0.310	20	WG651677
tert-Butylbenzene	mg/l	0.0235	0.0239	94.0	76-131	1.93	20	WG651677
Tetrachloroethene	mg/l	0.0240	0.0238	96.0	69-131	1.11	20	WG651677
Toluene	mg/l	0.0237	0.0233	95.0	75-114	1.55	20	WG651677
trans-1,2-Dichloroethene	mg/l	0.0246	0.0238	98.0	63-127	3.37	20	WG651677
trans-1,3-Dichloropropene	mg/l	0.0255	0.0242	102.	69-124	5.35	20	WG651677
Trichloroethene	mg/l	0.0233	0.0229	93.0	69-131	1.67	20	WG651677
Trichlorofluoromethane	mg/l	0.0223	0.0207	89.0	53-161	7.43	20	WG651677
Vinyl chloride	mg/l	0.0231	0.0223	92.0	55-142	3.37	20	WG651677
Xylenes, Total	mg/l	0.0723	0.0723	96.0	77-123	0.0700	20	WG651677
4-Bromofluorobenzene				98.35	82-120			WG651677
Dibromofluoromethane				104.6	82-126			WG651677

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Quality Assurance Report
Level II

L625509

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Toluene-d8				104.0		92-112		

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0251	0	.025	100.	71-130	L625211-01	WG651334
1,1,1-Trichloroethane	mg/l	0.0275	0	.025	110.	58-137	L625211-01	WG651334
1,1,2,2-Tetrachloroethane	mg/l	0.0269	0	.025	108.	64-149	L625211-01	WG651334
1,1,2-Trichloroethane	mg/l	0.0253	0	.025	101.	73-128	L625211-01	WG651334
1,1,2-Trichlorotrifluoroethane	mg/l	0.0287	0	.025	115.	36-159	L625211-01	WG651334
1,1-Dichloroethane	mg/l	0.0269	0	.025	108.	58-133	L625211-01	WG651334
1,1-Dichloroethene	mg/l	0.0271	0	.025	108.	32-152	L625211-01	WG651334
1,1-Dichloropropene	mg/l	0.0266	0	.025	106.	50-140	L625211-01	WG651334
1,2,3-Trichlorobenzene	mg/l	0.0260	0	.025	104.	68-135	L625211-01	WG651334
1,2,3-Trichloropropane	mg/l	0.0272	0	.025	109.	74-137	L625211-01	WG651334
1,2,3-Trimethylbenzene	mg/l	0.0318	0.00572	.025	104.	67-133	L625211-01	WG651334
1,2,4-Trichlorobenzene	mg/l	0.0251	0	.025	100.	67-133	L625211-01	WG651334
1,2,4-Trimethylbenzene	mg/l	0.0314	0.00537	.025	104.	62-141	L625211-01	WG651334
1,2-Dibromo-3-Chloropropane	mg/l	0.0287	0	.025	115.	55-148	L625211-01	WG651334
1,2-Dibromoethane	mg/l	0.0250	0	.025	99.8	71-129	L625211-01	WG651334
1,2-Dichlorobenzene	mg/l	0.0246	0	.025	98.3	75-125	L625211-01	WG651334
1,2-Dichloroethane	mg/l	0.0284	0	.025	114.	59-135	L625211-01	WG651334
1,2-Dichloropropane	mg/l	0.0251	0	.025	100.	68-126	L625211-01	WG651334
1,3,5-Trimethylbenzene	mg/l	0.0264	0.000927	.025	102.	67-136	L625211-01	WG651334
1,3-Dichlorobenzene	mg/l	0.0233	0	.025	93.0	69-131	L625211-01	WG651334
1,3-Dichloropropane	mg/l	0.0248	0	.025	99.2	70-122	L625211-01	WG651334
1,4-Dichlorobenzene	mg/l	0.0238	0	.025	95.2	70-123	L625211-01	WG651334
2,2-Dichloropropane	mg/l	0.0296	0	.025	118.	51-141	L625211-01	WG651334
2-Butanone (MEK)	mg/l	0.130	0	.125	104.	51-149	L625211-01	WG651334
2-Chloroethyl vinyl ether	mg/l	0.0408	0	.125	32.6	10-161	L625211-01	WG651334
2-Chlorotoluene	mg/l	0.0250	0	.025	99.9	65-133	L625211-01	WG651334
4-Chlorotoluene	mg/l	0.0239	0	.025	95.6	67-129	L625211-01	WG651334
4-Methyl-2-pentanone (MIBK)	mg/l	0.149	0	.125	119.	53-154	L625211-01	WG651334
Acetone	mg/l	0.0953	0.00206	.125	74.6	34-146	L625211-01	WG651334
Acrolein	mg/l	0.424	0	.125	339.*	10-189	L625211-01	WG651334
Acrylonitrile	mg/l	0.164	0	.125	132.	49-162	L625211-01	WG651334
Benzene	mg/l	0.0263	0	.025	105.	51-134	L625211-01	WG651334
Bromobenzene	mg/l	0.0244	0	.025	97.8	64-130	L625211-01	WG651334
Bromodichloromethane	mg/l	0.0258	0	.025	103.	67-132	L625211-01	WG651334
Bromoform	mg/l	0.0252	0	.025	101.	59-137	L625211-01	WG651334
Bromomethane	mg/l	0.0247	0	.025	98.9	23-177	L625211-01	WG651334
Carbon tetrachloride	mg/l	0.0277	0	.025	111.	49-140	L625211-01	WG651334
Chlorobenzene	mg/l	0.0240	0	.025	96.1	69-126	L625211-01	WG651334
Chlorodibromomethane	mg/l	0.0253	0	.025	101.	68-130	L625211-01	WG651334
Chloroethane	mg/l	0.0277	0	.025	111.	32-177	L625211-01	WG651334
Chloroform	mg/l	0.0273	0	.025	109.	64-130	L625211-01	WG651334
Chloromethane	mg/l	0.0237	0	.025	94.6	27-155	L625211-01	WG651334
cis-1,2-Dichloroethene	mg/l	0.0262	0	.025	105.	54-137	L625211-01	WG651334
cis-1,3-Dichloropropene	mg/l	0.0251	0	.025	100.	63-127	L625211-01	WG651334
Di-isopropyl ether	mg/l	0.0277	0	.025	111.	58-133	L625211-01	WG651334
Dibromomethane	mg/l	0.0261	0	.025	104.	68-131	L625211-01	WG651334
Dichlorodifluoromethane	mg/l	0.0260	0	.025	104.	16-188	L625211-01	WG651334
Ethylbenzene	mg/l	0.0270	0.00184	.025	100.	64-135	L625211-01	WG651334
Hexachloro-1,3-butadiene	mg/l	0.0264	0	.025	106.	64-140	L625211-01	WG651334
Isopropylbenzene	mg/l	0.0266	0.000597	.025	104.	62-134	L625211-01	WG651334
Methyl tert-butyl ether	mg/l	0.0280	0	.025	112.	55-136	L625211-01	WG651334
Methylene Chloride	mg/l	0.0259	0.000610	.025	101.	52-130	L625211-01	WG651334
n-Butylbenzene	mg/l	0.0275	0	.025	110.	62-142	L625211-01	WG651334
n-Propylbenzene	mg/l	0.0258	0.000580	.025	101.	62-137	L625211-01	WG651334

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Quality Assurance Report
Level II

L625509

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Naphthalene	mg/l	0.0303	0.00244	.025	111.	65-140	L625211-01	WG651334
p-Isopropyltoluene	mg/l	0.0265	0	.025	106.	64-142	L625211-01	WG651334
sec-Butylbenzene	mg/l	0.0262	0	.025	105.	67-139	L625211-01	WG651334
Styrene	mg/l	0.0245	0	.025	97.9	58-152	L625211-01	WG651334
tert-Butylbenzene	mg/l	0.0258	0	.025	103.	66-139	L625211-01	WG651334
Tetrachloroethene	mg/l	0.0233	0	.025	93.3	56-139	L625211-01	WG651334
Toluene	mg/l	0.0239	0.000321	.025	94.5	61-126	L625211-01	WG651334
trans-1,2-Dichloroethene	mg/l	0.0255	0	.025	102.	45-137	L625211-01	WG651334
trans-1,3-Dichloropropene	mg/l	0.0254	0	.025	101.	59-130	L625211-01	WG651334
Trichloroethene	mg/l	0.0235	0	.025	94.1	40-155	L625211-01	WG651334
Trichlorofluoromethane	mg/l	0.0276	0	.025	110.	35-177	L625211-01	WG651334
Vinyl chloride	mg/l	0.0252	0	.025	101.	32-159	L625211-01	WG651334
Xylenes, Total	mg/l	0.0809	0.00584	.075	100.	64-133	L625211-01	WG651334
4-Bromofluorobenzene					97.29	82-120		WG651334
Dibromofluoromethane					107.4	82-126		WG651334
Toluene-d8					101.2	92-112		WG651334
1,1,1,2-Tetrachloroethane	mg/l	0.0263	0	.025	105.	71-130	L625509-06	WG651361
1,1,1-Trichloroethane	mg/l	0.0259	0	.025	103.	58-137	L625509-06	WG651361
1,1,2,2-Tetrachloroethane	mg/l	0.0273	0	.025	109.	64-149	L625509-06	WG651361
1,1,2-Trichloroethane	mg/l	0.0280	0	.025	112.	73-128	L625509-06	WG651361
1,1,2-Trichlorotrifluoroethane	mg/l	0.0266	0	.025	106.	36-159	L625509-06	WG651361
1,1-Dichloroethane	mg/l	0.0249	0	.025	99.7	58-133	L625509-06	WG651361
1,1-Dichloroethene	mg/l	0.0258	0	.025	103.	32-152	L625509-06	WG651361
1,1-Dichloropropene	mg/l	0.0262	0	.025	105.	50-140	L625509-06	WG651361
1,2,3-Trichlorobenzene	mg/l	0.0254	0	.025	102.	68-135	L625509-06	WG651361
1,2,3-Trichloropropane	mg/l	0.0278	0	.025	111.	74-137	L625509-06	WG651361
1,2,3-Trimethylbenzene	mg/l	0.0242	0	.025	96.9	67-133	L625509-06	WG651361
1,2,4-Trichlorobenzene	mg/l	0.0245	0	.025	98.1	67-133	L625509-06	WG651361
1,2,4-Trimethylbenzene	mg/l	0.0265	0	.025	106.	62-141	L625509-06	WG651361
1,2-Dibromo-3-Chloropropane	mg/l	0.0263	0	.025	105.	55-148	L625509-06	WG651361
1,2-Dibromoethane	mg/l	0.0296	0	.025	118.	71-129	L625509-06	WG651361
1,2-Dichlorobenzene	mg/l	0.0233	0	.025	93.3	75-125	L625509-06	WG651361
1,2-Dichloroethane	mg/l	0.0269	0	.025	108.	59-135	L625509-06	WG651361
1,2-Dichloropropane	mg/l	0.0246	0	.025	98.4	68-126	L625509-06	WG651361
1,3,5-Trimethylbenzene	mg/l	0.0265	0	.025	106.	67-136	L625509-06	WG651361
1,3-Dichlorobenzene	mg/l	0.0250	0	.025	100.	69-131	L625509-06	WG651361
1,3-Dichloropropane	mg/l	0.0283	0	.025	113.	70-122	L625509-06	WG651361
1,4-Dichlorobenzene	mg/l	0.0228	0	.025	91.2	70-123	L625509-06	WG651361
2,2-Dichloropropane	mg/l	0.0256	0	.025	102.	51-141	L625509-06	WG651361
2-Butanone (MEK)	mg/l	0.118	0	.125	94.2	51-149	L625509-06	WG651361
2-Chloroethyl vinyl ether	mg/l	0.0520	0	.125	41.6	10-161	L625509-06	WG651361
2-Chlorotoluene	mg/l	0.0258	0	.025	103.	65-133	L625509-06	WG651361
4-Chlorotoluene	mg/l	0.0262	0	.025	105.	67-129	L625509-06	WG651361
4-Methyl-2-pentanone (MIBK)	mg/l	0.143	0	.125	114.	53-154	L625509-06	WG651361
Acetone	mg/l	0.0829	0.000884	.125	65.6	34-146	L625509-06	WG651361
Acrolein	mg/l	0.382	0	.125	306.*	10-189	L625509-06	WG651361
Acrylonitrile	mg/l	0.145	0	.125	116.	49-162	L625509-06	WG651361
Benzene	mg/l	0.0257	0	.025	103.	51-134	L625509-06	WG651361
Bromobenzene	mg/l	0.0256	0	.025	102.	64-130	L625509-06	WG651361
Bromodichloromethane	mg/l	0.0248	0	.025	99.4	67-132	L625509-06	WG651361
Bromoform	mg/l	0.0276	0	.025	110.	59-137	L625509-06	WG651361
Bromomethane	mg/l	0.0246	0	.025	98.3	23-177	L625509-06	WG651361
Carbon tetrachloride	mg/l	0.0260	0	.025	104.	49-140	L625509-06	WG651361
Chlorobenzene	mg/l	0.0269	0	.025	108.	69-126	L625509-06	WG651361
Chlorodibromomethane	mg/l	0.0281	0	.025	112.	68-130	L625509-06	WG651361
Chloroethane	mg/l	0.0259	0	.025	104.	32-177	L625509-06	WG651361
Chloroform	mg/l	0.0251	0	.025	100.	64-130	L625509-06	WG651361

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L625509

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Chloromethane	mg/l	0.0221	0	.025	88.4	27-155	L625509-06	WG651361
cis-1,2-Dichloroethene	mg/l	0.0249	0	.025	99.5	54-137	L625509-06	WG651361
cis-1,3-Dichloropropene	mg/l	0.0263	0	.025	105.	63-127	L625509-06	WG651361
Di-isopropyl ether	mg/l	0.0251	0	.025	100.	58-133	L625509-06	WG651361
Dibromomethane	mg/l	0.0256	0	.025	102.	68-131	L625509-06	WG651361
Dichlorodifluoromethane	mg/l	0.0206	0	.025	82.5	16-188	L625509-06	WG651361
Ethylbenzene	mg/l	0.0275	0	.025	110.	64-135	L625509-06	WG651361
Hexachloro-1,3-butadiene	mg/l	0.0249	0	.025	99.5	64-140	L625509-06	WG651361
Isopropylbenzene	mg/l	0.0272	0	.025	109.	62-134	L625509-06	WG651361
Methyl tert-butyl ether	mg/l	0.0257	0	.025	103.	55-136	L625509-06	WG651361
Methylene Chloride	mg/l	0.0241	0	.025	96.3	52-130	L625509-06	WG651361
n-Butylbenzene	mg/l	0.0251	0	.025	100.	62-142	L625509-06	WG651361
n-Propylbenzene	mg/l	0.0264	0	.025	106.	62-137	L625509-06	WG651361
Naphthalene	mg/l	0.0253	0	.025	101.	65-140	L625509-06	WG651361
p-Isopropyltoluene	mg/l	0.0269	0	.025	107.	64-142	L625509-06	WG651361
sec-Butylbenzene	mg/l	0.0271	0	.025	108.	67-139	L625509-06	WG651361
Styrene	mg/l	0.0274	0	.025	110.	58-152	L625509-06	WG651361
tert-Butylbenzene	mg/l	0.0268	0	.025	107.	66-139	L625509-06	WG651361
Tetrachloroethene	mg/l	0.0262	0	.025	105.	56-139	L625509-06	WG651361
Toluene	mg/l	0.0242	0	.025	96.6	61-126	L625509-06	WG651361
trans-1,2-Dichloroethene	mg/l	0.0250	0	.025	99.9	45-137	L625509-06	WG651361
trans-1,3-Dichloropropene	mg/l	0.0275	0	.025	110.	59-130	L625509-06	WG651361
Trichloroethene	mg/l	0.0244	0.000598	.025	95.2	40-155	L625509-06	WG651361
Trichlorofluoromethane	mg/l	0.0258	0	.025	103.	35-177	L625509-06	WG651361
Vinyl chloride	mg/l	0.0245	0	.025	98.2	32-159	L625509-06	WG651361
Xylenes, Total	mg/l	0.0810	0	.075	108.	64-133	L625509-06	WG651361
4-Bromofluorobenzene					109.1	82-120		WG651361
Dibromofluoromethane					104.7	82-126		WG651361
Toluene-d8					104.7	92-112		WG651361
1,1,1,2-Tetrachloroethane	mg/l	0.0251	0	.025	100.	71-130	L624676-03	WG651677
1,1,1-Trichloroethane	mg/l	0.0256	0	.025	102.	58-137	L624676-03	WG651677
1,1,2,2-Tetrachloroethane	mg/l	0.00204	0	.025	8.14*	64-149	L624676-03	WG651677
1,1,2-Trichloroethane	mg/l	0.0244	0	.025	97.7	73-128	L624676-03	WG651677
1,1,2-Trichlorotrifluoroethane	mg/l	0.0245	0	.025	98.1	36-159	L624676-03	WG651677
1,1-Dichloroethane	mg/l	0.0245	0	.025	98.1	58-133	L624676-03	WG651677
1,1-Dichloroethene	mg/l	0.0244	0	.025	97.7	32-152	L624676-03	WG651677
1,1-Dichloropropene	mg/l	0.0257	0	.025	103.	50-140	L624676-03	WG651677
1,2,3-Trichlorobenzene	mg/l	0.0236	0	.025	94.6	68-135	L624676-03	WG651677
1,2,3-Trichloropropane	mg/l	0.0225	0	.025	90.0	74-137	L624676-03	WG651677
1,2,3-Trimethylbenzene	mg/l	0.0252	0	.025	101.	67-133	L624676-03	WG651677
1,2,4-Trichlorobenzene	mg/l	0.0240	0	.025	95.8	67-133	L624676-03	WG651677
1,2,4-Trimethylbenzene	mg/l	0.0255	0	.025	102.	62-141	L624676-03	WG651677
1,2-Dibromo-3-Chloropropane	mg/l	0.0228	0	.025	91.3	55-148	L624676-03	WG651677
1,2-Dibromoethane	mg/l	0.0240	0	.025	95.8	71-129	L624676-03	WG651677
1,2-Dichlorobenzene	mg/l	0.0251	0	.025	100.	75-125	L624676-03	WG651677
1,2-Dichloroethane	mg/l	0.0232	0	.025	92.9	59-135	L624676-03	WG651677
1,2-Dichloropropane	mg/l	0.0242	0.00247	.025	87.1	68-126	L624676-03	WG651677
1,3,5-Trimethylbenzene	mg/l	0.0255	0	.025	102.	67-136	L624676-03	WG651677
1,3-Dichlorobenzene	mg/l	0.0244	0	.025	97.8	69-131	L624676-03	WG651677
1,3-Dichloropropane	mg/l	0.0243	0	.025	97.2	70-122	L624676-03	WG651677
1,4-Dichlorobenzene	mg/l	0.0245	0	.025	97.9	70-123	L624676-03	WG651677
2,2-Dichloropropane	mg/l	0.0232	0	.025	93.0	51-141	L624676-03	WG651677
2-Butanone (MEK)	mg/l	0.125	0	.125	100.	51-149	L624676-03	WG651677
2-Chloroethyl vinyl ether	mg/l	0.120	0	.125	95.9	10-161	L624676-03	WG651677
2-Chlorotoluene	mg/l	0.0250	0	.025	100.	65-133	L624676-03	WG651677
4-Chlorotoluene	mg/l	0.0247	0	.025	98.9	67-129	L624676-03	WG651677
4-Methyl-2-pentanone (MIBK)	mg/l	0.112	0	.125	89.8	53-154	L624676-03	WG651677

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Quality Assurance Report
Level II

L625509

April 10, 2013

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Acetone	mg/l	0.122	0.00216	.125	96.0	34-146	L624676-03	WG651677
Acrolein	mg/l	0.0921	0	.125	73.6	10-189	L624676-03	WG651677
Acrylonitrile	mg/l	0.113	0	.125	90.4	49-162	L624676-03	WG651677
Benzene	mg/l	0.0245	0	.025	98.1	51-134	L624676-03	WG651677
Bromobenzene	mg/l	0.0244	0	.025	97.6	64-130	L624676-03	WG651677
Bromodichloromethane	mg/l	0.0249	0	.025	99.5	67-132	L624676-03	WG651677
Bromoform	mg/l	0.0247	0	.025	98.8	59-137	L624676-03	WG651677
Bromomethane	mg/l	0.0224	0	.025	89.8	23-177	L624676-03	WG651677
Carbon tetrachloride	mg/l	0.0248	0	.025	99.1	49-140	L624676-03	WG651677
Chlorobenzene	mg/l	0.0252	0	.025	101.	69-126	L624676-03	WG651677
Chlorodibromomethane	mg/l	0.0249	0	.025	99.6	68-130	L624676-03	WG651677
Chloroethane	mg/l	0.0227	0	.025	90.9	32-177	L624676-03	WG651677
Chloroform	mg/l	0.0241	0	.025	96.4	64-130	L624676-03	WG651677
Chloromethane	mg/l	0.0228	0	.025	91.0	27-155	L624676-03	WG651677
cis-1,2-Dichloroethene	mg/l	0.0244	0	.025	97.7	54-137	L624676-03	WG651677
cis-1,3-Dichloropropene	mg/l	0.0246	0	.025	98.2	63-127	L624676-03	WG651677
Di-isopropyl ether	mg/l	0.0244	0	.025	97.6	58-133	L624676-03	WG651677
Dibromomethane	mg/l	0.0229	0	.025	91.5	68-131	L624676-03	WG651677
Dichlorodifluoromethane	mg/l	0.0241	0	.025	96.5	16-188	L624676-03	WG651677
Ethylbenzene	mg/l	0.0255	0	.025	102.	64-135	L624676-03	WG651677
Hexachloro-1,3-butadiene	mg/l	0.0251	0	.025	100.	64-140	L624676-03	WG651677
Isopropylbenzene	mg/l	0.0263	0	.025	105.	62-134	L624676-03	WG651677
Methyl tert-butyl ether	mg/l	0.0233	0	.025	93.2	55-136	L624676-03	WG651677
Methylene Chloride	mg/l	0.0241	0	.025	96.5	52-130	L624676-03	WG651677
n-Butylbenzene	mg/l	0.0270	0	.025	108.	62-142	L624676-03	WG651677
n-Propylbenzene	mg/l	0.0262	0	.025	105.	62-137	L624676-03	WG651677
Naphthalene	mg/l	0.0231	0	.025	92.6	65-140	L624676-03	WG651677
p-Isopropyltoluene	mg/l	0.0263	0	.025	105.	64-142	L624676-03	WG651677
sec-Butylbenzene	mg/l	0.0255	0	.025	102.	67-139	L624676-03	WG651677
Styrene	mg/l	0.0261	0	.025	104.	58-152	L624676-03	WG651677
tert-Butylbenzene	mg/l	0.0261	0	.025	104.	66-139	L624676-03	WG651677
Tetrachloroethene	mg/l	0.0273	0	.025	109.	56-139	L624676-03	WG651677
Toluene	mg/l	0.0250	0	.025	100.	61-126	L624676-03	WG651677
trans-1,2-Dichloroethene	mg/l	0.0256	0	.025	102.	45-137	L624676-03	WG651677
trans-1,3-Dichloropropene	mg/l	0.0245	0.000513	.025	95.9	59-130	L624676-03	WG651677
Trichloroethene	mg/l	0.0469	0	.025	187.*	40-155	L624676-03	WG651677
Trichlorofluoromethane	mg/l	0.0244	0	.025	97.7	35-177	L624676-03	WG651677
Vinyl chloride	mg/l	0.0245	0	.025	98.0	32-159	L624676-03	WG651677
Xylenes, Total	mg/l	0.0783	0	.075	104.	64-133	L624676-03	WG651677
4-Bromofluorobenzene					101.5	82-120		WG651677
Dibromofluoromethane					60.92*	82-126		WG651677
Toluene-d8					103.4	92-112		WG651677

Analyte	Units	Matrix Spike Duplicate MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0259	0.0251	104.	71-130	3.40	20	L625211-01	WG651334
1,1,1-Trichloroethane	mg/l	0.0280	0.0275	112.	58-137	1.74	20	L625211-01	WG651334
1,1,2,2-Tetrachloroethane	mg/l	0.0264	0.0269	106.	64-149	1.77	20	L625211-01	WG651334
1,1,2-Trichloroethane	mg/l	0.0268	0.0253	107.	73-128	6.09	20	L625211-01	WG651334
1,1,2-Trichlorotrifluoroethane	mg/l	0.0286	0.0287	114.	36-159	0.460	21	L625211-01	WG651334
1,1-Dichloroethane	mg/l	0.0276	0.0269	110.	58-133	2.26	20	L625211-01	WG651334
1,1-Dichloroethene	mg/l	0.0275	0.0271	110.	32-152	1.53	20	L625211-01	WG651334
1,1-Dichloropropene	mg/l	0.0275	0.0266	110.	50-140	3.42	20	L625211-01	WG651334
1,2,3-Trichlorobenzene	mg/l	0.0279	0.0260	112.	68-135	7.38	20	L625211-01	WG651334
1,2,3-Trichloropropane	mg/l	0.0269	0.0272	107.	74-137	1.12	20	L625211-01	WG651334
1,2,3-Trimethylbenzene	mg/l	0.0327	0.0318	108.	67-133	2.73	20	L625211-01	WG651334
1,2,4-Trichlorobenzene	mg/l	0.0270	0.0251	108.	67-133	7.31	20	L625211-01	WG651334
1,2,4-Trimethylbenzene	mg/l	0.0322	0.0314	107.	62-141	2.61	20	L625211-01	WG651334

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Quality Assurance Report
Level II

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April 10, 2013

Analyte	Units	Matrix Spike MSD	Ref	%Rec	Limit	Duplicate RPD	Limit	Ref Samp	Batch
1,2-Dibromo-3-Chloropropane	mg/l	0.0268	0.0287	107.	55-148	6.71	22	L625211-01	WG651334
1,2-Dibromoethane	mg/l	0.0265	0.0250	106.	71-129	6.01	20	L625211-01	WG651334
1,2-Dichlorobenzene	mg/l	0.0254	0.0246	102.	75-125	3.29	20	L625211-01	WG651334
1,2-Dichloroethane	mg/l	0.0291	0.0284	116.	59-135	2.46	20	L625211-01	WG651334
1,2-Dichloropropane	mg/l	0.0262	0.0251	105.	68-126	4.36	20	L625211-01	WG651334
1,3,5-Trimethylbenzene	mg/l	0.0270	0.0264	104.	67-136	2.27	20	L625211-01	WG651334
1,3-Dichlorobenzene	mg/l	0.0242	0.0233	96.8	69-131	3.93	20	L625211-01	WG651334
1,3-Dichloropropane	mg/l	0.0264	0.0248	106.	70-122	6.32	20	L625211-01	WG651334
1,4-Dichlorobenzene	mg/l	0.0250	0.0238	100.	70-123	4.93	20	L625211-01	WG651334
2,2-Dichloropropane	mg/l	0.0290	0.0296	116.	51-141	1.91	20	L625211-01	WG651334
2-Butanone (MEK)	mg/l	0.122	0.130	97.8	51-149	5.94	22	L625211-01	WG651334
2-Chloroethyl vinyl ether	mg/l	0.00683	0.0408	5.46*	10-161	143.*	40	L625211-01	WG651334
2-Chlorotoluene	mg/l	0.0260	0.0250	104.	65-133	4.07	20	L625211-01	WG651334
4-Chlorotoluene	mg/l	0.0252	0.0239	101.	67-129	5.33	20	L625211-01	WG651334
4-Methyl-2-pentanone (MIBK)	mg/l	0.142	0.149	113.	53-154	5.15	21	L625211-01	WG651334
Acetone	mg/l	0.0841	0.0953	65.6	34-146	12.6	22	L625211-01	WG651334
Acrolein	mg/l	0.374	0.424	299.*	10-189	12.4	30	L625211-01	WG651334
Acrylonitrile	mg/l	0.153	0.164	123.	49-162	6.91	20	L625211-01	WG651334
Benzene	mg/l	0.0276	0.0263	110.	51-134	4.55	20	L625211-01	WG651334
Bromobenzene	mg/l	0.0258	0.0244	103.	64-130	5.37	20	L625211-01	WG651334
Bromodichloromethane	mg/l	0.0266	0.0258	106.	67-132	3.24	20	L625211-01	WG651334
Bromoform	mg/l	0.0253	0.0252	101.	59-137	0.520	20	L625211-01	WG651334
Bromomethane	mg/l	0.0242	0.0247	96.6	23-177	2.31	21	L625211-01	WG651334
Carbon tetrachloride	mg/l	0.0280	0.0277	112.	49-140	1.31	20	L625211-01	WG651334
Chlorobenzene	mg/l	0.0253	0.0240	101.	69-126	5.36	20	L625211-01	WG651334
Chlorodibromomethane	mg/l	0.0262	0.0253	105.	68-130	3.42	20	L625211-01	WG651334
Chloroethane	mg/l	0.0283	0.0277	113.	32-177	2.37	21	L625211-01	WG651334
Chloroform	mg/l	0.0283	0.0273	113.	64-130	3.50	20	L625211-01	WG651334
Chloromethane	mg/l	0.0239	0.0237	95.5	27-155	0.890	20	L625211-01	WG651334
cis-1,2-Dichloroethene	mg/l	0.0268	0.0262	107.	54-137	2.34	20	L625211-01	WG651334
cis-1,3-Dichloropropene	mg/l	0.0265	0.0251	106.	63-127	5.12	20	L625211-01	WG651334
Di-isopropyl ether	mg/l	0.0282	0.0277	113.	58-133	1.65	20	L625211-01	WG651334
Dibromomethane	mg/l	0.0260	0.0261	104.	68-131	0.420	20	L625211-01	WG651334
Dichlorodifluoromethane	mg/l	0.0261	0.0260	104.	16-188	0.390	22	L625211-01	WG651334
Ethylbenzene	mg/l	0.0285	0.0270	106.	64-135	5.50	20	L625211-01	WG651334
Hexachloro-1,3-butadiene	mg/l	0.0271	0.0264	108.	64-140	2.61	20	L625211-01	WG651334
Isopropylbenzene	mg/l	0.0275	0.0266	108.	62-134	3.54	20	L625211-01	WG651334
Methyl tert-butyl ether	mg/l	0.0273	0.0280	109.	55-136	2.53	20	L625211-01	WG651334
Methylene Chloride	mg/l	0.0266	0.0259	104.	52-130	2.39	20	L625211-01	WG651334
n-Butylbenzene	mg/l	0.0284	0.0275	114.	62-142	3.08	20	L625211-01	WG651334
n-Propylbenzene	mg/l	0.0268	0.0258	105.	62-137	3.69	20	L625211-01	WG651334
Naphthalene	mg/l	0.0306	0.0303	113.	65-140	1.12	20	L625211-01	WG651334
p-Isopropyltoluene	mg/l	0.0275	0.0265	110.	64-142	3.83	20	L625211-01	WG651334
sec-Butylbenzene	mg/l	0.0271	0.0262	108.	67-139	3.25	20	L625211-01	WG651334
Styrene	mg/l	0.0255	0.0245	102.	58-152	3.97	20	L625211-01	WG651334
tert-Butylbenzene	mg/l	0.0266	0.0258	106.	66-139	3.16	20	L625211-01	WG651334
Tetrachloroethene	mg/l	0.0242	0.0233	96.6	56-139	3.43	20	L625211-01	WG651334
Toluene	mg/l	0.0251	0.0239	99.2	61-126	4.88	20	L625211-01	WG651334
trans-1,2-Dichloroethene	mg/l	0.0259	0.0255	103.	45-137	1.54	20	L625211-01	WG651334
trans-1,3-Dichloropropene	mg/l	0.0261	0.0254	104.	59-130	2.95	20	L625211-01	WG651334
Trichloroethene	mg/l	0.0245	0.0235	97.9	40-155	4.01	20	L625211-01	WG651334
Trichlorofluoromethane	mg/l	0.0277	0.0276	111.	35-177	0.200	23	L625211-01	WG651334
Vinyl chloride	mg/l	0.0250	0.0252	99.8	32-159	1.06	21	L625211-01	WG651334
Xylenes, Total	mg/l	0.0840	0.0809	104.	64-133	3.79	20	L625211-01	WG651334
4-Bromofluorobenzene				100.7	82-120				WG651334
Dibromofluoromethane				107.6	82-126				WG651334
Toluene-d8				102.9	92-112				WG651334

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1,1,1,2-Tetrachloroethane	mg/l	0.0301	0.0263	120.	71-130	13.4	20	L625509-06	WG651361
1,1,1-Trichloroethane	mg/l	0.0282	0.0259	113.	58-137	8.79	20	L625509-06	WG651361
1,1,2,2-Tetrachloroethane	mg/l	0.0318	0.0273	127.	64-149	15.4	20	L625509-06	WG651361
1,1,2-Trichloroethane	mg/l	0.0319	0.0280	128.	73-128	13.2	20	L625509-06	WG651361
1,1,2-Trichlorotrifluoroethane	mg/l	0.0289	0.0266	116.	36-159	8.30	21	L625509-06	WG651361
1,1-Dichloroethane	mg/l	0.0270	0.0249	108.	58-133	7.92	20	L625509-06	WG651361
1,1-Dichloroethene	mg/l	0.0288	0.0258	115.	32-152	10.9	20	L625509-06	WG651361
1,1-Dichloropropene	mg/l	0.0285	0.0262	114.	50-140	8.34	20	L625509-06	WG651361
1,2,3-Trichlorobenzene	mg/l	0.0281	0.0254	112.	68-135	10.1	20	L625509-06	WG651361
1,2,3-Trichloropropane	mg/l	0.0326	0.0278	130.	74-137	15.7	20	L625509-06	WG651361
1,2,3-Trimethylbenzene	mg/l	0.0260	0.0242	104.	67-133	7.06	20	L625509-06	WG651361
1,2,4-Trichlorobenzene	mg/l	0.0271	0.0245	108.	67-133	9.85	20	L625509-06	WG651361
1,2,4-Trimethylbenzene	mg/l	0.0306	0.0265	122.	62-141	14.5	20	L625509-06	WG651361
1,2-Dibromo-3-Chloropropane	mg/l	0.0297	0.0263	119.	55-148	11.9	22	L625509-06	WG651361
1,2-Dibromoethane	mg/l	0.0340	0.0296	136.*	71-129	13.9	20	L625509-06	WG651361
1,2-Dichlorobenzene	mg/l	0.0255	0.0233	102.	75-125	8.83	20	L625509-06	WG651361
1,2-Dichloroethane	mg/l	0.0295	0.0269	118.	59-135	9.40	20	L625509-06	WG651361
1,2-Dichloropropane	mg/l	0.0268	0.0246	107.	68-126	8.48	20	L625509-06	WG651361
1,3,5-Trimethylbenzene	mg/l	0.0302	0.0265	121.	67-136	13.0	20	L625509-06	WG651361
1,3-Dichlorobenzene	mg/l	0.0288	0.0250	115.	69-131	14.2	20	L625509-06	WG651361
1,3-Dichloropropane	mg/l	0.0321	0.0283	128.*	70-122	12.7	20	L625509-06	WG651361
1,4-Dichlorobenzene	mg/l	0.0250	0.0228	100.	70-123	9.15	20	L625509-06	WG651361
2,2-Dichloropropane	mg/l	0.0285	0.0256	114.	51-141	11.0	20	L625509-06	WG651361
2-Butanone (MEK)	mg/l	0.133	0.118	106.	51-149	12.2	22	L625509-06	WG651361
2-Chloroethyl vinyl ether	mg/l	0.00974	0.0520	7.79*	10-161	137.*	40	L625509-06	WG651361
2-Chlorotoluene	mg/l	0.0294	0.0258	118.	65-133	13.0	20	L625509-06	WG651361
4-Chlorotoluene	mg/l	0.0297	0.0262	119.	67-129	12.6	20	L625509-06	WG651361
4-Methyl-2-pentanone (MIBK)	mg/l	0.159	0.143	127.	53-154	10.8	21	L625509-06	WG651361
Acetone	mg/l	0.0918	0.0829	72.8	34-146	10.2	22	L625509-06	WG651361
Acrolein	mg/l	0.437	0.382	350.*	10-189	13.4	30	L625509-06	WG651361
Acrylonitrile	mg/l	0.163	0.145	131.	49-162	11.7	20	L625509-06	WG651361
Benzene	mg/l	0.0279	0.0257	112.	51-134	8.31	20	L625509-06	WG651361
Bromobenzene	mg/l	0.0294	0.0256	118.	64-130	14.0	20	L625509-06	WG651361
Bromodichloromethane	mg/l	0.0267	0.0248	107.	67-132	7.28	20	L625509-06	WG651361
Bromoform	mg/l	0.0324	0.0276	130.	59-137	16.0	20	L625509-06	WG651361
Bromomethane	mg/l	0.0263	0.0246	105.	23-177	6.86	21	L625509-06	WG651361
Carbon tetrachloride	mg/l	0.0289	0.0260	116.	49-140	10.7	20	L625509-06	WG651361
Chlorobenzene	mg/l	0.0310	0.0269	124.	69-126	14.1	20	L625509-06	WG651361
Chlorodibromomethane	mg/l	0.0317	0.0281	127.	68-130	12.0	20	L625509-06	WG651361
Chloroethane	mg/l	0.0282	0.0259	113.	32-177	8.20	21	L625509-06	WG651361
Chloroform	mg/l	0.0273	0.0251	109.	64-130	8.18	20	L625509-06	WG651361
Chloromethane	mg/l	0.0241	0.0221	96.4	27-155	8.62	20	L625509-06	WG651361
cis-1,2-Dichloroethene	mg/l	0.0270	0.0249	108.	54-137	8.38	20	L625509-06	WG651361
cis-1,3-Dichloropropene	mg/l	0.0285	0.0263	114.	63-127	7.96	20	L625509-06	WG651361
Di-isopropyl ether	mg/l	0.0269	0.0251	107.	58-133	6.81	20	L625509-06	WG651361
Dibromomethane	mg/l	0.0283	0.0256	113.	68-131	10.1	20	L625509-06	WG651361
Dichlorodifluoromethane	mg/l	0.0229	0.0206	91.5	16-188	10.3	22	L625509-06	WG651361
Ethylbenzene	mg/l	0.0315	0.0275	126.	64-135	13.8	20	L625509-06	WG651361
Hexachloro-1,3-butadiene	mg/l	0.0282	0.0249	113.	64-140	12.7	20	L625509-06	WG651361
Isopropylbenzene	mg/l	0.0310	0.0272	124.	62-134	13.0	20	L625509-06	WG651361
Methyl tert-butyl ether	mg/l	0.0280	0.0257	112.	55-136	8.86	20	L625509-06	WG651361
Methylene Chloride	mg/l	0.0261	0.0241	104.	52-130	8.19	20	L625509-06	WG651361
n-Butylbenzene	mg/l	0.0275	0.0251	110.	62-142	9.27	20	L625509-06	WG651361
n-Propylbenzene	mg/l	0.0302	0.0264	121.	62-137	13.5	20	L625509-06	WG651361
Naphthalene	mg/l	0.0286	0.0253	114.	65-140	12.3	20	L625509-06	WG651361
p-Isopropyltoluene	mg/l	0.0309	0.0269	124.	64-142	14.1	20	L625509-06	WG651361
sec-Butylbenzene	mg/l	0.0309	0.0271	123.	67-139	13.1	20	L625509-06	WG651361
Styrene	mg/l	0.0310	0.0274	124.	58-152	12.4	20	L625509-06	WG651361
tert-Butylbenzene	mg/l	0.0307	0.0268	123.	66-139	13.7	20	L625509-06	WG651361

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Tax I.D. 62-0814289

Est. 1970

GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L625509

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Tetrachloroethene	mg/l	0.0309	0.0262	124.	56-139	16.5	20	L625509-06	WG651361
Toluene	mg/l	0.0264	0.0242	106.	61-126	8.97	20	L625509-06	WG651361
trans-1,2-Dichloroethene	mg/l	0.0276	0.0250	110.	45-137	9.94	20	L625509-06	WG651361
trans-1,3-Dichloropropene	mg/l	0.0293	0.0275	117.	59-130	6.32	20	L625509-06	WG651361
Trichloroethene	mg/l	0.0270	0.0244	106.	40-155	10.1	20	L625509-06	WG651361
Trichlorofluoromethane	mg/l	0.0283	0.0258	113.	35-177	9.14	23	L625509-06	WG651361
Vinyl chloride	mg/l	0.0268	0.0245	107.	32-159	8.75	21	L625509-06	WG651361
Xylenes, Total	mg/l	0.0922	0.0810	123.	64-133	13.0	20	L625509-06	WG651361
4-Bromofluorobenzene				114.7	82-120				WG651361
Dibromofluoromethane				103.7	82-126				WG651361
Toluene-d8				102.5	92-112				WG651361
1,1,1,2-Tetrachloroethane	mg/l	0.0244	0.0251	97.7	71-130	2.80	20	L624676-03	WG651677
1,1,1-Trichloroethane	mg/l	0.0248	0.0256	99.3	58-137	3.08	20	L624676-03	WG651677
1,1,2,2-Tetrachloroethane	mg/l	0	0.00204	0*	64-149	200.*	20	L624676-03	WG651677
1,1,2-Trichloroethane	mg/l	0.0250	0.0244	100.	73-128	2.46	20	L624676-03	WG651677
1,1,2-Trichlorotrifluoroethane	mg/l	0.0239	0.0245	95.8	36-159	2.39	21	L624676-03	WG651677
1,1-Dichloroethane	mg/l	0.0239	0.0245	95.8	58-133	2.37	20	L624676-03	WG651677
1,1-Dichloroethene	mg/l	0.0243	0.0244	97.4	32-152	0.350	20	L624676-03	WG651677
1,1-Dichloropropene	mg/l	0.0247	0.0257	98.9	50-140	4.00	20	L624676-03	WG651677
1,2,3-Trichlorobenzene	mg/l	0.0286	0.0236	114.	68-135	19.1	20	L624676-03	WG651677
1,2,3-Trichloropropane	mg/l	0.0247	0.0225	98.7	74-137	9.27	20	L624676-03	WG651677
1,2,3-Trimethylbenzene	mg/l	0.0252	0.0252	101.	67-133	0.330	20	L624676-03	WG651677
1,2,4-Trichlorobenzene	mg/l	0.0272	0.0240	109.	67-133	12.5	20	L624676-03	WG651677
1,2,4-Trimethylbenzene	mg/l	0.0246	0.0255	98.3	62-141	3.69	20	L624676-03	WG651677
1,2-Dibromo-3-Chloropropane	mg/l	0.0298	0.0228	119.	55-148	26.6*	22	L624676-03	WG651677
1,2-Dibromoethane	mg/l	0.0256	0.0240	102.	71-129	6.44	20	L624676-03	WG651677
1,2-Dichlorobenzene	mg/l	0.0263	0.0251	105.	75-125	4.39	20	L624676-03	WG651677
1,2-Dichloroethane	mg/l	0.0248	0.0232	99.1	59-135	6.45	20	L624676-03	WG651677
1,2-Dichloropropane	mg/l	0.0241	0.0242	86.6	68-126	0.550	20	L624676-03	WG651677
1,3,5-Trimethylbenzene	mg/l	0.0239	0.0255	95.4	67-136	6.70	20	L624676-03	WG651677
1,3-Dichlorobenzene	mg/l	0.0243	0.0244	97.4	69-131	0.400	20	L624676-03	WG651677
1,3-Dichloropropane	mg/l	0.0251	0.0243	100.	70-122	3.09	20	L624676-03	WG651677
1,4-Dichlorobenzene	mg/l	0.0253	0.0245	101.	70-123	3.34	20	L624676-03	WG651677
2,2-Dichloropropane	mg/l	0.0284	0.0232	114.	51-141	19.9	20	L624676-03	WG651677
2-Butanone (MEK)	mg/l	0.159	0.125	127.	51-149	24.0*	22	L624676-03	WG651677
2-Chloroethyl vinyl ether	mg/l	0.131	0.120	105.	10-161	8.73	40	L624676-03	WG651677
2-Chlorotoluene	mg/l	0.0241	0.0250	96.2	65-133	3.85	20	L624676-03	WG651677
4-Chlorotoluene	mg/l	0.0235	0.0247	94.1	67-129	4.89	20	L624676-03	WG651677
4-Methyl-2-pentanone (MIBK)	mg/l	0.134	0.112	107.	53-154	17.3	21	L624676-03	WG651677
Acetone	mg/l	0.156	0.122	123.	34-146	24.5*	22	L624676-03	WG651677
Acrolein	mg/l	0.0933	0.0921	74.6	10-189	1.30	30	L624676-03	WG651677
Acrylonitrile	mg/l	0.139	0.113	112.	49-162	20.9*	20	L624676-03	WG651677
Benzene	mg/l	0.0242	0.0245	97.0	51-134	1.13	20	L624676-03	WG651677
Bromobenzene	mg/l	0.0239	0.0244	95.4	64-130	2.22	20	L624676-03	WG651677
Bromodichloromethane	mg/l	0.0243	0.0249	97.2	67-132	2.32	20	L624676-03	WG651677
Bromoform	mg/l	0.0271	0.0247	108.	59-137	9.11	20	L624676-03	WG651677
Bromomethane	mg/l	0.0219	0.0224	87.6	23-177	2.39	21	L624676-03	WG651677
Carbon tetrachloride	mg/l	0.0233	0.0248	93.2	49-140	6.10	20	L624676-03	WG651677
Chlorobenzene	mg/l	0.0243	0.0252	97.2	69-126	3.51	20	L624676-03	WG651677
Chlorodibromomethane	mg/l	0.0264	0.0249	106.	68-130	5.92	20	L624676-03	WG651677
Chloroethane	mg/l	0.0231	0.0227	92.5	32-177	1.73	21	L624676-03	WG651677
Chloroform	mg/l	0.0243	0.0241	97.0	64-130	0.620	20	L624676-03	WG651677
Chloromethane	mg/l	0.0236	0.0228	94.4	27-155	3.66	20	L624676-03	WG651677
cis-1,2-Dichloroethene	mg/l	0.0241	0.0244	96.6	54-137	1.10	20	L624676-03	WG651677
cis-1,3-Dichloropropene	mg/l	0.0245	0.0246	97.9	63-127	0.320	20	L624676-03	WG651677
Di-isopropyl ether	mg/l	0.0244	0.0244	97.5	58-133	0.0900	20	L624676-03	WG651677
Dibromomethane	mg/l	0.0243	0.0229	97.2	68-131	6.12	20	L624676-03	WG651677

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Est. 1970

GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L625509

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Dichlorodifluoromethane	mg/l	0.0243	0.0241	97.0	16-188	0.550	22	L624676-03	WG651677
Ethylbenzene	mg/l	0.0241	0.0255	96.3	64-135	5.95	20	L624676-03	WG651677
Hexachloro-1,3-butadiene	mg/l	0.0271	0.0251	108.	64-140	7.55	20	L624676-03	WG651677
Isopropylbenzene	mg/l	0.0243	0.0263	97.3	62-134	7.65	20	L624676-03	WG651677
Methyl tert-butyl ether	mg/l	0.0256	0.0233	102.	55-136	9.29	20	L624676-03	WG651677
Methylene Chloride	mg/l	0.0255	0.0241	102.	52-130	5.73	20	L624676-03	WG651677
n-Butylbenzene	mg/l	0.0255	0.0270	102.	62-142	5.62	20	L624676-03	WG651677
n-Propylbenzene	mg/l	0.0241	0.0262	96.3	62-137	8.60	20	L624676-03	WG651677
Naphthalene	mg/l	0.0297	0.0231	119.	65-140	24.9*	20	L624676-03	WG651677
p-Isopropyltoluene	mg/l	0.0246	0.0263	98.4	64-142	6.82	20	L624676-03	WG651677
sec-Butylbenzene	mg/l	0.0242	0.0255	96.7	67-139	5.45	20	L624676-03	WG651677
Styrene	mg/l	0.0251	0.0261	100.	58-152	4.09	20	L624676-03	WG651677
tert-Butylbenzene	mg/l	0.0247	0.0261	98.6	66-139	5.80	20	L624676-03	WG651677
Tetrachloroethene	mg/l	0.0253	0.0273	101.	56-139	7.81	20	L624676-03	WG651677
Toluene	mg/l	0.0238	0.0250	95.2	61-126	4.97	20	L624676-03	WG651677
trans-1,2-Dichloroethene	mg/l	0.0250	0.0256	100.	45-137	2.49	20	L624676-03	WG651677
trans-1,3-Dichloropropene	mg/l	0.0256	0.0245	100.	59-130	4.30	20	L624676-03	WG651677
Trichloroethene	mg/l	0.0455	0.0469	182.*	40-155	3.04	20	L624676-03	WG651677
Trichlorofluoromethane	mg/l	0.0243	0.0244	97.1	35-177	0.630	23	L624676-03	WG651677
Vinyl chloride	mg/l	0.0252	0.0245	101.	32-159	2.72	21	L624676-03	WG651677
Xylenes, Total	mg/l	0.0722	0.0783	96.2	64-133	8.08	20	L624676-03	WG651677
4-Bromofluorobenzene				96.39	82-120				WG651677
Dibromofluoromethane				52.04*	82-126				WG651677
Toluene-d8				102.8	92-112				WG651677

Batch number /Run number / Sample number cross reference

WG651334: R2586917: L625509-08 09
WG651361: R2587037: L625509-01 02 03 04 05 06 07
WG651677: R2587617: L625509-10 11 12 13 14

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
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Tacoma, WA 98402

Quality Assurance Report
Level II

L625509

April 10, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

D030

ESC LAB SCIENCES
12065 Lebanon Road
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Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: Nick Rohrback

Email: nrohrbach@geoengineers.con

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0180.121-08 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): John Davis / Hannah McDonough

Site/Facility ID#: TUMWATER, WA

P.O.#:

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Analysis/Container/Preservative

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T84796/ P420852
Cooler #: 2/18 [initials]
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk	Remarks/Contaminant	Sample # (lab only)
TB-7 030313		GW		3/13/13	—	~~2~~ 2	~~X~~	X	L625509	.01
PZ-704 130313		GW			1215	3	X			-02
PZ-709 130313		GW			1225	3	X			-03
RPZ-730 130313		GW			1500	3	X			-04
PZ-715 130313		GW			1105	3	X			-05
RPZ-731 130313		GW			1600	3	X			-06
PZ-723 130314		GW		3/14/13	1000	3	X			-07
~~TRIP BLANK~~		~~GW~~				~~1~~		~~X~~		
~~TRIP BLANK~~		~~GW~~				~~1~~		~~X~~		

JCD 3/14/13

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

pH _____ Temp _____

Flow _____ Other _____

Quote # GEOENGTWA 021813L

Standard Turnaround

SS 470230 1765

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
[signature]	3/14/13	1600	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐

Temp: 31°F Bottles Received: 39

Date: 3/16/13 Time: 0945

Condition: OK (lab use only) TD

COC Seal Intact: ✓ Y ___ N ___ NA

pH Checked: NCF:

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
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Tacoma, WA 98402

Analysis/Container/Preservative

Chain of Custody
Page 2 of 2

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Phone: (615) 758-5858
Fax: (615) 758-5859

Report to: Nick Rohrback

Email: nrohrbach@geoengineers.com

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0180-121-08 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): Hannah McDonagh

Site/Facility ID#: TUMWATER, WA

P.O.#:

Collected by (signature): Immediately

Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

(lab use only)
Acctnum: GEOENGTWA
Template/Prelogin: T84796/ P420852
Cooler #: 2-18
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk							Remarks/Contaminant	Sample # (lab only)
~~TRIP BLANK~~ JCD 3/14/13		~~GW~~				1		X								
PZ-724 130314				3/14/13	1055		X								LG25509-08	
PZ-719 130314					1145		X								-09	
PZ-720 130314					1230		X								-10	
PZ-722 130314					1330		X								-11	
PZ-721 130314					1425		X								-12	
PZ-725 130314					1510		X								-13	
DUP-4 130314				3/14/13	—			X							-14	

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

pH _____ Temp _____

Flow _____ Other _____

Quote# GEOENGTWA 021813 L Standard Turnaround

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____	Condition: (lab use only)
	3/14/13	1600			OK
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1°C Bottles Received: 39	COC Seal Intact: ___Y ___N ___NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/16/13 Time: 0945	pH Checked: NCF:

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Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Report Summary

Wednesday April 10, 2013

Report Number: L626394
Samples Received: 03/21/13
Client Project: 0180-121-08

Description: Palermo Wellfield Superfund Site

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: _____

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-1 130319

Collected By : LL/AW
Collection Date : 03/19/13 14:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/22/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/22/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/22/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/22/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/22/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/22/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/22/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/22/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/22/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/22/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/22/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/22/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/22/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/22/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l	J4	8260B	03/22/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/22/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/22/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/22/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/22/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/22/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/22/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/22/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-01

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-1 130319

Collected By : LL/AW
Collection Date : 03/19/13 14:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/22/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/22/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/22/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/22/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/22/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/22/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/22/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/22/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/22/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/22/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/22/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/22/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/22/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/22/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/22/13	1
Dibromofluoromethane	106.			% Rec.		8260B	03/22/13	1
4-Bromofluorobenzene	99.8			% Rec.		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-2 130319

Collected By : LL/AW
Collection Date : 03/19/13 09:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/22/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/22/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/22/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/22/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/22/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/22/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/22/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/22/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/22/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/22/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/22/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/22/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/22/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/22/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l	J4	8260B	03/22/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/22/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/22/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/22/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/22/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/22/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/22/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/22/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/22/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-02

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-2 130319

Collected By : LL/AW
Collection Date : 03/19/13 09:55

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/22/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/22/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/22/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/22/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/22/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/22/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/22/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/22/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/22/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/22/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/22/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/22/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/22/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/22/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/22/13	1
Dibromofluoromethane	108.			% Rec.		8260B	03/22/13	1
4-Bromofluorobenzene	98.9			% Rec.		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-3 130319

Collected By : LL/AW
Collection Date : 03/19/13 11:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/22/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/22/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/22/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/22/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/22/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/22/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/22/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/22/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/22/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/22/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/22/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/22/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/22/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/22/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l	J4	8260B	03/22/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/22/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/22/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/22/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/22/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/22/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/22/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/22/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-03

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-3 130319

Collected By : LL/AW
Collection Date : 03/19/13 11:40

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/22/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/22/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/22/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/22/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/22/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/22/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/22/13	1
Toluene	15.	0.78	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/22/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/22/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/22/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/22/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/22/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/22/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/22/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/22/13	1
Dibromofluoromethane	108.			% Rec.		8260B	03/22/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/22/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-5 130319

Collected By : LL/AW
Collection Date : 03/19/13 12:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/22/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/22/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/22/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/22/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/22/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/22/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/22/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/22/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/22/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/22/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/22/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/22/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/22/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/22/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l	J4	8260B	03/22/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/22/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/22/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/22/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/22/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/22/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/22/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/22/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/22/13	1

U = ND (Not Detected)
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-04

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : SEEP-5 130319

Collected By : LL/AW
Collection Date : 03/19/13 12:25

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/22/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/22/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/22/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/22/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/22/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/22/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/22/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/22/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/22/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/22/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/22/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/22/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/22/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/22/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/22/13	1
Dibromofluoromethane	107.			% Rec.		8260B	03/22/13	1
4-Bromofluorobenzene	97.6			% Rec.		8260B	03/22/13	1

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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-5 130319

Collected By : LL/AW
Collection Date : 03/19/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/22/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/22/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/22/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/22/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/22/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/22/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/22/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/22/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/22/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/22/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/22/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/22/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/22/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/22/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l	J4	8260B	03/22/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/22/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/22/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/22/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/22/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/22/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/22/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/22/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-05

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : DUP-5 130319

Collected By : LL/AW
Collection Date : 03/19/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/22/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/22/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/22/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/22/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/22/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/22/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/22/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/22/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/22/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/22/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/22/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/22/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/22/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/22/13	1
Surrogate Recovery								
Toluene-d8	102.			% Rec.		8260B	03/22/13	1
Dibromofluoromethane	107.			% Rec.		8260B	03/22/13	1
4-Bromofluorobenzene	99.4			% Rec.		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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Est. 1970

REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-8 130319

Collected By : LL/AW
Collection Date : 03/19/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Acetone	U	10.	50.	ug/l		8260B	03/22/13	1
Acrolein	U	8.9	50.	ug/l		8260B	03/22/13	1
Acrylonitrile	U	1.9	10.	ug/l		8260B	03/22/13	1
Benzene	U	0.33	1.0	ug/l		8260B	03/22/13	1
Bromobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Bromodichloromethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Bromoform	U	0.47	1.0	ug/l		8260B	03/22/13	1
Bromomethane	U	0.87	5.0	ug/l		8260B	03/22/13	1
n-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
sec-Butylbenzene	U	0.36	1.0	ug/l		8260B	03/22/13	1
tert-Butylbenzene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/22/13	1
Chlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Chlorodibromomethane	U	0.33	1.0	ug/l		8260B	03/22/13	1
Chloroethane	U	0.45	5.0	ug/l		8260B	03/22/13	1
2-Chloroethyl vinyl ether	U	3.0	50.	ug/l		8260B	03/22/13	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/22/13	1
Chloromethane	U	0.28	2.5	ug/l		8260B	03/22/13	1
2-Chlorotoluene	U	0.38	1.0	ug/l		8260B	03/22/13	1
4-Chlorotoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dibromo-3-Chloropropane	U	1.3	5.0	ug/l		8260B	03/22/13	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Dibromomethane	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,2-Dichlorobenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichlorobenzene	U	0.22	1.0	ug/l	J4	8260B	03/22/13	1
1,4-Dichlorobenzene	U	0.27	1.0	ug/l		8260B	03/22/13	1
Dichlorodifluoromethane	U	0.55	5.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
cis-1,2-Dichloroethene	U	0.26	1.0	ug/l		8260B	03/22/13	1
trans-1,2-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
1,2-Dichloropropane	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1-Dichloropropene	U	0.35	1.0	ug/l		8260B	03/22/13	1
1,3-Dichloropropane	U	0.37	1.0	ug/l		8260B	03/22/13	1
cis-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
trans-1,3-Dichloropropene	U	0.42	1.0	ug/l		8260B	03/22/13	1
2,2-Dichloropropane	U	0.32	1.0	ug/l		8260B	03/22/13	1
Di-isopropyl ether	U	0.32	1.0	ug/l		8260B	03/22/13	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/22/13	1
Hexachloro-1,3-butadiene	U	0.26	1.0	ug/l		8260B	03/22/13	1
Isopropylbenzene	U	0.33	1.0	ug/l		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
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REPORT OF ANALYSIS

Nick Rohrback
GeoEngineers - Tacoma, WA
1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

April 10, 2013

ESC Sample # : L626394-06

Site ID : TUMWATER, WA

Project # : 0180-121-08

Date Received : March 21, 2013
Description : Palermo Wellfield Superfund Site

Sample ID : TB-8 130319

Collected By : LL/AW
Collection Date : 03/19/13 00:00

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
p-Isopropyltoluene	U	0.35	1.0	ug/l		8260B	03/22/13	1
2-Butanone (MEK)	U	3.9	10.	ug/l		8260B	03/22/13	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/22/13	1
4-Methyl-2-pentanone (MIBK)	U	2.1	10.	ug/l		8260B	03/22/13	1
Methyl tert-butyl ether	U	0.37	1.0	ug/l		8260B	03/22/13	1
Naphthalene	U	1.0	5.0	ug/l		8260B	03/22/13	1
n-Propylbenzene	U	0.35	1.0	ug/l		8260B	03/22/13	1
Styrene	U	0.31	1.0	ug/l		8260B	03/22/13	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
1,1,2,2-Tetrachloroethane	U	0.58	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichlorotrifluoroethane	U	0.30	1.0	ug/l		8260B	03/22/13	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/22/13	1
Toluene	U	0.78	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichlorobenzene	U	0.23	1.0	ug/l	J4	8260B	03/22/13	1
1,2,4-Trichlorobenzene	U	0.21	1.0	ug/l		8260B	03/22/13	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/22/13	1
Trichloroethene	U	0.40	1.0	ug/l		8260B	03/22/13	1
Trichlorofluoromethane	U	1.2	5.0	ug/l		8260B	03/22/13	1
1,2,3-Trichloropropane	U	0.81	2.5	ug/l		8260B	03/22/13	1
1,2,4-Trimethylbenzene	U	0.37	1.0	ug/l		8260B	03/22/13	1
1,2,3-Trimethylbenzene	U	0.32	1.0	ug/l		8260B	03/22/13	1
1,3,5-Trimethylbenzene	U	0.39	1.0	ug/l		8260B	03/22/13	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/22/13	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/22/13	1
Surrogate Recovery								
Toluene-d8	101.			% Rec.		8260B	03/22/13	1
Dibromofluoromethane	106.			% Rec.		8260B	03/22/13	1
4-Bromofluorobenzene	100.			% Rec.		8260B	03/22/13	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL
MDL = Minimum Detection Limit = LOD = TRRP SDL
Note:
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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L626394-01	WG652329	SAMP	1,3-Dichlorobenzene	R2593498	J4
	WG652329	SAMP	1,2,3-Trichlorobenzene	R2593498	J4
L626394-02	WG652329	SAMP	1,3-Dichlorobenzene	R2593498	J4
	WG652329	SAMP	1,2,3-Trichlorobenzene	R2593498	J4
L626394-03	WG652329	SAMP	1,3-Dichlorobenzene	R2593498	J4
	WG652329	SAMP	1,2,3-Trichlorobenzene	R2593498	J4
L626394-04	WG652329	SAMP	1,3-Dichlorobenzene	R2593498	J4
	WG652329	SAMP	1,2,3-Trichlorobenzene	R2593498	J4
L626394-05	WG652329	SAMP	1,3-Dichlorobenzene	R2593498	J4
	WG652329	SAMP	1,2,3-Trichlorobenzene	R2593498	J4
L626394-06	WG652329	SAMP	1,3-Dichlorobenzene	R2593498	J4
	WG652329	SAMP	1,2,3-Trichlorobenzene	R2593498	J4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J4	The associated batch QC was outside the established quality control range for accuracy.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/10/13 at 13:01:02

TSR Signing Reports: 358
R5 - Desired TAT

Log all samples from GEOENGTWA-PALERMO for QC3. Log all samples for EDD (EQUIS-4). Log ALL GW Metals by 6020.

Sample: L626394-01 Account: GEOENGTWA Received: 03/21/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:00
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only. uni 692806 dor 4/4/13.
Sample: L626394-02 Account: GEOENGTWA Received: 03/21/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:00
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.
Sample: L626394-03 Account: GEOENGTWA Received: 03/21/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:00
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.
Sample: L626394-04 Account: GEOENGTWA Received: 03/21/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:00
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.
Sample: L626394-05 Account: GEOENGTWA Received: 03/21/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:00
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.
Sample: L626394-06 Account: GEOENGTWA Received: 03/21/13 09:00 Due Date: 04/10/13 00:00 RPT Date: 04/10/13 13:00
V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

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Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L626394

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG652329	03/21/13 22:35
1,1,1-Trichloroethane	< .001	mg/l			WG652329	03/21/13 22:35
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG652329	03/21/13 22:35
1,1,2-Trichloroethane	< .001	mg/l			WG652329	03/21/13 22:35
1,1,2-Trichlorotrifluoroethane	< .001	mg/l			WG652329	03/21/13 22:35
1,1-Dichloroethane	< .001	mg/l			WG652329	03/21/13 22:35
1,1-Dichloroethene	< .001	mg/l			WG652329	03/21/13 22:35
1,1-Dichloropropene	< .001	mg/l			WG652329	03/21/13 22:35
1,2,3-Trichlorobenzene	< .001	mg/l			WG652329	03/21/13 22:35
1,2,3-Trichloropropane	< .001	mg/l			WG652329	03/21/13 22:35
1,2,3-Trimethylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
1,2,4-Trichlorobenzene	< .001	mg/l			WG652329	03/21/13 22:35
1,2,4-Trimethylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG652329	03/21/13 22:35
1,2-Dibromoethane	< .001	mg/l			WG652329	03/21/13 22:35
1,2-Dichlorobenzene	< .001	mg/l			WG652329	03/21/13 22:35
1,2-Dichloroethane	< .001	mg/l			WG652329	03/21/13 22:35
1,2-Dichloropropane	< .001	mg/l			WG652329	03/21/13 22:35
1,3,5-Trimethylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
1,3-Dichlorobenzene	< .001	mg/l			WG652329	03/21/13 22:35
1,3-Dichloropropane	< .001	mg/l			WG652329	03/21/13 22:35
1,4-Dichlorobenzene	< .001	mg/l			WG652329	03/21/13 22:35
2,2-Dichloropropane	< .001	mg/l			WG652329	03/21/13 22:35
2-Butanone (MEK)	< .01	mg/l			WG652329	03/21/13 22:35
2-Chloroethyl vinyl ether	< .05	mg/l			WG652329	03/21/13 22:35
2-Chlorotoluene	< .001	mg/l			WG652329	03/21/13 22:35
4-Chlorotoluene	< .001	mg/l			WG652329	03/21/13 22:35
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG652329	03/21/13 22:35
Acetone	< .05	mg/l			WG652329	03/21/13 22:35
Acrolein	< .025	mg/l			WG652329	03/21/13 22:35
Acrylonitrile	< .01	mg/l			WG652329	03/21/13 22:35
Benzene	< .001	mg/l			WG652329	03/21/13 22:35
Bromobenzene	< .001	mg/l			WG652329	03/21/13 22:35
Bromodichloromethane	< .001	mg/l			WG652329	03/21/13 22:35
Bromoform	< .001	mg/l			WG652329	03/21/13 22:35
Bromomethane	< .005	mg/l			WG652329	03/21/13 22:35
Carbon tetrachloride	< .001	mg/l			WG652329	03/21/13 22:35
Chlorobenzene	< .001	mg/l			WG652329	03/21/13 22:35
Chlorodibromomethane	< .001	mg/l			WG652329	03/21/13 22:35
Chloroethane	< .005	mg/l			WG652329	03/21/13 22:35
Chloroform	< .005	mg/l			WG652329	03/21/13 22:35
Chloromethane	< .0025	mg/l			WG652329	03/21/13 22:35
cis-1,2-Dichloroethene	< .001	mg/l			WG652329	03/21/13 22:35
cis-1,3-Dichloropropene	< .001	mg/l			WG652329	03/21/13 22:35
Di-isopropyl ether	< .001	mg/l			WG652329	03/21/13 22:35
Dibromomethane	< .001	mg/l			WG652329	03/21/13 22:35
Dichlorodifluoromethane	< .005	mg/l			WG652329	03/21/13 22:35
Ethylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
Hexachloro-1,3-butadiene	< .001	mg/l			WG652329	03/21/13 22:35
Isopropylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
Methyl tert-butyl ether	< .001	mg/l			WG652329	03/21/13 22:35
Methylene Chloride	< .005	mg/l			WG652329	03/21/13 22:35
n-Butylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
n-Propylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
Naphthalene	< .005	mg/l			WG652329	03/21/13 22:35
p-Isopropyltoluene	< .001	mg/l			WG652329	03/21/13 22:35
sec-Butylbenzene	< .001	mg/l			WG652329	03/21/13 22:35
Styrene	< .001	mg/l			WG652329	03/21/13 22:35
tert-Butylbenzene	< .001	mg/l			WG652329	03/21/13 22:35

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L626394

April 10, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Tetrachloroethene	< .001	mg/l			WG652329	03/21/13 22:35
Toluene	< .005	mg/l			WG652329	03/21/13 22:35
trans-1,2-Dichloroethene	< .001	mg/l			WG652329	03/21/13 22:35
trans-1,3-Dichloropropene	< .001	mg/l			WG652329	03/21/13 22:35
Trichloroethene	< .001	mg/l			WG652329	03/21/13 22:35
Trichlorofluoromethane	< .005	mg/l			WG652329	03/21/13 22:35
Vinyl chloride	< .001	mg/l			WG652329	03/21/13 22:35
Xylenes, Total	< .003	mg/l			WG652329	03/21/13 22:35
4-Bromofluorobenzene		% Rec.	100.9	82-120	WG652329	03/21/13 22:35
Dibromofluoromethane		% Rec.	107.4	82-126	WG652329	03/21/13 22:35
Toluene-d8		% Rec.	102.0	92-112	WG652329	03/21/13 22:35

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0217	86.9	77-128	WG652329
1,1,1-Trichloroethane	mg/l	.025	0.0243	97.4	71-126	WG652329
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0210	84.2	78-130	WG652329
1,1,2-Trichloroethane	mg/l	.025	0.0224	89.7	81-121	WG652329
1,1,2-Trichlorotrifluoroethane	mg/l	.025	0.0272	109.	53-143	WG652329
1,1-Dichloroethane	mg/l	.025	0.0246	98.6	73-123	WG652329
1,1-Dichloroethene	mg/l	.025	0.0290	116.	54-134	WG652329
1,1-Dichloropropene	mg/l	.025	0.0243	97.1	67-127	WG652329
1,2,3-Trichlorobenzene	mg/l	.025	0.0191	76.4*	77-130	WG652329
1,2,3-Trichloropropane	mg/l	.025	0.0205	82.2	68-130	WG652329
1,2,3-Trimethylbenzene	mg/l	.025	0.0234	93.8	77-126	WG652329
1,2,4-Trichlorobenzene	mg/l	.025	0.0191	76.6	76-127	WG652329
1,2,4-Trimethylbenzene	mg/l	.025	0.0214	85.6	77-129	WG652329
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0227	90.7	55-142	WG652329
1,2-Dibromoethane	mg/l	.025	0.0227	90.7	78-124	WG652329
1,2-Dichlorobenzene	mg/l	.025	0.0225	89.9	82-121	WG652329
1,2-Dichloroethane	mg/l	.025	0.0242	97.0	69-128	WG652329
1,2-Dichloropropane	mg/l	.025	0.0229	91.5	77-121	WG652329
1,3,5-Trimethylbenzene	mg/l	.025	0.0214	85.5	78-127	WG652329
1,3-Dichlorobenzene	mg/l	.025	0.0194	77.5	77-127	WG652329
1,3-Dichloropropane	mg/l	.025	0.0222	88.9	78-117	WG652329
1,4-Dichlorobenzene	mg/l	.025	0.0220	88.2	79-117	WG652329
2,2-Dichloropropane	mg/l	.025	0.0226	90.3	63-130	WG652329
2-Butanone (MEK)	mg/l	.125	0.103	82.2	58-144	WG652329
2-Chloroethyl vinyl ether	mg/l	.125	0.112	89.5	26-172	WG652329
2-Chlorotoluene	mg/l	.025	0.0228	91.1	78-123	WG652329
4-Chlorotoluene	mg/l	.025	0.0212	84.9	78-122	WG652329
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.105	84.4	58-147	WG652329
Acetone	mg/l	.125	0.105	84.4	49-153	WG652329
Acrolein	mg/l	.125	0.0984	78.7	10-181	WG652329
Acrylonitrile	mg/l	.125	0.124	99.5	53-153	WG652329
Benzene	mg/l	.025	0.0235	94.2	72-119	WG652329
Bromobenzene	mg/l	.025	0.0213	85.1	76-121	WG652329
Bromodichloromethane	mg/l	.025	0.0236	94.6	75-127	WG652329
Bromoform	mg/l	.025	0.0218	87.2	61-136	WG652329
Bromomethane	mg/l	.025	0.0296	119.	42-172	WG652329
Carbon tetrachloride	mg/l	.025	0.0241	96.4	63-129	WG652329
Chlorobenzene	mg/l	.025	0.0218	87.3	78-123	WG652329
Chlorodibromomethane	mg/l	.025	0.0226	90.5	73-128	WG652329
Chloroethane	mg/l	.025	0.0296	118.	52-164	WG652329
Chloroform	mg/l	.025	0.0241	96.3	76-122	WG652329
Chloromethane	mg/l	.025	0.0218	87.4	50-141	WG652329
cis-1,2-Dichloroethene	mg/l	.025	0.0240	96.1	75-121	WG652329
cis-1,3-Dichloropropene	mg/l	.025	0.0232	92.9	74-124	WG652329

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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L626394

April 10, 2013

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Di-isopropyl ether	mg/l	.025	0.0239	95.5	66-129	WG652329
Dibromomethane	mg/l	.025	0.0233	93.3	77-124	WG652329
Dichlorodifluoromethane	mg/l	.025	0.0206	82.5	33-173	WG652329
Ethylbenzene	mg/l	.025	0.0220	88.1	77-124	WG652329
Hexachloro-1,3-butadiene	mg/l	.025	0.0214	85.5	71-134	WG652329
Isopropylbenzene	mg/l	.025	0.0217	86.9	74-126	WG652329
Methyl tert-butyl ether	mg/l	.025	0.0246	98.4	67-127	WG652329
Methylene Chloride	mg/l	.025	0.0247	98.7	67-122	WG652329
n-Butylbenzene	mg/l	.025	0.0235	94.0	74-130	WG652329
n-Propylbenzene	mg/l	.025	0.0219	87.6	77-125	WG652329
Naphthalene	mg/l	.025	0.0215	85.9	70-134	WG652329
p-Isopropyltoluene	mg/l	.025	0.0208	83.3	77-132	WG652329
sec-Butylbenzene	mg/l	.025	0.0213	85.0	77-130	WG652329
Styrene	mg/l	.025	0.0223	89.1	69-145	WG652329
tert-Butylbenzene	mg/l	.025	0.0213	85.2	76-131	WG652329
Tetrachloroethene	mg/l	.025	0.0207	82.7	69-131	WG652329
Toluene	mg/l	.025	0.0221	88.5	75-114	WG652329
trans-1,2-Dichloroethene	mg/l	.025	0.0249	99.8	63-127	WG652329
trans-1,3-Dichloropropene	mg/l	.025	0.0215	86.1	69-124	WG652329
Trichloroethene	mg/l	.025	0.0222	89.0	69-131	WG652329
Trichlorofluoromethane	mg/l	.025	0.0262	105.	53-161	WG652329
Vinyl chloride	mg/l	.025	0.0269	108.	55-142	WG652329
Xylenes, Total	mg/l	.075	0.0660	87.9	77-123	WG652329
4-Bromofluorobenzene				97.28	82-120	WG652329
Dibromofluoromethane				106.7	82-126	WG652329
Toluene-d8				103.5	92-112	WG652329

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0219	0.0217	87.0	77-128	0.650	20	WG652329
1,1,1-Trichloroethane	mg/l	0.0244	0.0243	98.0	71-126	0.300	20	WG652329
1,1,2,2-Tetrachloroethane	mg/l	0.0215	0.0210	86.0	78-130	1.93	20	WG652329
1,1,2-Trichloroethane	mg/l	0.0222	0.0224	89.0	81-121	1.17	20	WG652329
1,1,2-Trichlorotrifluoroethane	mg/l	0.0272	0.0272	109.	53-143	0.0300	20	WG652329
1,1-Dichloroethane	mg/l	0.0251	0.0246	100.	73-123	1.70	20	WG652329
1,1-Dichloroethene	mg/l	0.0290	0.0290	116.	54-134	0.150	20	WG652329
1,1-Dichloropropene	mg/l	0.0242	0.0243	97.0	67-127	0.290	20	WG652329
1,2,3-Trichlorobenzene	mg/l	0.0187	0.0191	75*	77-130	1.92	20	WG652329
1,2,3-Trichloropropane	mg/l	0.0206	0.0205	82.0	68-130	0.200	20	WG652329
1,2,3-Trimethylbenzene	mg/l	0.0238	0.0234	95.0	77-126	1.31	20	WG652329
1,2,4-Trichlorobenzene	mg/l	0.0190	0.0191	76.0	76-127	0.610	20	WG652329
1,2,4-Trimethylbenzene	mg/l	0.0214	0.0214	85.0	77-129	0.200	20	WG652329
1,2-Dibromo-3-Chloropropane	mg/l	0.0243	0.0227	97.0	55-142	7.07	20	WG652329
1,2-Dibromoethane	mg/l	0.0226	0.0227	90.0	78-124	0.130	20	WG652329
1,2-Dichlorobenzene	mg/l	0.0229	0.0225	91.0	82-121	1.79	20	WG652329
1,2-Dichloroethane	mg/l	0.0245	0.0242	98.0	69-128	1.06	20	WG652329
1,2-Dichloropropane	mg/l	0.0231	0.0229	92.0	77-121	0.860	20	WG652329
1,3,5-Trimethylbenzene	mg/l	0.0214	0.0214	85.0	78-127	0.0900	20	WG652329
1,3-Dichlorobenzene	mg/l	0.0192	0.0194	77.0	77-127	0.940	20	WG652329
1,3-Dichloropropane	mg/l	0.0219	0.0222	87.0	78-117	1.69	20	WG652329
1,4-Dichlorobenzene	mg/l	0.0223	0.0220	89.0	79-117	1.08	20	WG652329
2,2-Dichloropropane	mg/l	0.0238	0.0226	95.0	63-130	5.17	20	WG652329
2-Butanone (MEK)	mg/l	0.103	0.103	82.0	58-144	0.100	20	WG652329
2-Chloroethyl vinyl ether	mg/l	0.116	0.112	93.0	26-172	3.72	22	WG652329
2-Chlorotoluene	mg/l	0.0228	0.0228	91.0	78-123	0.120	20	WG652329
4-Chlorotoluene	mg/l	0.0210	0.0212	84.0	78-122	0.940	20	WG652329
4-Methyl-2-pentanone (MIBK)	mg/l	0.108	0.105	86.0	58-147	2.15	20	WG652329
Acetone	mg/l	0.101	0.105	81.0	49-153	4.33	21	WG652329

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Quality Assurance Report
Level II

L626394

April 10, 2013

Analyte	Units	Laboratory Control Sample Duplicate Result	Ref	%Rec	Limit	RPD	Limit	Batch
Acrolein	mg/l	0.104	0.0984	83.0	10-181	5.68	30	WG652329
Acrylonitrile	mg/l	0.126	0.124	101.	53-153	1.34	20	WG652329
Benzene	mg/l	0.0242	0.0235	97.0	72-119	2.60	20	WG652329
Bromobenzene	mg/l	0.0212	0.0213	85.0	76-121	0.330	20	WG652329
Bromodichloromethane	mg/l	0.0234	0.0236	93.0	75-127	1.23	20	WG652329
Bromoform	mg/l	0.0219	0.0218	88.0	61-136	0.520	20	WG652329
Bromomethane	mg/l	0.0295	0.0296	118.	42-172	0.590	20	WG652329
Carbon tetrachloride	mg/l	0.0244	0.0241	97.0	63-129	1.10	20	WG652329
Chlorobenzene	mg/l	0.0217	0.0218	87.0	78-123	0.730	20	WG652329
Chlorodibromomethane	mg/l	0.0228	0.0226	91.0	73-128	0.810	20	WG652329
Chloroethane	mg/l	0.0293	0.0296	117.	52-164	1.04	20	WG652329
Chloroform	mg/l	0.0244	0.0241	97.0	76-122	1.23	20	WG652329
Chloromethane	mg/l	0.0224	0.0218	90.0	50-141	2.59	20	WG652329
cis-1,2-Dichloroethene	mg/l	0.0244	0.0240	98.0	75-121	1.49	20	WG652329
cis-1,3-Dichloropropene	mg/l	0.0233	0.0232	93.0	74-124	0.320	20	WG652329
Di-isopropyl ether	mg/l	0.0245	0.0239	98.0	66-129	2.57	20	WG652329
Dibromomethane	mg/l	0.0233	0.0233	93.0	77-124	0.210	20	WG652329
Dichlorodifluoromethane	mg/l	0.0205	0.0206	82.0	33-173	0.700	20	WG652329
Ethylbenzene	mg/l	0.0220	0.0220	88.0	77-124	0.0800	20	WG652329
Hexachloro-1,3-butadiene	mg/l	0.0202	0.0214	81.0	71-134	5.55	20	WG652329
Isopropylbenzene	mg/l	0.0218	0.0217	87.0	74-126	0.560	20	WG652329
Methyl tert-butyl ether	mg/l	0.0246	0.0246	98.0	67-127	0.0600	20	WG652329
Methylene Chloride	mg/l	0.0246	0.0247	98.0	67-122	0.340	20	WG652329
n-Butylbenzene	mg/l	0.0233	0.0235	93.0	74-130	0.790	20	WG652329
n-Propylbenzene	mg/l	0.0215	0.0219	86.0	77-125	1.59	20	WG652329
Naphthalene	mg/l	0.0225	0.0215	90.0	70-134	4.88	20	WG652329
p-Isopropyltoluene	mg/l	0.0208	0.0208	83.0	77-132	0.0100	20	WG652329
sec-Butylbenzene	mg/l	0.0210	0.0213	84.0	77-130	1.05	20	WG652329
Styrene	mg/l	0.0220	0.0223	88.0	69-145	1.02	20	WG652329
tert-Butylbenzene	mg/l	0.0213	0.0213	85.0	76-131	0.0100	20	WG652329
Tetrachloroethene	mg/l	0.0208	0.0207	83.0	69-131	0.580	20	WG652329
Toluene	mg/l	0.0223	0.0221	89.0	75-114	0.630	20	WG652329
trans-1,2-Dichloroethene	mg/l	0.0246	0.0249	98.0	63-127	1.23	20	WG652329
trans-1,3-Dichloropropene	mg/l	0.0217	0.0215	87.0	69-124	0.930	20	WG652329
Trichloroethene	mg/l	0.0223	0.0222	89.0	69-131	0.300	20	WG652329
Trichlorofluoromethane	mg/l	0.0267	0.0262	107.	53-161	1.94	20	WG652329
Vinyl chloride	mg/l	0.0273	0.0269	109.	55-142	1.35	20	WG652329
Xylenes, Total	mg/l	0.0647	0.0660	86.0	77-123	1.97	20	WG652329
4-Bromofluorobenzene				96.91	82-120			WG652329
Dibromofluoromethane				107.7	82-126			WG652329
Toluene-d8				103.7	92-112			WG652329

Analyte	Units	Matrix Spike MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0223	0	.025	89.2	71-130	L626338-02	WG652329
1,1,1-Trichloroethane	mg/l	0.0248	0	.025	99.4	58-137	L626338-02	WG652329
1,1,2,2-Tetrachloroethane	mg/l	0.0227	0	.025	90.7	64-149	L626338-02	WG652329
1,1,2-Trichloroethane	mg/l	0.0230	0	.025	92.1	73-128	L626338-02	WG652329
1,1,2-Trichlorotrifluoroethane	mg/l	0.0283	0	.025	113.	36-159	L626338-02	WG652329
1,1-Dichloroethane	mg/l	0.0246	0	.025	98.6	58-133	L626338-02	WG652329
1,1-Dichloroethene	mg/l	0.0263	0	.025	105.	32-152	L626338-02	WG652329
1,1-Dichloropropene	mg/l	0.0239	0	.025	95.6	50-140	L626338-02	WG652329
1,2,3-Trichlorobenzene	mg/l	0.0228	0	.025	91.3	68-135	L626338-02	WG652329
1,2,3-Trichloropropane	mg/l	0.0212	0	.025	84.7	74-137	L626338-02	WG652329
1,2,3-Trimethylbenzene	mg/l	0.0250	0	.025	99.8	67-133	L626338-02	WG652329
1,2,4-Trichlorobenzene	mg/l	0.0241	0	.025	96.6	67-133	L626338-02	WG652329
1,2,4-Trimethylbenzene	mg/l	0.0230	0	.025	91.9	62-141	L626338-02	WG652329
1,2-Dibromo-3-Chloropropane	mg/l	0.0237	0	.025	94.6	55-148	L626338-02	WG652329

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Quality Assurance Report
Level II

L626394

April 10, 2013

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
1,2-Dibromoethane	mg/l	0.0228	0	.025	91.1	71-129	L626338-02	WG652329
1,2-Dichlorobenzene	mg/l	0.0241	0	.025	96.5	75-125	L626338-02	WG652329
1,2-Dichloroethane	mg/l	0.0242	0	.025	96.6	59-135	L626338-02	WG652329
1,2-Dichloropropane	mg/l	0.0229	0	.025	91.7	68-126	L626338-02	WG652329
1,3,5-Trimethylbenzene	mg/l	0.0232	0	.025	92.8	67-136	L626338-02	WG652329
1,3-Dichlorobenzene	mg/l	0.0213	0	.025	85.2	69-131	L626338-02	WG652329
1,3-Dichloropropane	mg/l	0.0231	0	.025	92.5	70-122	L626338-02	WG652329
1,4-Dichlorobenzene	mg/l	0.0242	0	.025	96.8	70-123	L626338-02	WG652329
2,2-Dichloropropane	mg/l	0.0248	0	.025	99.2	51-141	L626338-02	WG652329
2-Butanone (MEK)	mg/l	0.0887	0.000995	.125	70.2	51-149	L626338-02	WG652329
2-Chloroethyl vinyl ether	mg/l	0.0925	0	.125	74.0	10-161	L626338-02	WG652329
2-Chlorotoluene	mg/l	0.0245	0	.025	98.0	65-133	L626338-02	WG652329
4-Chlorotoluene	mg/l	0.0230	0	.025	92.2	67-129	L626338-02	WG652329
4-Methyl-2-pentanone (MIBK)	mg/l	0.110	0	.125	87.7	53-154	L626338-02	WG652329
Acetone	mg/l	0.0618	0.00232	.125	47.6	34-146	L626338-02	WG652329
Acrolein	mg/l	0.0974	0	.125	77.9	10-189	L626338-02	WG652329
Acrylonitrile	mg/l	0.126	0	.125	101.	49-162	L626338-02	WG652329
Benzene	mg/l	0.0235	0	.025	94.0	51-134	L626338-02	WG652329
Bromobenzene	mg/l	0.0228	0	.025	91.1	64-130	L626338-02	WG652329
Bromodichloromethane	mg/l	0.0240	0	.025	96.2	67-132	L626338-02	WG652329
Bromoform	mg/l	0.0225	0	.025	90.0	59-137	L626338-02	WG652329
Bromomethane	mg/l	0.0244	0	.025	97.5	23-177	L626338-02	WG652329
Carbon tetrachloride	mg/l	0.0240	0	.025	96.0	49-140	L626338-02	WG652329
Chlorobenzene	mg/l	0.0227	0	.025	90.6	69-126	L626338-02	WG652329
Chlorodibromomethane	mg/l	0.0235	0	.025	94.2	68-130	L626338-02	WG652329
Chloroethane	mg/l	0.0275	0	.025	110.	32-177	L626338-02	WG652329
Chloroform	mg/l	0.0245	0	.025	97.8	64-130	L626338-02	WG652329
Chloromethane	mg/l	0.0177	0	.025	70.8	27-155	L626338-02	WG652329
cis-1,2-Dichloroethene	mg/l	0.0238	0	.025	95.2	54-137	L626338-02	WG652329
cis-1,3-Dichloropropene	mg/l	0.0243	0	.025	97.4	63-127	L626338-02	WG652329
Di-isopropyl ether	mg/l	0.0243	0	.025	97.3	58-133	L626338-02	WG652329
Dibromomethane	mg/l	0.0231	0	.025	92.4	68-131	L626338-02	WG652329
Dichlorodifluoromethane	mg/l	0.0169	0	.025	67.5	16-188	L626338-02	WG652329
Ethylbenzene	mg/l	0.0230	0	.025	92.1	64-135	L626338-02	WG652329
Hexachloro-1,3-butadiene	mg/l	0.0253	0	.025	101.	64-140	L626338-02	WG652329
Isopropylbenzene	mg/l	0.0233	0	.025	93.0	62-134	L626338-02	WG652329
Methyl tert-butyl ether	mg/l	0.0246	0	.025	98.6	55-136	L626338-02	WG652329
Methylene Chloride	mg/l	0.0241	0.000451	.025	94.5	52-130	L626338-02	WG652329
n-Butylbenzene	mg/l	0.0275	0	.025	110.	62-142	L626338-02	WG652329
n-Propylbenzene	mg/l	0.0235	0	.025	94.2	62-137	L626338-02	WG652329
Naphthalene	mg/l	0.0236	0	.025	94.4	65-140	L626338-02	WG652329
p-Isopropyltoluene	mg/l	0.0231	0	.025	92.5	64-142	L626338-02	WG652329
sec-Butylbenzene	mg/l	0.0232	0	.025	92.8	67-139	L626338-02	WG652329
Styrene	mg/l	0.0234	0	.025	93.5	58-152	L626338-02	WG652329
tert-Butylbenzene	mg/l	0.0228	0	.025	91.4	66-139	L626338-02	WG652329
Tetrachloroethene	mg/l	0.0214	0	.025	85.7	56-139	L626338-02	WG652329
Toluene	mg/l	0.0227	0	.025	90.9	61-126	L626338-02	WG652329
trans-1,2-Dichloroethene	mg/l	0.0231	0	.025	92.5	45-137	L626338-02	WG652329
trans-1,3-Dichloropropene	mg/l	0.0230	0	.025	92.0	59-130	L626338-02	WG652329
Trichloroethene	mg/l	0.0219	0	.025	87.7	40-155	L626338-02	WG652329
Trichlorofluoromethane	mg/l	0.0255	0	.025	102.	35-177	L626338-02	WG652329
Vinyl chloride	mg/l	0.0234	0	.025	93.5	32-159	L626338-02	WG652329
Xylenes, Total	mg/l	0.0690	0	.075	92.0	64-133	L626338-02	WG652329
4-Bromofluorobenzene					97.86	82-120		WG652329
Dibromofluoromethane					106.2	82-126		WG652329
Toluene-d8					103.7	92-112		WG652329

* Performance of this Analyte is outside of established criteria.
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GeoEngineers - Tacoma, WA
Nick Rohrback
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Quality Assurance Report
Level II

L626394

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
1,1,1,2-Tetrachloroethane	mg/l	0.0221	0.0223	88.4	71-130	0.970	20	L626338-02	WG652329
1,1,1-Trichloroethane	mg/l	0.0239	0.0248	95.5	58-137	3.96	20	L626338-02	WG652329
1,1,2,2-Tetrachloroethane	mg/l	0.0230	0.0227	91.8	64-149	1.24	20	L626338-02	WG652329
1,1,2-Trichloroethane	mg/l	0.0223	0.0230	89.4	73-128	2.98	20	L626338-02	WG652329
1,1,2-Trichlorotrifluoroethane	mg/l	0.0272	0.0283	109.	36-159	4.16	21	L626338-02	WG652329
1,1-Dichloroethane	mg/l	0.0236	0.0246	94.2	58-133	4.48	20	L626338-02	WG652329
1,1-Dichloroethene	mg/l	0.0253	0.0263	101.	32-152	4.03	20	L626338-02	WG652329
1,1-Dichloropropene	mg/l	0.0227	0.0239	90.8	50-140	5.17	20	L626338-02	WG652329
1,2,3-Trichlorobenzene	mg/l	0.0226	0.0228	90.3	68-135	1.07	20	L626338-02	WG652329
1,2,3-Trichloropropane	mg/l	0.0213	0.0212	85.0	74-137	0.380	20	L626338-02	WG652329
1,2,3-Trimethylbenzene	mg/l	0.0245	0.0250	98.2	67-133	1.66	20	L626338-02	WG652329
1,2,4-Trichlorobenzene	mg/l	0.0235	0.0241	94.0	67-133	2.68	20	L626338-02	WG652329
1,2,4-Trimethylbenzene	mg/l	0.0224	0.0230	89.4	62-141	2.75	20	L626338-02	WG652329
1,2-Dibromo-3-Chloropropane	mg/l	0.0246	0.0237	98.3	55-148	3.86	22	L626338-02	WG652329
1,2-Dibromoethane	mg/l	0.0223	0.0228	89.2	71-129	2.19	20	L626338-02	WG652329
1,2-Dichlorobenzene	mg/l	0.0237	0.0241	94.8	75-125	1.81	20	L626338-02	WG652329
1,2-Dichloroethane	mg/l	0.0235	0.0242	93.9	59-135	2.86	20	L626338-02	WG652329
1,2-Dichloropropane	mg/l	0.0229	0.0229	91.6	68-126	0.0800	20	L626338-02	WG652329
1,3,5-Trimethylbenzene	mg/l	0.0223	0.0232	89.2	67-136	3.96	20	L626338-02	WG652329
1,3-Dichlorobenzene	mg/l	0.0208	0.0213	83.1	69-131	2.48	20	L626338-02	WG652329
1,3-Dichloropropane	mg/l	0.0221	0.0231	88.4	70-122	4.51	20	L626338-02	WG652329
1,4-Dichlorobenzene	mg/l	0.0238	0.0242	95.0	70-123	1.79	20	L626338-02	WG652329
2,2-Dichloropropane	mg/l	0.0244	0.0248	97.7	51-141	1.50	20	L626338-02	WG652329
2-Butanone (MEK)	mg/l	0.0906	0.0887	71.7	51-149	2.13	22	L626338-02	WG652329
2-Chloroethyl vinyl ether	mg/l	0.0590	0.0925	47.2	10-161	44.1*	40	L626338-02	WG652329
2-Chlorotoluene	mg/l	0.0236	0.0245	94.6	65-133	3.54	20	L626338-02	WG652329
4-Chlorotoluene	mg/l	0.0221	0.0230	88.3	67-129	4.26	20	L626338-02	WG652329
4-Methyl-2-pentanone (MIBK)	mg/l	0.111	0.110	89.0	53-154	1.50	21	L626338-02	WG652329
Acetone	mg/l	0.0630	0.0618	48.6	34-146	1.95	22	L626338-02	WG652329
Acrolein	mg/l	0.101	0.0974	80.8	10-189	3.68	30	L626338-02	WG652329
Acrylonitrile	mg/l	0.127	0.126	101.	49-162	0.490	20	L626338-02	WG652329
Benzene	mg/l	0.0227	0.0235	90.9	51-134	3.41	20	L626338-02	WG652329
Bromobenzene	mg/l	0.0219	0.0228	87.4	64-130	4.14	20	L626338-02	WG652329
Bromodichloromethane	mg/l	0.0231	0.0240	92.5	67-132	3.85	20	L626338-02	WG652329
Bromoform	mg/l	0.0224	0.0225	89.6	59-137	0.510	20	L626338-02	WG652329
Bromomethane	mg/l	0.0252	0.0244	101.	23-177	3.45	21	L626338-02	WG652329
Carbon tetrachloride	mg/l	0.0234	0.0240	93.4	49-140	2.73	20	L626338-02	WG652329
Chlorobenzene	mg/l	0.0217	0.0227	86.7	69-126	4.40	20	L626338-02	WG652329
Chlorodibromomethane	mg/l	0.0227	0.0235	90.8	68-130	3.69	20	L626338-02	WG652329
Chloroethane	mg/l	0.0267	0.0275	107.	32-177	2.69	21	L626338-02	WG652329
Chloroform	mg/l	0.0236	0.0245	94.4	64-130	3.63	20	L626338-02	WG652329
Chloromethane	mg/l	0.0178	0.0177	71.1	27-155	0.370	20	L626338-02	WG652329
cis-1,2-Dichloroethene	mg/l	0.0228	0.0238	91.2	54-137	4.31	20	L626338-02	WG652329
cis-1,3-Dichloropropene	mg/l	0.0237	0.0243	94.8	63-127	2.74	20	L626338-02	WG652329
Di-isopropyl ether	mg/l	0.0238	0.0243	95.1	58-133	2.29	20	L626338-02	WG652329
Dibromomethane	mg/l	0.0231	0.0231	92.4	68-131	0.0900	20	L626338-02	WG652329
Dichlorodifluoromethane	mg/l	0.0165	0.0169	66.1	16-188	2.18	22	L626338-02	WG652329
Ethylbenzene	mg/l	0.0220	0.0230	88.0	64-135	4.54	20	L626338-02	WG652329
Hexachloro-1,3-butadiene	mg/l	0.0245	0.0253	97.8	64-140	3.47	20	L626338-02	WG652329
Isopropylbenzene	mg/l	0.0223	0.0233	89.3	62-134	4.09	20	L626338-02	WG652329
Methyl tert-butyl ether	mg/l	0.0244	0.0246	97.7	55-136	0.880	20	L626338-02	WG652329
Methylene Chloride	mg/l	0.0233	0.0241	91.4	52-130	3.25	20	L626338-02	WG652329
n-Butylbenzene	mg/l	0.0264	0.0275	105.	62-142	4.16	20	L626338-02	WG652329
n-Propylbenzene	mg/l	0.0225	0.0235	90.1	62-137	4.41	20	L626338-02	WG652329
Naphthalene	mg/l	0.0238	0.0236	95.3	65-140	0.900	20	L626338-02	WG652329
p-Isopropyltoluene	mg/l	0.0227	0.0231	91.0	64-142	1.70	20	L626338-02	WG652329
sec-Butylbenzene	mg/l	0.0225	0.0232	90.1	67-139	2.92	20	L626338-02	WG652329
Styrene	mg/l	0.0226	0.0234	90.4	58-152	3.34	20	L626338-02	WG652329
tert-Butylbenzene	mg/l	0.0222	0.0228	88.8	66-139	2.88	20	L626338-02	WG652329
Tetrachloroethene	mg/l	0.0208	0.0214	83.4	56-139	2.69	20	L626338-02	WG652329

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Est. 1970

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Nick Rohrback
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Tacoma, WA 98402

Quality Assurance Report
Level II

L626394

April 10, 2013

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Toluene	mg/l	0.0222	0.0227	88.6	61-126	2.51	20	L626338-02	WG652329
trans-1,2-Dichloroethene	mg/l	0.0228	0.0231	91.0	45-137	1.61	20	L626338-02	WG652329
trans-1,3-Dichloropropene	mg/l	0.0226	0.0230	90.2	59-130	2.01	20	L626338-02	WG652329
Trichloroethene	mg/l	0.0210	0.0219	84.2	40-155	4.16	20	L626338-02	WG652329
Trichlorofluoromethane	mg/l	0.0247	0.0255	99.0	35-177	2.82	23	L626338-02	WG652329
Vinyl chloride	mg/l	0.0225	0.0234	90.1	32-159	3.69	21	L626338-02	WG652329
Xylenes, Total	mg/l	0.0652	0.0690	87.0	64-133	5.63	20	L626338-02	WG652329
4-Bromofluorobenzene				98.05	82-120				WG652329
Dibromofluoromethane				106.5	82-126				WG652329
Toluene-d8				104.4	92-112				WG652329

Batch number /Run number / Sample number cross reference

WG652329: R2593498: L626394-01 02 03 04 05 06

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

GeoEngineers - Tacoma, WA

1101 S. Fawcett Ave Ste 200
Tacoma, WA 98402

Billing information:

Accounts Payable (Marlee Johnsto
1101 S. Fawcett Ave Ste 200

Tacoma, WA 98402

Analysis/Container/Preservative

Chain of Custody
Page 1 of 1

G127

ESC
L·A·B S·C·I·E·N·C·E·S
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Report to: ~~Scott MacDonald~~ Nick Rohrbach

Email: nrohrbach@geoengineer.com ~~smacdonald@geoengineers.co~~

Project Description: Palermo Wellfield Superfund Site

City/State Collected: Tumwater, WA

Phone: (253) 383-4940
FAX: (253) 383-4923

Client Project #: 0180-121-08 ~~19903-001-01~~

Lab Project #: GEOENGTWA-PALERMO

Collected by (print): L Linde/A Waggoner

Site/Facility ID#: TUMWATER, WA

P.O.#:

Collected by (signature): L Linde

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: GEOENGTWA (lab use only)
Template/Prelogin: T83764/ P419878
Cooler #:
Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	V8260 40mlAmb-HCl	V8260- Trip Blank 40mlAmb-HCl-Blk						Remarks/Contaminant	Sample # (lab only)
SEEP-1 130319	Grab	GW		3/19/13	1425	3	X								1626394 01
SEEP-2 130319	↓	GW		↓	0955	3	X								-02
SEEP-3 130319		GW			1140	3	X								-03
SEEP-5 130319		GW			1225	3	X								-04
DUP-5 130319		GW				3	X								-05
TB-8 130319		GW				3	X								-06
		GW				3	X								
		GW				3	X								
		GW				3	X								

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: V8260 = PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, & VC only.

pH _____ Temp _____

Flow _____ Other _____

Quote # GEOENGTWA021813L Standard TAT

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Lara Linde	3/19/13	1500	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			Kim Wolcott

55470230 17413

Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐ ____

Temp: 3.1C Bottles Received: 17 vp

Date: 3/21/13 Time: 0900

Condition: (lab use only) ok

COC Seal Intact: ✓ Y ___ N ___ NA

pH Checked: NCF:

APPENDIX D
Report Limitations and Guidelines for Use

APPENDIX D
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report.

Report Use and Reliance

This report has been prepared for the Washington State Department of Transportation and can be distributed to Client's authorized agents and regulatory agencies as needed for the project.

GeoEngineers structures our services to meet the specific needs of our clients. Accordingly, no party other than the Washington State Department of Transportation may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client for this project and generally accepted environmental practices in this area at the time this report was prepared.

This report should not be applied for any purpose or project except the one originally contemplated. If important changes are made to the project or property after the date of this report, we recommend that GeoEngineers be given the opportunity to review our interpretations and recommendations, and then we can provide written modifications or confirmation, as appropriate.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we used sources that are believed to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

Professional Judgment

It is important to recognize that the environmental sciences practices are less exact than other engineering and natural science disciplines. By necessity, GeoEngineers uses its professional judgment in arriving at our conclusions and recommendations. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce the risk of misunderstandings regarding the inexact nature of our professional services. Please confer with GeoEngineers if you need to know how these "Report Limitations and Guidelines for Use" apply to your project or site.

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.