

September 10, 2015

Washington State Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, Washington 98008-5452

Attention: Diane Escobedo, Site Manager, Toxics Cleanup Program

Subject: Request for NFA-Likely Opinion Letter
Seattle Marriott AC
739 9th Avenue North – VCP # NW2953
Seattle, Washington
GeoEngineers File No. 20776-003-00

1.0 INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) is submitting this letter to the Washington State Department of Ecology (Ecology) in response to their May 11, 2015 opinion letter regarding a proposed Marriott Hotel development project (known also as the Maaco Auto Painting Bodywork site) in the South Lake Union neighborhood at 739 9th Avenue North in Seattle, Washington (herein referred to as the “subject property”) on behalf of our client, White/Peterman Properties, Inc. Ecology’s May 11, 2015 opinion letter is included as Appendix A.

The subject property is situated in a former industrial and currently underutilized area about one block south and west of the south shoreline of Lake Union. Based on site history and site characterization studies, recent project experience nearby, and our review of Ecology documents, two area-wide groundwater plumes are present through much of this part of the South Lake Union neighborhood.

- The first plume (a solvent plume) is sourced from the former American Linen industrial laundry. This plume is well known in the environmental community, has undergone significant investigation and remediation at the source and is currently being monitored and tracked by Ecology through the Voluntary Cleanup Program (VCP #NW2652). Based on groundwater data from 2014, this extensive groundwater plume remains beneath several nearby properties; including the subject property to some extent. Ecology has issued two Opinion Letters related to cleanup of the former American Linen site (dated November 6, 2013 and March 21, 2014). The March 21, 2014 Ecology opinion indicates that “upon completion of your proposed cleanup, no further remedial action will likely be necessary to cleanup contamination at the Site.”
- The second plume (benzene and gasoline range hydrocarbons) is sourced from the adjacent former Seattle City Light Roy Street Shops site. The Roy Street Shops site was last reported to Ecology in 1995. However, the data we present in this response letter references and updates groundwater



results obtained in 2011. Like the solvent-plume from the upgradient American Linen site, the benzene- and gasoline- contaminated groundwater plume has also migrated onto the subject property.

This letter addresses the data gaps and other issues raised in Ecology's May 11, 2015 opinion letter. We request that a No Further Action (NFA) Likely opinion letter be issued by Ecology for the subject property following Ecology's review of this letter and its enclosures. These results combined with the following reports already provided to Ecology summarize the environmental conditions and proposed remedy at the subject property and provide the basis for an NFA-likely determination:

- Phase I Environmental Site Assessment, South Lake Union Marriott AC, 739 9th Avenue North, Seattle, Washington, WPPI Bellevue MFS, LLC, dated November 13, 2014.
- Phase II Environmental Site Assessment, South Lake Union Marriott AC, 739 9th Avenue North, Seattle, Washington, WPPI Bellevue MFS, LLC, dated November 13, 2014.
- Conceptual Cleanup Action and Request for NFA Likely Opinion Letter to Ecology, 739 9th Avenue North, Seattle, Washington, dated February 17, 2015 (which includes a VCP Application included in Appendix A).

Results and pertinent information from the above studies are summarized in the following section and included on the attached Figures 1 through 14 and Tables 1 through 5. These new figures and tables supplement the February 17, 2015 VCP request.

2.0 BACKGROUND

GeoEngineers submitted a Conceptual Cleanup Action and Request for NFA Likely Opinion Letter to Ecology on February 17, 2015, which summarized the results of the Phase I and II Environmental Site Assessments completed at the subject property in November 2014. Ecology responded to the February 17, 2015 letter with an opinion letter dated May 11, 2015 (included as Appendix A). In their letter, Ecology stated that prior to issuing a NFA-Likely opinion letter, further action is necessary at the site to address the data gaps summarized in the following bullets and described specifically below in Table A.

The data gaps identified in the May 11 Ecology opinion letter have been grouped into five main categories based on type. The five data gap categories are as follows:

1. **Vertical Extents of Soil Contamination** – Ecology determined that vertical extents of gasoline-range petroleum hydrocarbons, benzene, carcinogenic PAHs (cPAHs), and/or lead contamination in soil were not defined in the vicinity of six exploration locations;
2. **Lateral Extents of Soil Contamination** – Ecology determined that lateral extents of gasoline-, diesel-, and heavy oil-range petroleum hydrocarbons, benzene, lead, mercury, and/or naphthalenes contamination in soil were not defined in the vicinity of six exploration locations and at property boundaries;
3. **Vertical Extents of Soil Contamination Below Potential Planned Foundation** – Ecology determined that soil contamination above MTCA Method A cleanup levels exists below the potential planned maximum foundation depth and vertical extents in these areas had not been defined;



4. **Separation of On-Property and Off-Property Groundwater Contamination** – Ecology determined that there was inadequate delineation between groundwater contamination sourced from on-property and that from upgradient, off-property sources; and,
5. **Groundwater Evaluation** – Ecology determined that groundwater flow direction, fluctuations over time, and potential on-property contamination sources had not been characterized.

A summary of the data gaps within each of the five categories is presented in Table A, below. For a full description of Ecology's determinations, refer to the May 11, 2015 opinion letter included as Appendix A at the end of this document. All of the Ecology comments outlined in Table A are addressed in this letter.

TABLE A. SUMMARY OF DATA GAPS DETERMINED BY ECOLOGY

Data Gaps Determined by Ecology in Response Letter Dated May 11, 2015	
1. Vertical Extents of Soil Contamination	Vertical extent of soil contamination was not defined for gasoline at borings DP-2 and DP-7
	Vertical extent of soil contamination was not defined for benzene at borings DP-7 and DP-11
	Vertical extent of soil contamination was not defined for cPAHs at borings DP-7 and DP-10.
	Samples DP-11 and DP-12 had no cPAHs detected, but the reporting limit exceeded the cleanup level.
	Vertical extent of soil contamination was not defined for lead at borings DP-12 and MW-2
2. Lateral Extents of Soil Contamination	Lateral extent of soil contamination was not defined for gasoline and benzene contamination in the north and northeast portions of the site beyond DP-8, DP9, and DP-10 or to the west of DP-8, DP-2, and DP-11.
	Diesel- and heavy oil-range petroleum hydrocarbon contamination has not been defined near the oil/water separator or the underground storage tank (UST) area. However, based upon the proposed 15 feet deep excavation, shallow contamination would likely be removed.
	Lateral extent of soil contamination was not defined for lead contamination in the western, northwestern, and southwestern portions of the Property and may extend off-Property.
	Lateral extent of soil contamination was not defined for mercury contamination in the north and west of DP-8 and DP-9 and may extend off-Property.
3. Vertical Extents of Soil Contamination Below the Planned Foundation	Lateral extent of soil contamination was not defined for naphthalene contamination north and west of DP-2 and DP-8 and may extend off-Property.
	At various locations, the contamination is over double the MTCA A Cleanup levels at 13 feet below ground surface (bgs). And, the vertical extent has not been defined.

4. Separation of On-Property and Off-Property Groundwater Contamination	<p>Additional groundwater data is needed at the upgradient Property boundary, in the Property source areas, and in between to demonstrate where upgradient sources interact with on-Property sources.</p>
5. Groundwater Evaluation	<p>Groundwater impact extents have not been characterized. Monitoring wells must be placed in and immediately downgradient of each identified source area on the Property.</p> <p>Groundwater flow direction is unknown and wells are needed to determine flow direction.</p>

3.0 GEOENGINEERS' APPROACH TO ECOLOGY'S COMMENTS

Additional site Characterization on Subject Property (described in Section 3.0). In June 2015, GeoEngineers completed additional explorations at the subject property to obtain soil and groundwater samples to address the data gaps related to the vertical and lateral extent of soil and groundwater contamination on the subject property identified in the May 11, 2015 letter (elements 1 through 5 of Table A).

Additional Data – Roy Street Shops Property (described in Section 4.0). During July 2015 more information was obtained from the City of Seattle pertaining to the Roy Street Shops site to address the data gaps identified in the May 11, 2015 letter related to the lateral extent of contamination in soil and groundwater (elements 2, 4 and 5 of Table A). Additional site characterization had been completed during 2010 and 2011 by others on behalf of the City.

Groundwater Flow and Direction Evaluation (described in Section 5.0). In July and August 2015 GeoEngineers installed transducers in existing shallow groundwater monitoring wells and then completed a groundwater study across the Roy Street Shops property and subject property to address the data gaps identified in the May 11, 2015 letter related to the groundwater flow characteristics (elements 4 and 5 of Table A). The groundwater study consisted of a professional monitoring well survey and groundwater elevations of the shallow and deep aquifers.

4.0 ADDITIONAL SITE CHARACTERIZATION ON SUBJECT PROPERTY

In response to the data gaps determined by Ecology in the May 11, 2015 response letter, GeoEngineers completed additional explorations in order to satisfy each of the data gaps determined by Ecology (elements 1 through 5 of Table A). On June 8 and 9, 2015, eight direct push borings (DP-13 to DP-16 and MW-4 to MW-7) were completed to depths ranging from 30 to 35 feet below the ground surface (bgs), four of which were completed as monitoring wells screened within the shallow aquifer (MW-4 to MW-7). Approximate exploration locations are shown relative to previously completed explorations and site and neighboring features on Figure 2.



Twenty-four soil samples were obtained from the borings and submitted to Fremont Analytical in Seattle, Washington for at least one of the following:

- Gasoline-, diesel- and lube oil-range petroleum hydrocarbons using Northwest Methods NWTPH-Gx and NWTPH-Dx;
- Benzene or BTEX using EPA Method 8260B;
- Naphthalenes and/or PAHs, including cPAHs, using EPA Method 8270D/SIM;
- VOCs using EPA method 8260B; and,
- Lead, cadmium and/or mercury using EPA Methods 6000/7000 Series.

Groundwater samples were obtained from each of the four shallow monitoring wells (MW-4 through MW-7) and from two shallow monitoring wells (MW-101 and MW-105) located in the alley between the subject property and the Roy Street Shops site that were previously sampled as part of the Shannon & Wilson's June 2011 investigation. Each of the groundwater samples were submitted to Fremont Analytical for chemical analysis of the following:

- Gasoline-, diesel- and lube oil-range petroleum hydrocarbons using Northwest Methods NWTPH-Gx and NWTPH-Dx; and,
- BTEX using EPA Method 8260B.

Chemical analytical results for soil and groundwater samples obtained as part of the additional explorations are summarized in Section 7.0. For a full list of analyses and detections, refer to the laboratory report presented as Appendix C. Results from the 2015 explorations and the previous explorations completed in September 2014 are presented in the attached Chemical Analytical Data Tables 1 through 4. The approximate locations of the additional borings and previous borings, as well as a visual summary of the chemical analytical results of the soil samples obtained from all borings, are shown in site plan view on Figure 3 and cross section view on Figures 5 through 8. Groundwater results are presented on Figure 4.

5.0 ADDITIONAL DATA – ROY STREET SHOPS SITE DATA

Based on Ecology's May 11, 2015 response letter, the following two reports were obtained from the City of Seattle in order to provide additional information regarding subsurface soil and groundwater conditions beneath the Roy Street Shops site up to June 2011 (the most recent information available for that site). The information within these reports helped to respond to elements 2, 4 and 5 of Table A.

- Environmental Review, Seattle City Light, 8th and Roy Street Property, 800 Aloha Street, Seattle, Washington by Shannon & Wilson, Inc., dated December 20, 2010; and
- Current Conditions Report, Seattle City Light, 8th and Roy Street Property, 800 Aloha Street, Seattle, Washington by Shannon & Wilson, Inc., dated June 8, 2011.

Pertinent sections of each report are summarized in the following sections, and the full reports are included as Appendix B at the end of this letter.



5.1 “Environmental Review, Seattle City Light, 8th and Roy Street Property, 800 Aloha Street, Seattle, Washington” by Shannon & Wilson, Inc., dated December 20, 2010

Shannon & Wilson, Inc. (Shannon & Wilson) conducted an Environmental Review of the Roy Street Shops site, summarized in a letter reported to Seattle City Light dated December 20, 2010. The study consisted of review of available site files provided by Seattle City Light, a site visit to the Roy Street Shops site, a review of applicable Ecology files, and an interview with the owners of the neighboring Maryatt Industries (also known as American Linen) property. No subsurface investigation or sampling was conducted as part of the December 2010 study.

According to available records, Shannon & Wilson reported that gasoline and benzene contaminated soil and groundwater was first documented in a January 1992 memo from Seattle Parks and Recreation to Seattle City Light. The contamination reportedly resulted from a broken suction line on a 2,700-gallon underground storage tank (UST) that supplied unleaded gasoline to a fuel pump island located in the parking lot north of the building. Additionally, an abandoned 550-gallon UST of unknown contents was located at the northwest corner of the building (evidence of release from the 550-gallon UST was later identified). An air sparge/soil vapor extraction system was designed in 1997 and subsequently installed, but was apparently never operated. The system was eventually decommissioned. Approximate locations of the USTs are shown on the attached figures.

Shannon & Wilson’s December 2010 letter report summarizes an evaluation by Urban Redevelopment, LLC in 2002 who apparently was interested in acquiring the property. The Urban Redevelopment, LLC effort consisted of 44 subsurface soil samples and 11 groundwater samples. The following is a summary of Shannon & Wilson’s conclusions presented in their December 2010 letter report based upon Urban Redevelopment’s raw environmental data.

- **2002 Soil Contamination Beneath Roy Street Shops Site (as summarized in 2010 report)**
 - Gasoline-range hydrocarbons and BTEX compounds were detected above the applicable MTCA Method A cleanup levels in soil from approximately 12 to 15 feet bgs beneath the parking area and 3 to 8 feet bgs below the existing basement foundation.
 - Diesel-range petroleum hydrocarbon and cPAHs were detected above the applicable MTCA Method A cleanup levels in soil from approximately 0 to 4 feet bgs beneath the parking area in the vicinity of an “oil storage shed.”
 - Lead and mercury were detected above the applicable MTCA Method A cleanup levels in soil from approximately 0 to 4 feet bgs beneath the parking area.
- **2002 Groundwater Contamination beneath Roy Street Shops Site (as summarized in 2010 report)**
 - Gasoline-range petroleum hydrocarbons and BTEX compounds were detected above the applicable MTCA Method A cleanup levels in groundwater beneath the parking area and the east-adjacent alley (between the Roy Street Shops site and the subject property).
 - Naphthalenes, cPAHs, and metals (arsenic, cadmium, chromium, mercury, lead, and silver) were detected above the applicable MTCA Method A cleanup levels in groundwater beneath the parking area.



5.2 “Current Conditions Report, Seattle City Light, 8th and Roy Street Property, 800 Aloha Street, Seattle, Washington” by Shannon & Wilson, Inc., dated June 8, 2011

Based on the findings in their 2010 study, Shannon & Wilson conducted a subsurface investigation of groundwater conditions beneath the Roy Street Shops site and the alley adjacent to the subject property. The investigation and results are described in their “Current Conditions Report” for Seattle City Light dated June 8, 2011. Groundwater samples were obtained from six existing wells (four on the Roy Street Shops site property [MW-6 through MW-9] and two in the east-adjacent alley [MW-101 and MW-105]) that were thought to be representative of the shallow aquifer present in the area. The six wells ranged in depth from 14.94 feet bgs (MW-101) to 29.69 feet bgs (MW-105). All groundwater samples were submitted for gasoline-, diesel-, and heavy oil-range petroleum hydrocarbons, volatile organic compounds (VOCs), and total and dissolved metals. Approximate locations of the monitoring wells are shown on Figure 9. The groundwater analytical results are as follows.

■ 2011 Groundwater Contamination beneath Roy Street Shops Site

- Gasoline-range petroleum hydrocarbons and benzene were detected above the applicable MTCA Method A cleanup levels in groundwater samples obtained from beneath the parking area and the east-adjacent alley (MW-6, MW-7, MW-101, and MW-105). Shannon & Wilson notes that the detected concentrations represent a general decrease in concentrations since the 2002 sampling event and that the decrease is likely due to natural attenuation since the air sparge/soil vapor extraction system was never operated.
- Naphthalenes and vinyl chloride were detected above the MTCA cleanup level beneath the parking area (MW-6 and MW-9, respectively).
- Total dissolved arsenic was detected above MTCA cleanup level beneath the parking area and east-adjacent alley (MW-9 and MW-105); however, Shannon & Wilson note the concentrations are likely naturally occurring elevated background concentrations.

GeoEngineers used the summary information provided in the 2010 and 2011 Shannon & Wilson reports to evaluate gasoline and benzene contaminated soil and groundwater extent as outlined in Figures 11 through 13 of our report.

6.0 GROUNDWATER FLOW AND DIRECTION EVALUATION

Prior to groundwater measurements being obtained, GeoEngineers evaluated the well screen intervals and well depth for 16 groundwater monitoring wells that were slated to be measured during August 2015. Additionally, before groundwater measurements were obtained, GeoEngineers subcontracted a professional surveyor to survey the top of well casing for each of the 16 wells to be monitored. Table 5 summarizes the top of casing elevations surveyed by the surveyor, well construction details (where available) and depth to water measurements obtained by GeoEngineers.

On August 17, 2015, groundwater elevations were manually measured using an electronic water level indicator for all 16 shallow monitoring wells located on and in the vicinity of the subject property (four wells on the subject property, three wells in the east-adjacent alley, one well in 8th Avenue, and eight wells on the Roy Street Shops site). Based on the August 17, 2015 elevation data, groundwater flow is east northeast, from the Roy Street Shops site toward Lake Union, in the direction of the subject property. Groundwater elevation contours and approximate flow direction are shown on Figure 9.

Additionally, groundwater transducers connected to automatic data loggers were placed in three of the four shallow monitoring wells installed on the subject property (MW-4, MW-6, and MW-7). Groundwater level data was obtained once per hour for approximately 4 weeks from July 15 to August 17, 2015. The transducer data verified our August 17, 2015 field-generated measurements that demonstrate and confirm that groundwater flow is to the east-northeast toward Lake Union. A graph showing groundwater levels and fluctuations over the 4-week time period is presented as Figure 10.

7.0 CONCLUSIONS

Additional soil and groundwater characterization and site research was conducted at the subject property and the west-adjacent Seattle City Light Roy Street Shops site to satisfy the data gaps described in Ecology’s response letter dated May 11, 2015. The following sections describe our findings and conclusions regarding each of the five data gaps identified by Ecology.

7.1 Data Gaps Regarding Soil Contamination (Elements 1 through 3 in Table A)

7.1.1. Data Gap Category 1: Vertical Extents of Soil Contamination

Ecology identified the following data gaps regarding the vertical extent of soil contamination beneath the subject property. Based on the results of our additional subsurface explorations, each of the identified data gaps have been addressed:

TABLE B. DATA GAPS REGARDING VERTICAL EXTENT OF SOIL CONTAMINATION

Data Gaps Determined by Ecology		Exploration to Satisfy Data Gap	Data Gap Resolution
1. Vertical Extents of Soil Contamination	Vertical extent of soil contamination was not defined for gasoline at borings DP-2 and DP-7 (the former UST area)	MW-7 and DP-15	Based on the results of DP-8, MW-7 and DP-15, the vertical extent of benzene and gasoline contaminated soil is 35 feet (as shown in the cross-section on Figures 11 and 12).
	Vertical extent of soil contamination was not defined for benzene at borings DP-7 and DP-11 (the former UST area)		
	Vertical extent of soil contamination was not defined for cPAHs at borings DP-7 (former UST area) and DP-10 (NE corner).	DP-15 and DP-9	Based on the results of DP-15, DP-9 and DP-16, the vertical extent of the cPAH contamination is 27.5 feet bgs in the former UST area, 10 feet bgs in the northeast corner and 20 feet bgs in the southwest corner.
	Samples DP-11 and DP-12 (southwest corner) had no cPAHs detected, but the reporting limit exceeded the cleanup level.	DP-15 and DP-16	
	Vertical extent of soil contamination was not defined for lead at borings DP-12 and MW-2 (both located in the southwest corner).	DP-16 and MW-2	Based on the results of DP-16 and MW-2, the vertical extent of lead contamination in the southwest corner is 15 feet bgs.



7.1.2. Data Gap Category 2: Lateral Extents of Soil Contamination

Ecology identified the following data gaps regarding lateral extents of soil contamination beneath the subject property. Based on the results of our additional subsurface explorations, we have addressed the lateral extent data gaps.

TABLE C. DATA GAPS REGARDING LATERAL EXTENT OF SOIL CONTAMINATION

Data Gaps Determined by Ecology		Exploration to Satisfy Data Gap	Data Gap Resolution
2. Lateral Extents of Soil Contamination	Lateral extent of soil contamination was not defined for gasoline and benzene contamination in the north and northeast portions of the site beyond DP-8, DP9, and DP-10 or to the west of DP-8, DP-2, and DP-11.	DP-14, MW-4, MW-5	Based on the results of our additional explorations and research, the source of the gasoline and benzene is upgradient of the subject property and the lateral extent of the gasoline and benzene contaminated soil extends through the subject property onto the adjacent property to the north (as shown in Figures 11 and 12). However, the lateral limits of the gasoline and benzene contaminated soil and groundwater have been fully defined on the subject property by borings MW-4, MW-5, DP-3, GEI-4 and MW-3.
	Diesel- and oil-range petroleum hydrocarbon contamination has not been defined near the oil/water separator or the UST area. However, based upon the proposed 15 feet deep excavation, shallow contamination would likely be removed.	DP-14, DP-15, MW-4, MW-5, MW-6, and MW-7	Diesel- and/or oil-range petroleum hydrocarbons either were not detected or detected less than MTCA in all samples tested during this supplemental evaluation (DP-14, DP-15, MW-4, MW-5, MW-6, and MW-7). Based on these results diesel and oil range hydrocarbons are limited to the area around the oil/water separator (as shown on Figure 13) and are fully bounded. Diesel- and oil-range petroleum contamination will be removed to the maximum extent practicable to the vertical extent encountered (<15' bgs), but will be limited laterally due to the adjacent alley and significant in-place utilities.
	Lateral extent of soil contamination was not defined for lead contamination in the western, northwestern, and southwestern portions of the Property and may extend off-Property.	All borings	Based on the results of the chemical analytical data, the lateral extent of the on-property contamination has been fully identified. However, data indicates that metals and naphthalenes are in historical neighborhood fill soil that extend beyond the property boundaries to the north and west.
	Lateral extent of soil contamination was not defined for mercury contamination in the north and west of DP-8 and DP-9 and may extend off-Property.	DP-13, DP-14	



Data Gaps Determined by Ecology		Exploration to Satisfy Data Gap	Data Gap Resolution
	Lateral extent of soil contamination was not defined for naphthalene contamination north and west of DP-2 and DP-8 and may extend off-Property.	DP-14	

Diesel- and oil-range contaminated soil associated with the point-source oil/water separator extends to the west and is beneath a public right-of-way (ROW, the alley). We will address the off-property contamination in the future Feasibility Study (FS) and Disproportionate Cost Analysis (DCA), but our assumption is that the contaminated soil located in the alley will not be accessible for remedial excavation due to the presence of several significant utilities located in the alley. However, this soil is capped by the alley and is not a threat to human health or the environment. All accessible contaminated soil will be removed and off-property soil contamination remaining in sidewalls will be sampled and characterized in-place.

Metals (mercury and lead) contaminated soil will be removed from the subject property. Based on the 2014 and 2015 explorations on the subject property and the analytical data obtained in 2011 from the Roy Street Shops site, the metals contamination is associated with historical fill soil in the neighborhood and will remain in place until adjacent property owners remediate their properties.

7.1.3. Data Gap Number 3: Vertical Extents of Soil Contamination below the Planned Foundation

Based on the results of the analytical testing on the subject property, the northwest quadrant of the property is the only location where gasoline, benzene, naphthalene and cPAH contaminated soil extends below the planned excavation foundation of approximately 15 feet bgs. Following the remedial excavation down to approximately 15 feet bgs, in-situ chemical oxidation treatment will be conducted to remediate the contaminated soil and groundwater. The approximate area that will be treated is shown on Figure 14.

Additionally, the planned property redevelopment includes a chemical vapor barrier that will wrap the entire foundation of the building and prevent vapor intrusion from the Roy Street Shops site gasoline and benzene plume and the neighboring American Linen solvent plume in accordance with applicable Ecology draft guidance on vapor intrusion assessment and mitigation per Ecology’s Draft Guidance for Evaluating Soil Vapor Intrusion In Washington State: Investigation and Remedial Action (publication number 09-09-047, October 2009).

7.2 Data Gaps Regarding Groundwater Contamination and Flow Characterization

Ecology identified data gaps regarding groundwater which included the extent of groundwater contamination and the flow characteristics of the shallow aquifer present beneath and in the vicinity of the subject property (referred to in Table A as numbers 4 and 5). In order to satisfy the groundwater data gaps, four new monitoring wells installed and were screened within the shallow aquifer up- and down-gradient of source areas on the subject property, and 12 pre-existing shallow wells (located in the alley adjacent to the subject property, on the Roy Street Shops Site and in 8th Avenue) were monitored. Approximate monitoring well locations are shown on Figure 9.

7.2.1. Data Gap Number 4: Separation of On Property and Off Property Groundwater Contamination

In June 2015, groundwater samples were obtained from the four shallow wells installed on the subject property (MW-4, MW-5, MW-6 and MW-7) and from two monitoring wells located in the alley adjacent to the property (MW-101 and MW-105). Gasoline- and diesel-range petroleum hydrocarbons and benzene were detected above MTCA Method A cleanup levels in groundwater samples obtained from each of the monitoring wells sampled with the exception of MW-4. Approximate well locations and sample results are shown on Figure 4.

Based on the results of the 2015 groundwater sampling by GeoEngineers and the sampling conducted by others on the Roy Street Shops property in 2011, the approximate extents of groundwater contamination for benzene, gasoline- and diesel-contamination were mapped relative to known historic sources of contamination, the subject property, and the Roy Street Shops site, as shown on Figures 11 through 13. Each of the figures are described in detail below.

- As shown on Figure 11 and 12, gasoline-range petroleum hydrocarbon and benzene contaminated groundwater flows from the Roy Street Shops former UST area toward the east-northeast onto the subject property.
- As shown on Figure 13, diesel-range petroleum hydrocarbon-contaminated groundwater is present beneath the subject property in the vicinity of the oil-water separator, drain, and catch basin near the west Property boundary.

Based on these data, the source of the gasoline- and benzene-contaminated groundwater on the northern portion of the subject property is the Roy Street Shops site. As stated in Section 7.1.3, gasoline and benzene- contaminated soil and groundwater will be treated in-situ on the subject property, but gasoline and benzene-contaminated groundwater will remain in the neighborhood.

The source of the diesel- contaminated groundwater on the subject property is the oil/water separator and a small volume of associated diesel-contaminated soil. The oil/water separator and diesel-contaminated soil above cleanup levels will be removed during the course of remedial excavation and property redevelopment, which will resolve the diesel-contaminated groundwater issue. Further, in-situ treatment of gasoline contaminated soil and groundwater in this area will also result in a quicker restoration timeframe for any residual diesel-contaminated groundwater that may remain after the diesel-contaminated soil is removed.

7.2.2. Data Gap Number 5: Shallow Groundwater Flow Characteristics

Based on the results of our extensive groundwater evaluation described in Section 6.0, we have confirmed that the groundwater flow direction is toward the northeast, as shown in Figure 9. These data confirm that the source of the gasoline- and benzene-contaminated soil and groundwater beneath the subject property is the UST release at the Roy Street Shops site.

CONCEPTUAL PROPOSED REMEDIATION PLAN

Based on the results of the 2015 site characterization, data presented in this report, and information obtained from past reports, the contamination related to both on-property (diesel and oil-range hydrocarbons; metals; cPAHs) and adjacent property (gasoline; BETX; solvents) sources of contamination has now been fully characterized both vertically and laterally within the bounds of the subject property.

Following the receipt of a No Further Action-Likely letter from Ecology, the property transaction will be finalized and a Feasibility Study (FS) and Disproportionate Cost Analysis (DCA) will be completed (along with the design of a new hotel building with one level of underground parking). Although the FS and DCA will explore and screen several remedial options for remediation of the subject property, GeoEngineers' conceptual remediation plan and how each aspect of the plan will address the soil and groundwater contamination on the property is described below.

- **Step 1: Source Removal at the Subject Property.** Following demolition of the existing structures, diesel and oil-range hydrocarbons, metals and cPAH-contaminated soil within the property boundary will be excavated and transported off-site for permitted disposal. Excavation will proceed from the ground surface to depths where MTCA Method A cleanup levels are achieved, or to 15 feet below the ground surface (the standard point of compliance for the direct contact pathway). The remedial excavation will remove soil contamination on the property with the exception of benzene, gasoline and cPAH-contaminated soil located in the NW quadrant of the property. Remediation of these “deeper” contaminants resulting from releases from the adjacent Roy Street Shops property will be treated in-situ as described in Step 2 (note that data suggests that the cPAH-contaminated soil observed in this area, at this depth is a de minimus condition).
- **Step 2: Active Treatment of Soil and Groundwater at the Subject Property.** Following remedial excavation and prior to new building construction, in-situ chemical oxidation treatment will be conducted in the NW corner of the property (as shown in Figure 14). The purpose of the in-situ treatment is three-fold:
 - 1) to treat and remove the benzene and gasoline-contaminated soil located on the property that had migrated onto the subject property from the adjacent Roy Street Shops site to depths below the vertical extent of the remedial excavation;
 - 2) to reduce the gasoline and benzene concentrations in groundwater present on the subject property that has migrated from the adjacent Roy Street Shops site; and,
 - 3) to increase the degradation rate (and possibly more rapidly remove) the diesel- and heavy oil-contaminated groundwater originating from the oil/water separator release on the subject property. This will resolve the issue of a co-mingled gasoline and diesel groundwater plume.

Following the active treatment, soil samples will be obtained from within the treatment area to confirm that contaminant concentrations in soil were reduced to below the applicable cleanup levels. And groundwater monitoring will be completed as described below.



- **Step 3: Containment.** During construction of the new building, a chemical vapor barrier will be installed to prevent vapor intrusion from the residual volatile contaminants in groundwater (benzene and gasoline from Roy Street Shops and solvents from the American Linen sites). Additionally, the shallow residual diesel and heavy oil contaminated soil in the alley adjacent to the oil/water separator that will likely not be able to be removed practically due to utilities will continue to be capped by the asphalt road where it is inaccessible and does not pose a threat to human health or the environment.
- **Step 4: Environmental Covenant.** Although the gasoline and benzene concentrations in groundwater will be significantly reduced through in-situ treatment, an environmental covenant will be completed for the subject property to prevent the contact or use of the gasoline, benzene and solvent contaminated groundwater that will continue to migrate beneath the subject property from the adjacent Roy Street Shops and American Linen gasoline and solvent sources, respectively.
- **Step 5: Long-term Monitored Natural Attenuation (MNA).** As documented in the 2010/2011 Shannon & Wilson reports, the USTs at the Roy Street Shops site have been removed, a limited remedial excavation of the contaminated soil was conducted and concentrations of gasoline- and benzene-contaminated groundwater have already naturally attenuated (reduced) over time. Since an air sparging and soil vapor extraction (AS/SVE) system installed at the Roy Street Shops property was never operated, Shannon & Wilson concluded in their report that the reduction in contaminant concentrations (of gasoline and BETX) in groundwater is due to natural attenuation. The in-situ treatment contemplated above by GeoEngineers will have a positive impact on the groundwater quality beneath the subject property; and contaminant concentrations in groundwater will continue to decline on the subject property due to the natural attenuation.

Following construction of the new building, three new shallow monitoring wells will be installed in the building's underground garage so that long-term groundwater monitoring of the shallow groundwater aquifer can be completed. The expectation is that the groundwater monitoring results will verify that the in-situ treatment will prove effective and that natural attenuation continues to occur. Additionally, we anticipate that for groundwater contamination sourced at the subject property (diesel and oil-range hydrocarbons), groundwater quality will at least meet MTCA Method A cleanup levels at a proposed conditional point of compliance at the relevant downgradient property boundary. We anticipate that the FS will demonstrate that there will be a reasonable restoration time frame. As the gasoline and benzene concentrations continue to decline through natural degradation at the Roy Street Shops source area, it will be less and less likely that recontamination of soil on the subject property will occur. Based on the reducing contaminant concentrations in groundwater, the introduction of in-situ treatment into the groundwater table, the depth to groundwater (10-15' bgs), the planned depth of excavation (15' bgs) and depth of the building foundation (12-15' bgs), it is unlikely that the dissolved benzene and gasoline in groundwater will recontaminate soil on the subject property above applicable cleanup levels.

A NFA-Likely opinion from Ecology should be provided now in consideration that, after these remediation, treatment, monitoring, engineering and institutional controls are deployed at the subject property the following threshold requirements will be met per Ecology WAC 173-340-360(2a): protection of human health and the environment, compliance with cleanup standards, compliance with applicable federal and state laws, and providing for compliance monitoring. Additionally the new development will not interfere with remediation or restoration timeframes that will need to continue for the gasoline and solvent contaminated groundwater sourced at the upgradient Roy Street Shops and American Linen sites.



We appreciate your review of the enclosed documents and look forward to speaking with you about this complex neighborhood and the proposed cleanup action and redevelopment of the subject property so that it can be put back into productive use. We request that following Ecology's review of this letter and previously submitted reports that a "No Further Action Likely" opinion letter be issued by Ecology for the subject property.

Sincerely,
GeoEngineers, Inc.



Jessica Smith, LG
Project Manager



David A. Cook, LG, CPG
Principal

JAS: DAC:lw

Attachments:

Table 1. Soil Field Screening and Chemical Analytical Data (Petroleum Hydrocarbons, RCRA 8 Metals, and PCBs)

Table 2. Soil Field Screening and Chemical Analytical Data (PAHs)

Table 3. Soil Field Screening and Chemical Analytical Data (VOCs)

Table 4. Groundwater Chemical Analytical Data (Petroleum Hydrocarbons, PAHs, VOCs and Metals)

Table 5. Summary of Monitoring Well Data and Groundwater Elevations

Figure 1. Neighborhood Vicinity Map

Figure 2. Exploration Locations and Neighboring Environmental Features

Figure 3. Boring Locations and Soil Chemical Analytical Results

Figure 4. Groundwater Chemical Analytical Results

Figure 5. Cross Section A-A'

Figure 6. Cross Section B-B'

Figure 7. Cross Section C-C'

Figure 8. Cross Section D-D'

Figure 9. Groundwater Elevation Contours for the Shallow Aquifer

Figure 10. Groundwater Elevation Data

Figure 11. Gasoline Contaminated Soil and Groundwater Sourced from Off-Property

Figure 12. Benzene Contaminated Soil and Groundwater Sourced from Off-Property

Figure 13. Diesel Contaminated Soil and Groundwater

Figure 14. Approximate Area of Gasoline and Benzene In-Situ Soil Treatment

Appendix A. Ecology Response Letter dated May 11, 2015

Appendix B. Reports Provided by City of Seattle

Appendix C. Laboratory Chemical Analytical Data Report

cc: White/Peterman Properties, Inc.

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.



Table 1
Soil Field Screening and Chemical Analytical Data (Petroleum Hydrocarbons, RCRA 8 Metals and PCBs)
 South Lake Union Marriott AC
 739 9th Avenue North, Seattle, Washington

Exploration Location ¹	Sample ID	Sample Depth (feet bgs)	Field Screening ²		Petroleum Hydrocarbons (mg/kg)			BETX ⁵				Metals ⁶ (mg/kg)					PCBs ⁸ (mg/kg)
			Sheen	Headspace (ppm)	Gasoline Range ³	Diesel Range ⁴	Heavy Oil Range ⁴	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Total Xylenes (µg/kg)	Cadmium	Chromium	Lead	TCLP Lead ⁷ mg/L	Mercury	
Direct Push Borings by GeoEngineers, September 6, 2014																	
DP-1	DP-1-2.5	2.5	SS	<1	4.70 U	19.7 U	19.5 U	0.0188 U	0.0282 U	0.0188 U	18.8 U	0.178	36.2	25	--	0.0588	--
	DP-1-5.0	5	SS	<1	3.79 U	20.8 U	51.9 U	0.0152 U	0.0227 U	0.0152 U	15.2 U	0.129	37.6	12.9	--	0.0515	--
DP-2	DP-2-2.5	2.5	MS	<1	3.35 U	22.6 U	383	--	--	--	--	--	--	--	--	--	--
	DP-2-10.0	10	HS	48	729	27.9 U	52.7	2.13	5.92	2.28	5,455	0.522	28.8	367	15.8	0.206	--
	DP-2-12.5	12.5	NS	<1	57.4	23.5 U	58.8 U	0.0286	0.0760	0.0213	117	0.731	72.5⁹	8.31	--	0.0648	--
	DP-2-15.0	15	NS	<1	34.9	--	--	--	--	--	--	--	--	--	--	--	--
DP-3	DP-3-2.5	2.5	SS	<1	2.26	19.5 U	48.9 U	0.0232 U	0.0407	0.0206	133.7	0.228	24.4	121	--	0.155	0.203 U
	DP-3-7.5	7.5	NS	<1	4.62 U	21.0 U	52.4 U	0.0185 U	0.0277 U	0.0185 U	18.5 U	0.0615	28.6	2.4	--	0.0326	--
DP-4	DP-4-5.0	5	SS	<1	2.97 U	19.1 U	47.7 U	0.0119 U	0.0178 U	0.0119 U	11.9 U	0.071	32.4	1.85	--	0.0158	--
	DP-4-15.0	15	SS	<1	4.86	22.5 U	56.2 U	0.0243	0.0363	0.0195 U	95.8	0.0575	36.8	2.47	--	0.00983	--
DP-5	DP-5-7.5	7.5	MS	<1	6.09 U	21.0 U	52.4 U	0.0243 U	0.0365	0.0243 U	24.3 U	0.0868	41.6	3.23	--	0.0342	0.152 U
	DP-5-15.0	15	SS	<1	4.89 U	22.3 U	55.6 U	0.0141	0.00472	0.0151	101.3	0.0898	31	21.7	--	0.0915	--
DP-6	DP-6-2.5	2.5	SS	<1	4.64 U	19.4 U	48.4 U	0.0186 U	0.0279 U	0.0186 U	18.6 U	0.1	33.1	31.5	--	0.0183	--
	DP-6-10.0	10	NS	<1	3.42 U	20.6 U	51.4 U	0.0137 U	0.0205 U	0.0137 U	13.7 U	0.0507	24.9	1.81	--	0.0154	--
DP-7	DP-7-7.5	7.5	HS	80	175	468	74.4 U	0.346	0.170	0.225	669	2.75	18.9	355	0.996	0.592	--
	DP-7-13.0	13	HS	240	412	844	56.0 U	1.28	0.348	0.320	935	0.0837	31.7	18.7	--	0.0817	--
DP-8	DP-8-7.5	7.5	HS	410	2,820	31.9 U	1550	0.717	7.5	1.27	4,136	1.07	21.7	1,080	0.200 U	5.45¹⁰	--
	DP-8-20.0	20	NS	55	3.48 U	22.5 U	56.4 U	0.312	0.0325	0.0183	162.7	0.0478	21.5	2.68	--	0.0158	--
	DP-8-25.0	25	NS	20	--	--	--	0.0864	--	--	--	--	--	--	--	--	--
	DP-8-35.0	35	NS	6	3.32 U	20.9 U	52.2 U	0.0103	0.0215	0.00625	104.7	--	--	--	--	--	--
DP-9	DP-9-5.0	5	MS	<1	152	20.5	16	4.12	3.17	0.676	8,240	0.592	26.1	244	--	5.51¹⁰	--
	DP-9-20.0	20	NS	<1	3.52 U	20.7 U	51.7 U	0.00798	0.00539	0.00888	100.5	0.0674	25.9	2.46	--	0.0142	--
DP-10	DP-10-10.0	10	NS	<1	4.17 U	20.6 U	51.4 U	0.0167 U	0.0250 U	0.0167 U	16.7 U	0.0525	28.4	2.29	--	0.0207	--
DP-11	DP-11-2.5	2.5	HS	67	5.29 U	15,800	2,230	0.0212 U	0.0165	0.0120	119.1	1.83	27.1	1,370	3.26	0.099	--
	DP-11-15.0	15	SS	2	23.3	24.9 U	62.1 U	0.0375	0.0147	0.0252	203.3	0.161	66.3⁹	21.8	--	0.046	--
DP-12	DP-12-7.5	7.5	SS	<1	4.76	21.7 U	230	0.0261	0.0157	0.0232	219.7	0.38	44.5	604	0.200 U	0.166	--
	DP-12-12.5	12.5	NS	<1	3.62	29.7 U	54.6	0.0358	0.00994	0.0344	118.1	1.38	99.4⁹	1,390	0.200 U	0.443	--
	DP-12-15.0	15	NS	<1	--	--	--	0.0262	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Level for Unrestricted Land Use					30/100¹¹	2,000	2,000	0.03	6	7	9,000	2	2,000¹²	250	NA	2	1
Metals Natural Background Concentration					NA	NA	NA	NA	NA	NA	NA	1	42	24	NA	0.07	NA
Metals Dangerous Waste Threshold					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0	NA	NA

Exploration Location ¹	Sample ID	Sample Depth (feet bgs)	Field Screening ²		Petroleum Hydrocarbons (mg/kg)			BETX ⁵				Metals ⁶ (mg/kg)					PCBs ⁸ (mg/kg)
			Sheen	Headspace (ppm)	Gasoline Range ³	Diesel Range ⁴	Heavy Oil Range ⁴	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Total Xylenes (µg/kg)	Cadmium	Chromium	Lead	TCLP Lead ⁷ mg/L	Mercury	
Direct Push Borings by GeoEngineers, June 8 and 9, 2015																	
DP-13	DP-13-8.0	8	NS	<1	4.88	--	--	0.0549	0.0540	0.0194	222.5	--	--	43.5	--	0.378	--
	DP-13-15.0	15	SS	5	8.27	--	--	0.00856 U	0.0128 U	0.00856 U	8.56 U	--	--	2.28	--	0.315 U	--
DP-14	DP-14-5.0	5	MS	--	--	--	--	--	--	--	--	--	--	--	--	0.223 U	--
	DP-14-7.5	7.5	MS	60	1250	29.5 U	258	1.52	7.04	2.08	5788	--	--	--	--	--	--
	DP-14-17.5	17.5	SS	<1	1.9	24.4 U	60.9 U	0.033	0.00887 U	0.00591 U	10.5	--	--	3.39	--	--	--
DP-15	DP-14-30.0	30	NS	<1	--	--	--	0.0493	--	--	--	--	--	--	--	--	--
	DP-15-5.0	5	NS	<1	3.73 U	22.1 U	55.4 U	0.016	0.0224 U	0.0149 U	35.4	--	--	5370	6.28	0.638	--
	DP-15-12.5	12.5	SS	<1	6.95	23.5 U	58.6 U	0.00508 U	0.00877	0.00508 U	6.48	--	--	3.17	--	--	--
	DP-15-27.5	27.5	NS	<1	1.34 U	--	--	0.00534 U	0.00801 U	0.00534 U	12.3	--	--	--	--	--	--
DP-16	DP-15-35.0	35	NS	<1	--	--	--	--	--	--	--	--	--	--	--	--	--
	DP-16-7.5	7.5	SS	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DP-16-15.0	15	SS	--	--	--	--	--	--	--	--	--	--	10.3	--	--	--
	DP-16-17.5	17.5	SS	--	--	--	--	--	--	--	--	--	--	5.07	--	--	--
Hollow Stem Auger Borings and Deep Monitoring Wells by GeoEngineers, August 22, 2014																	
GEI-4	GEI-4-2-5.0	5	NS	<1	5.34 U	22.3 U	55.8 U	0.0214 U	0.0321 U	0.0214 U	21.4 U	0.114	25.6	9.19	--	0.0646	--
	GEI-4-5-12.5	12.5	NS	<1	6.08 U	23.7 U	59.3 U	0.0243 U	0.0365 U	0.0243 U	24.3 U	0.113	42.5	3.44	--	0.0391	--
MW-1	MW-1-1-2.5	2.5	NS	<1	4.52 U	23.4 U	58.4 U	0.0181 U	0.0271 U	0.0181 U	18.1 U	0.105	43.9	6.07	--	0.239	--
MW-2	MW-2-2-5.0	5	NS	<1	9.29	24.5 U	61.2 U	0.0391 U ¹³	0.0587 U	0.0391 U	39.1 U	0.908	27.2	519	0.200 U	0.254	--
	MW-2-4-10.0	10	NS	<1	--	--	--	--	--	--	--	--	--	714	0.500 U	--	--
	MW-2-8-20.0	20	NS	<1	--	--	--	--	--	--	--	--	--	2.02	--	--	--
MW-3	MW-3-4-10.0	10	HS	180	14.7	21.5 U	93.4	0.0258 U	0.0388 U	0.0258 U	25.8 U	0.108	32.8	10.9	--	0.0309	--
	MW-3-15-50.0	50	NS	<1	-	-	-	0.0166 U	0.0249 U	0.0166 U	16.6 U	-	-	-	-	-	-
Borings Completed as Shallow Monitoring Wells by GeoEngineers, June 8 and 9, 2015																	
MW-4	MW-4-5.0	5	NS	<1	1.88 U	22.1 U	55.3 U	0.00770 U	0.0115 U	0.00770 U	7.70 U	--	--	3.61	--	0.271 U	--
	MW-4-17.5	17.5	NS	<1	1.53 U	21.5 U	53.7 U	0.00566 U	0.00849 U	0.00566 U	5.66 U	--	--	--	--	--	--
MW-5	MW-5-7.5	7.5	SS	--	1.92 U	21.2 U	52.9 U	0.00770 U	0.0115 U	0.00770 U	7.70 U	0.173 U	--	2.07	--	--	--
	MW-5-15.0	15	SS	--	1.41 U	--	--	0.00566 U	0.00849 U	0.00566 U	5.66 U	--	--	--	--	--	--
MW-6	MW-6-7.5	7.5	MS	55	362	21.5 U	147	0.0617	2.74	0.0475	294.5	--	--	33.5	--	0.248 U	--
	MW-6-15.0	15	HS	850	912	22.5 U	56.2 U	0.0265	22.2	0.023	1,926	--	--	4.81	--	0.292 U	--
	MW-6-20.0	20	SS	<1	3.95 U	--	--	0.145	0.0253	0.0174	53.8	--	--	--	--	--	--
	MW-6-25.0	25	SS	<1	--	--	--	0.0253	--	--	--	--	--	--	--	--	--
MW-7	MW-7-10.0	10	HS	20	3.47	29.3 U	73.3 U	0.0484	0.0160 U	0.0144	54.8	--	--	670	0.200 U	--	--
	MW-7-15.0	15	SS	<1	14.5	22.1 U	55.4 U	0.00450 U	0.00450 U	0.0139	4.95	--	--	--	--	--	--
	MW-7-20.0	20	SS	<1	1.24 U	--	--	0.0265	0.00742 U	0.00495 U	4.95U	--	--	2.1	--	--	--
	MW-7-30.0	30	NS	--	--	--	--	0.0806	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Level for Unrestricted Land Use					30/100 ¹¹	2,000	2,000	0.03	6	7	9,000	2	2,000 ¹²	250	NA	2	1
Metals Natural Background Concentration					NA	NA	NA	NA	NA	NA	NA	1	42	24	NA	0.07	NA
Metals Dangerous Waste Threshold					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0	NA	NA

Notes appear on Page 3

Exploration Location ¹	Sample ID	Sample Depth (feet bgs)	Field Screening ²		Petroleum Hydrocarbons (mg/kg)			BETX ⁵				Metals ⁶ (mg/kg)					PCBs ⁸ (mg/kg)
			Sheen	Headspace (ppm)	Gasoline Range ³	Diesel Range ⁴	Heavy Oil Range ⁴	Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Total Xylenes (µg/kg)	Cadmium	Chromium	Lead	TCLP Lead ⁷ mg/L	Mercury	

Notes:

¹Approximate exploration locations shown on the attached figure. Chemical analytical testing by Fremont Analytical in Seattle, Washington. Samples were obtained between August 22 and September 6.

²Field screening methods are described in Appendix B.

³Gasoline-range hydrocarbons analyzed using Northwest Method NWTPH-Gx.

⁴Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx.

⁵Volatile organic compounds (VOCs) benzene (B), ethylbenzene (E), toluene (T), and xylenes (X) analyzed by U.S. Environmental Protection Agency (EPA) Method 8260B. Remaining VOCs analyzed are presented in Table 3.

⁶Total metals analyzed by U.S. Environmental Protection Agency (EPA) 6010B/7471A. For metals, only analytes detected above laboratory reporting limits in at least one sample are shown. For the full list of analytes and laboratory reporting limits, see the laboratory report.

⁷Toxicity Characteristic Leaching Procedure (TCLP) extraction using EPA Method 1311.

⁸Polychlorinated biphenyls (PCBs) analyzed by EPA 8082.

⁹The chromium detected in this sample was also submitted for Chromium Speciation using EPA Method 7196. Hexavalent chromium was not detected in this sample.

¹⁰This sample was submitted for a TCLP extraction TCLP for mercury. Mercury was not detected (<0.0169) in the analyzed sample.

¹¹When benzene is present, the gasoline range cleanup level is 30 mg/kg. When benzene is not present the gasoline range cleanup level is 100 mg/kg.

¹²Cleanup level for Chromium III.

¹³This analyte was not detected in the soil sample, but the reporting limit for this sample is greater than the MTCA Method A cleanup level.

-- = not tested

bgs = below ground surface

mg/kg = milligrams per kilogram

MTCA = Model Toxics Cleanup Act

NE = Not Established

NA = Not Applicable

NS = no sheen, SS= slight sheen, MS = moderate sheen

ppm = parts per million

µg/L = micrograms per liter

U = Analyte was not detected; detection limit listed

Bolding indicates analyte was detected. Shading indicates analyte was detected at a concentraion greater than the MTCA Method A cleanup level. Yellow highlighting indicates the concentrations exceeds the dangerous waste threshold.

Table 2
Soil Field Screening and Chemical Analytical Data (PAHs)
 South Lake Union Marriott AC
 739 9th Avenue North, Seattle, Washington

Exploration Location	Sample ID	Sample Depth	Field Screening		Non-Carcinogenic PAHs ² (µg/kg)											Carcinogenic PAHs ³ (µg/kg)						Total cPAH TEQ ³ (µg/kg) (ND=0.5RL)	
			Sheen	Headspace (ppm)	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(ghi)perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene		Indeno(1,2,3-cd)pyrene
Direct Push Borings by GeoEngineers, September 6, 2014																							
DP-1	DP-1-2.5	2.5	SS	<1	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	41.374 U
	DP-1-5.0	5	SS	<1	55.3 U	55.3 U	55.3 U	55.3 U	55.3 U	61.4	55.3 U	237	55.3 U	264	279	113	55.3 U	148	55.3 U	59.7	55.3 U	55.3 U	62.6
DP-2	DP-2-2.5	2.5	MS	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DP-2-10.0	10	HS	48	14,700	12,000	20,900	90.8	76.5 U	76.5 U	76.5 U	150	76.5 U	99.4	76.5 U	76.5 U	76.5 U	76.5 U	76.5 U	76.5 U	76.5 U	76.5 U	57.7575 U
	DP-2-12.5	12.5	NS	<1	65.7 U	149	40.9	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	65.7 U	49.6035 U
	DP-2-15.0	15.0	NS	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DP-3	DP-3-2.5	2.5	SS	<1	1120 U	1120 U	1120 U	1120 U	1120 U	1120 U	961	3,280	1120 U	1,890	3,540	1120 U	1120 U	1120 U	1120 U	1120 U	1120 U	1120 U	845.6 U ⁴
	DP-3-7.5	7.5	NS	<1	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	41.676 U
DP-4	DP-4-5.0	5	SS	<1	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	53.7 U	40.5435 U
	DP-4-15.0	15	SS	<1	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	56.3 U	42.5065 U
DP-5	DP-5-7.5	7.5	MS	<1	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	55.8 U	42.129 U
	DP-5-15.0	15	SS	<1	56.5 U	25.0	34.5	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	56.5 U	42.6575 U
DP-6	DP-6-2.5	2.5	SS	<1	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	54.8 U	41.374 U
	DP-6-10.0	10	NS	<1	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	54.9 U	41.4495 U
DP-7	DP-7-7.5	7.5	HS	80	312	1,580	666	489	78.8 U	78.8 U	78.8 U	583	78.8 U	846	583	354	78.8 U	407	78.8 U	188	78.8 U	78.8 U	129.2
	DP-7-13.0	13	HS	240	907	9,120	6,840	1,000	55.2 U	55.2 U	55.2 U	780	1,560	3,950	964	400	352	385	55.2 U	55.2 U	55.2 U	55.2 U	439.056
DP-8	DP-8-7.5	7.5	HS	410	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DP-8-20.0	20	NS	55	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	174	52.9 U	52.9 U	52.9 U	52.9 U	52.9 U	187.5
	DP-8-25.0	25	NS	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DP-8-35.0	35	NS	6	188,000	120,000	266,000	8360 U ⁴	8360 U	8360 U	8360 U	8360 U	8360 U	8360 U	8360 U	8360 U	8,360 U ⁴	8360 U	8360 U	8360 U	8360 U	8360 U	8360 U
DP-9	DP-9-5.0	5	MS	<1	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	68.0 U	326	68.0 U	68.0 U	68.0 U	68.0 U	80.5
	DP-9-20.0	20	NS	<1	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	55.6 U	41.978 U
DP-10	DP-10-10.0	10	NS	<1	53.5 U	53.5 U	53.5 U	53.5 U	53.5 U	53.5 U	53.5 U	53.5 U	13.7	53.5 U	53.5 U	53.5 U	174	53.5 U	53.5 U	53.5 U	53.5 U	53.5 U	187.6
DP-11	DP-11-2.5	2.5	HS	67	953	18,600	24,500	1,290	292 U	292 U	292 U	792	2,100	292 U	1,170	292 U	292 U	292 U	292 U	394	292 U	292 U	222.9
	DP-11-15.0	15	SS	2	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	1.25	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	62.5 U	47.1875 U
DP-12	DP-12-7.5	7.5	SS	<1	72.2	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	316 U	238.58 U ⁴
	DP-12-12.5	12.5	NS	<1	39.7	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	69.8 U	154	69.8 U	69.8 U	69.8 U	64.6
	DP-12-15.0	15.0	NS	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A or B Cleanup Level for Unrestricted Land Use⁵					5,000	3.45E+04	3.20E+05	4.80E+06	NE	2.40E+07	NE	3.20E+06	3.20E+06	NE	2.40E+06	1,370	100	1.37E+03	1.37E+04	1.37E+05	137	1.37E+03	100

Exploration Location	Sample ID	Sample Depth	Field Screening		Non-Carcinogenic PAHs ² (µg/kg)											Carcinogenic PAHs ³ (µg/kg)						Total cPAH TEQ ³ (µg/kg) (ND=0.5RL)			
			Sheen	Headspace (ppm)	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(ghi)perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene		Indeno(1,2,3-cd)pyrene		
Direct Push Borings by GeoEngineers, June 8 and 9, 2015																									
DP-13	DP-13-8.0	8	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	DP-13-15.0	15	SS	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
DP-14	DP-14-7.5	7.5	MS	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	DP-14-17.5	17.5	SS	<1	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	60.9 U	45.980 U	
DP-15	DP-15-5.0	5	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	DP-15-12.5	12.5	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	DP-15-27.5	27.5	NS	<1	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	61.4 U	46.357 U	
	DP-15-35.0	35	NS	<1	60.1 U	60.1 U	60.1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DP-16	DP-16-7.5	7.5	SS	-	67.8 U	67.8 U	67.8 U	67.8 U	67.8 U	138	67.8 U	1170	67.8 U	503	1430	566	608	709	199	667	87.1	396	810.4		
	DP-16-10.0	10	SS	-	243	114	177	91.2 U	112	243	597	501	91.2 U	851	459	202	91.2 U	367	91.2 U	223	91.2 U	91.2 U	118.4		
	DP-16-15.0	15	SS	-	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	65.0 U	49.075 U	
	DP-16-17.5	17.5	SS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hollow Stem Auger Borings and Deep Monitoring Wells by GeoEngineers, August 22, 2014																									
GEI-4	GEI-4-2-5.0	5	NS	<1	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	55.2 U	41.676 U	
	GEI-4-5-12.5	12.5	NS	<1	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	57.0 U	43.035 U
MW-1	MW-1-1-2.5	2.5	NS	<1	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	55.9 U	42.205 U
MW-2	MW-2-2-5.0	5	NS	<1	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	60.1 U	45.3755 U
	MW-2-4-10.0	10	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW-2-8-20.0	20	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3	MW-3-4-10.0	10	HS	180	57.6 U	125	91.2	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	42.8	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	57.6 U	43.488 U
	MW-3-15-50.0	50	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borings Completed as Shallow Monitoring Wells by GeoEngineers, June 8 and 9, 2015																									
MW-4	MW-4-5.0	5	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	MW-4-17.5	17.5	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MW-5	MW-5-7.5	7.5	SS	-	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	54.0 U	40.770 U
	MW-5-15.0	15	SS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6	MW-6-7.5	7.5	MS	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW-6-15.0	15	HS	850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW-6-20.0	20	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	MW-7-10.0	10	HS	20	441	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW-7-15.0	15	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW-7-20.0	20	SS	<1	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	52.2 U	39.411 U
	MW-7-30.0	30	NS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MTCA Method A or B Cleanup Level for Unrestricted Land Use⁵					5,000	3.45E+04	3.20E+05	4.80E+06	NE	2.40E+07	NE	3.20E+06	3.20E+06	NE	2.40E+06	1,370	100	1.37E+03	1.37E+04	1.37E+05	137	1.37E+03	100		

Notes appear on Page 3

Exploration Location	Sample ID	Sample Depth	Field Screening		Non-Carcinogenic PAHs ² (µg/kg)										Carcinogenic PAHs ³ (µg/kg)						Total cPAH TEQ ³ (µg/kg) (ND=0.5RL)
			Sheen	Headspace (ppm)	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(ghi)perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	

Notes:

¹Approximate exploration locations shown on the attached figure. Chemical analytical testing by Fremont Analytical in Seattle, Washington. Samples were obtained between August 22 and September 6.

²Polycyclic aromatic hydrocarbons (PAHs) analyzed by U.S. Environmental Protection Agency (EPA) Method 8270D/SIM. See the laboratory report for the full list of compounds analyzed.

³Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) analyzed by EPA Method 8270D/SIM. Total cPAHs calculated using the toxicity equivalency (TEQ) methodology specified in Washington Administrative Code (WAC) 173-340-780(8). cPAHs that were not detected were assigned half the value of the detection limit for these calculations.

⁴This analyte was not detected in the soil sample, but the reporting limit for this sample is greater than the MTCA Method A cleanup level.

⁵Model Toxics Cleanup Act (MTCA) Method A cleanup levels are listed here. If MTCA Method A cleanup level have not been established, Method B cleanup levels are listed instead.

-- = Not Tested

ug/kg = micrograms per kilogram

bgs = below ground surface

NE = not established

ppm = parts per million

U = Analyte was not detected; detection limit listed.

µg/kg = micrograms per kilogram

Bolding indicates analyte was detected. Shading indicates analyte was detected at a concentraion greater than the MTCA Method A or B cleanup level.

Table 3
Soil Field Screening and Chemical Analytical Data (VOCs)
 South Lake Union Marriott AC
 739 9th Avenue North, Seattle, Washington

Exploration Location ¹	Sample ID	Sample Depth	Field Screening		Volatile Organic Compounds (VOCs) ²											
					1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene (Cumene)	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	Sec-Butylbenzene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,2-Dichloroethane (1,2-DCE)	Vinyl Chloride (VC)	cis-1,2-Dichloroethene (cis-1,2-DCE)
			Sheen	Headspace (ppm)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Direct Push Borings by GeoEngineers, September 6, 2014																
DP-1	DP-1-2.5	2.5	SS	<1	0.0188 U	0.0188 U	0.0752 U	0.0188 U	0.0188 U	0.0188 U	0.0188 U	0.0188 U	0.0188 U	0.0282 U	0.00188 U	0.0188 U
	DP-1-5.0	5	SS	<1	0.0152 U	0.0152 U	0.0606 U	0.0152 U	0.0152 U	0.0152 U	0.0152 U	0.0152 U	0.0152 U	0.0227 U	0.00152 U	0.0152 U
DP-2	DP-2-2.5	2.5	MS	<1	--	--	--	--	--	--	--	--	--	--	--	--
	DP-2-10.0	10	HS	48	2.06	0.296	2.34	6.21	10.5	0.124	1.59	0.0284 U	0.0284 U	0.0426 U	0.00284 U	0.0284 U
	DP-2-12.5	12.5	NS	<1	0.0436	0.0384	0.483	0.301	1.61	0.0175 U	0.127	0.0175 U	0.0175 U	0.0263 U	0.00175 U	0.0175 U
	DP-2-15.0	15.0	NS	<1	--	--	--	--	--	--	--	--	--	--	--	--
DP-3	DP-3-2.5	2.5	SS	<1	0.0540	0.0232 U	0.0617	0.0513	0.0617	0.0232 U	0.0232 U	0.0232 U	0.0232 U	0.0348 U	0.00232 U	0.0232 U
	DP-3-7.5	7.5	NS	<1	0.0185 U	0.0185 U	0.0739 U	0.0185 U	0.0391	0.0185 U	0.0185 U	0.0185 U	0.0185 U	0.0277 U	0.00185 U	0.0185 U
DP-4	DP-4-5.0	5	SS	<1	0.0119 U	0.0119 U	0.0475 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.0178 U	0.00119 U	0.0119 U
	DP-4-15.0	15	SS	<1	0.0412	0.0360	0.0978	0.0385	0.132	0.0195 U	0.0490	0.0195 U	0.0195 U	0.0292 U	0.00195 U	0.0195 U
DP-5	DP-5-7.5	7.5	MS	<1	0.0243 U	0.0243 U	0.0974 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0365 U	0.00243 U	0.0243 U
	DP-5-15.0	15	SS	<1	0.0433	0.0339	0.0471	0.0375	0.0374	0.0195 U	0.0195 U	0.0195 U	0.0195 U	0.0293 U	0.00195 U	0.0195 U
DP-6	DP-6-2.5	2.5	SS	<1	0.0186 U	0.0186 U	0.0743 U	0.0186 U	0.0186 U	0.0186 U	0.0186 U	0.0186 U	0.0186 U	0.0279 U	0.00186 U	0.0186 U
	DP-6-10.0	10	NS	<1	0.0137 U	0.0137 U	0.0547 U	0.0137 U	0.0137 U	0.0137 U	0.0137 U	0.0137 U	0.0137 U	0.0205 U	0.00137 U	0.0137 U
DP-7	DP-7-7.5	7.5	HS	80	0.131	0.0973	0.730	0.607	0.926	0.0669	0.392	0.0333 U	0.0333 U	0.0499 U	0.00333 U	0.0333 U
	DP-7-13.0	13	HS	240	0.172	0.214	0.651	0.432	0.790	0.375	0.293	0.0262 U	0.0262 U	0.0394 U	0.00262 U	0.0262 U
DP-8	DP-8-7.5	7.5	HS	410	1.54	0.332	10.0	22.2	0.0291 U	2.29	6.46	0.0291 U	0.0291 U	0.0436 U	0.00291 U	0.0291 U
	DP-8-20.0	20	NS	55	0.0380	0.0315	0.0760	0.0176 U	0.122	0.0176 U	0.0176 U	0.0176 U	0.0176 U	0.0265 U	0.00176 U	0.0176 U
	DP-8-25.0	25.0	NS	20	--	--	--	--	--	--	--	--	--	--	--	--
	DP-8-35.0	35	NS	6	0.0133 U	0.0133 U	0.0369	0.0241	0.0279	0.0133 U	0.0133 U	0.0133 U	0.0133 U	0.0199 U	0.00133 U	0.0133 U
DP-9	DP-9-5.0	5	MS	<1	0.987	1.06	1.44	0.222	1.21	1.46	0.365	0.0375 U	0.0375 U	0.0563 U	0.00375 U	0.0375 U
	DP-9-20.0	20	NS	<1	0.0289	0.0141 U	0.0459	0.0256	0.0299	0.0141 U	0.0141 U	0.0141 U	0.0141 U	0.0211 U	0.00141 U	0.0141 U
DP-10	DP-10-10.0	10	NS	<1	0.0167 U	0.0167 U	0.0667 U	0.0167 U	0.0167 U	0.0167 U	0.0167 U	0.0167 U	0.0167 U	0.0250 U	0.00167 U	0.0167 U

Exploration Location ¹	Sample ID	Sample Depth	Field Screening		Volatile Organic Compounds (VOCs) ²											
					1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene (Cumene)	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	Sec-Butylbenzene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,2-Dichloroethane (1,2-DCE)	Vinyl Chloride (VC)	cis-1,2-Dichloroethene (cis-1,2-DCE)
			Sheen	Headspace (ppm)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
DP-11	DP-11-2.5	2.5	HS	67	0.0533	0.0378	0.0526	0.105	0.0669	0.0212 U	0.0564	0.0212 U	0.0212 U	0.0318 U	0.00212 U	0.0212 U
	DP-11-15.0	15	SS	2	0.0577	0.0516	0.471	0.0486	0.254	0.0242 U	0.0592	0.0242 U	0.0242 U	0.0363 U	0.00242 U	0.0242 U
DP-12	DP-12-7.5	7.5	SS	<1	0.0869	0.0413 U	0.165 U	0.0813	0.0868	0.0217	0.0413 U	0.0413 U	0.0413 U	0.0619 U	0.00413 U	0.0413 U
	DP-12-12.5	12.5	NS	<1	0.0220 U	0.0220 U	0.0882 U	0.0417	0.0450	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0331 U	0.00220 U	0.0220 U
	DP-12-15.0	15.0	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
MTCA Method A or B Cleanup Level for Unrestricted Land Use³					NE	800	8,000	4,000	8,000	NE	8,000	0.05	0.05	11	0.67	160
Direct Push Borings by GeoEngineers, June 8 and 9, 2015																
DP-13	DP-13-8.0	8	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	DP-13-15.0	15	SS	5	-	-	-	-	-	-	-	-	-	-	-	-
DP-14	DP-14-7.5	7.5	MS	60	-	-	-	-	-	-	-	-	-	-	-	-
	DP-14-17.5	17.5	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	DP-14-30.0	30	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
DP-15	DP-15-5.0	5	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	DP-15-12.5	12.5	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	DP-15-27.5	27.5	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	DP-15-35.0	35	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
DP-16	DP-16-7.5	7.5	SS	-	-	-	-	-	-	-	-	-	-	-	-	-
	DP-16-15.0	15	SS	-	-	-	-	-	-	-	-	-	-	-	-	-
	DP-16-17.5	17.5	SS	-	-	-	-	-	-	-	-	-	-	-	-	-
Hollow Stem Auger Borings and Deep Monitoring Wells by GeoEngineers, August 22, 2014																
GEI-4	GEI-4-2-5.0	5	NS	<1	0.0214 U	0.0214 U	0.0855 U	0.0214 U	0.0214 U	0.0214 U	0.0214 U	0.0214 U	0.0214 U	0.0214 U	0.0214 U	0.0214 U
	GEI-4-5-12.5	12.5	NS	<1	0.0243 U	0.0243 U	0.0972 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U	0.0243 U
MW-1	MW-1-1-2.5	2.5	NS	<1	0.0181 U	0.0181 U	0.0723 U	0.0181 U	0.0181 U	0.0181 U	0.0181 U	0.0181 U	0.0181 U	0.0181 U	0.0181 U	0.0181 U
MW-2	MW-2-2-5.0	5	NS	<1	0.0391 U	0.0391 U	0.156 U	0.0391 U	0.0391 U	0.0699	0.0391 U	0.0391 U	0.0391 U	0.0587 U	0.00391 U	0.0391 U
	MW-2-4-10.0	10	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	MW-2-8-20.0	20	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
MW-3	MW-3-4-10.0	10	HS	180	0.0258 U	0.0258 U	0.103 U	0.0525	0.0383	0.0435	0.0258 U	0.0258 U	0.0258 U	0.0388 U	0.00258 U	0.0258 U
	MW-3-15-50.0	50	NS	<1	0.0166 U	0.0166 U	0.0663 U	0.0166 U	0.0166 U	0.0166 U	0.0166 U	0.0166 U	0.0166 U	0.0249 U	0.00166 U	0.0166 U

Exploration Location ¹	Sample ID	Sample Depth	Field Screening		Volatile Organic Compounds (VOCs) ²											
					1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene (Cumene)	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	Sec-Butylbenzene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,2-Dichloroethane (1,2-DCE)	Vinyl Chloride (VC)	cis-1,2-Dichloroethene (cis-1,2-DCE)
			Sheen	Headspace (ppm)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Borings Completed as Shallow Monitoring Wells by GeoEngineers, June 8 and 9, 2015																
MW-4	MW-4-5.0	5	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	MW-4-17.5	17.5	NS	<1	-	-	-	-	-	-	-	-	-	-	-	-
MW-5	MW-5-7.5	7.5	SS	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW-5-15.0	15	SS	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6	MW-6-7.5	7.5	MS	55	-	-	-	-	-	-	-	-	-	-	-	-
	MW-6-15.0	15	HS	850	-	-	-	-	-	-	-	-	-	-	-	-
	MW-6-20.0	20	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	MW-6-25.0	25	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	MW-7-10.0	10	HS	20	-	-	-	-	-	-	-	-	-	-	-	-
	MW-7-15.0	15	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	MW-7-20.0	20	SS	<1	-	-	-	-	-	-	-	-	-	-	-	-
	MW-7-30.0	30	NS	-	-	-	-	-	-	-	-	-	-	-	-	-
MTCA Method A or B Cleanup Level for Unrestricted Land Use³					NE	800	8,000	4,000	8,000	NE	8,000	0.05	0.05	11	0.67	160

Notes:

¹Approximate exploration locations shown on the attached figure. Chemical analytical testing by Fremont Analytical in Seattle, Washington. Samples were obtained between August 22 and September 6.

²Volatile organic compounds (VOCs) analyzed by U.S. Environmental Protection Agency (EPA) Method 8260B. For VOCs, only detected compounds or contaminants of concern are presented in the table or listed in footnotes. See the laboratory report for the full list of compounds analyzed and detection limits.

³Model Toxics Cleanup Act (MTCA) Method A cleanup levels are listed here. If MTCA Method A cleanup level have not been established, Method B cleanup levels are listed instead.

- = Not Tested

bgs = below ground surface

ug/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

NE = not established

ppm = parts per million

U = not detect; detection limit listed.

µg/kg = micrograms per kilogram

Bolding indicates analyte was detected. Shading indicates analyte was detected at a concentraion greater than the MTCA Method A cleanup level.

Table 4
Groundwater Chemical Analytical Data (Petroleum Hydrocarbons, PAHs, VOCs and Metals)
 South Lake Union Marriott AC
 739 9th Avenue North, Seattle, Washington
 Seattle, Washington

Monitoring Well and Sample ID ¹	Sample Date	Well Screen Depth (feet bgs)	Top of Casing (TOC) Elevation (feet NAVD88)	Approximate Top of Screen Elevation (NAVD88)	Depth to Water (feet below TOC)	Groundwater Elevation (NAVD88)	Petroleum Hydrocarbons (µg/L)			VOCs ⁴ (µg/L)							PAHs ⁵ (µg/L)		Dissolved RCRA 8 Metals ⁶ (µg/L)									
							Gasoline Range ²	Diesel Range ³	Heavy Oil Range ³	B	T	E	X	PCE	TCE	cis-1,2-Dichloroethene	1,2-Dichloroethane	Vinyl Chloride	Non-Carcinogenic PAHs	Carcinogenic PAHs	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Deep Monitoring Wells Sampled September 9, 2014																												
MW-1-140906	09/06/14	39.8-59.8	30.1	-9.3	20.9	9.6	50.0 U	50.0 U	100 U	1.00 U	1.00 U	0.250	0.240	1.00 U	0.500 U	1.00 U	1.00 U	0.200 U	0.100 U	0.100 U	0.750	200	0.200 U	0.479	0.194	0.100 U	0.370	0.200 U
MW-2-140906	09/06/14	27.0-37.0	31.0	4.6	24.0	7.6	28.9	50.0 U	100 U	14.1	1.00 U	1.00 U	0.410	1.00 U	0.500 U	4.44	1.00 U	1.34	0.100 U	0.100 U	3.98	251	0.0160	0.666	0.226	0.100 U	0.644	0.0365
MW-2-150626	06/26/15				13.7	17.3	50.0 U	280	99.8 U	1.00 U	1.00 U	1.00 U	1.00 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-3-140906	09/06/14	49.4-59.4	31.5	30.8	23.0	8.5	50.0 U	50.0 U	100 U	1.69	1.00 U	1.00 U	0.610	1.00 U	0.500 U	9.03	4.34	3.14	0.100 U	0.100 U	7.60	124	0.0165	0.444	0.161	0.100 U	0.586	1.04
Shallow Monitoring Wells Sampled June 15 and 18, 2015																												
MW-4	06/15/15	5-20	30.488	25	12.1	18.4	50.0 U	50.1 U	100 U	1.00 U	1.00 U	1.00 U	1.00 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5	06/15/15	5-15	30.718	26	11.9	18.8	99.3	897⁷	1,180	1.00 U	1.00 U	1.00 U	1.00 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6	06/15/15	10-20	30.570	21	10.4	20.2	10,700	1,580⁷	408	187	9.39	1,010	97.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-7	06/15/15	10-20	30.698	21	10.8	19.9	1,520	1,100⁷	653	16.7	1.23	4.76	2.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-101	06/18/15	6-16	29.987	24	9.5	20.5	3,900	157⁷	99.9 U	30.7	2.13	27.6	6.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-105	06/15/15	na	30.747	na	12.0	18.7	7,290	708⁷	255	600	23.6	337	219.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MTCA Method A or B Cleanup Level for Unrestricted Land Use							800/1,000⁸	500	500	5	1,000	700	1,000	5	5	160	5	0.2	NE	NE	5	3,200	5	50	15	2	80	80

Notes:

- ¹Approximate exploration locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.
- ²Gasoline-range hydrocarbons analyzed by Northwest Method NWTPH-Gx.
- ³Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx.
- ⁴Volatile organic compounds (VOCs) and benzene (B), ethylbenzene (E), toluene (T) and total xylenes (X) analyzed by EPA Method 8260B. For VOCs, only select compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.
- ⁵Polycyclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270D/SIM. For PAHs, only detected compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.
- ⁶Total metals analyzed by EPA 6010B/7471A.
- ⁷Diesel-range concentrations in samples MW-5, MW-6, MW-7, MW-101, and MW-105 indicate the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).
- ⁸When benzene is present, the gasoline range cleanup level is 800 µg/L. When benzene is not present the gasoline range cleanup level is 1,000 µg/L.

bgs = below ground surface

NE = not established

na = not available

PCE = Tetrochloroethene

TCE = Trichloroethene

TOC = Top of Casing (reference point for measurements). Top of casings are within a few inches of ground surface at the respective monitoring well locations.

µg/L = micrograms per liter

Bolding indicates analyte was detected. Shading indicates analyte was detected at a concentration greater than the MTCA Method A or B cleanup level.

Table 5
Summary of Monitoring Well Data and Groundwater Elevations
 South Lake Union Marriott AC
 739 9th Avenue North, Seattle, Washington
 Seattle, Washington

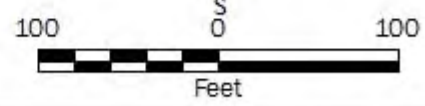
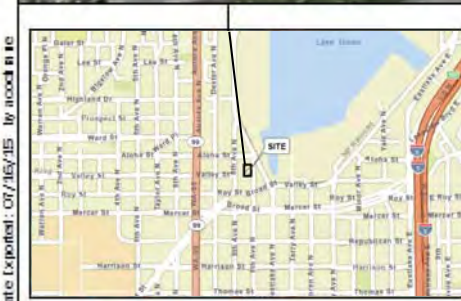
Site	Well ID	ECY Tag ID	Top of Monument Elevation (NAVD88, feet)	TOC Elevation (NAVD88, feet)	Well Casing Stick Up (feet)	Measured Bottom of Well Depth (feet bgs)	Bottom of Well from Well Log or Cross Section (feet bgs)	Depth to Water (feet below TOC)	Water Table Elevation (NAVD88, feet)	Well Casing Diameter (inches)	Screened Interval (feet bgs)	Field Observations
Roy Street Shops Site	SCS-1**	ABV 824	40.236	39.480	0.756	21.26	--	19.85	19.63	4	5-20*	Very silty bottom
	SCS-5	CAN 751	39.241	38.981	0.260	20.98	20	18.83	20.15	4	5-20	Monument flooded to cap seam; cap loose.
	SCS-2	ABV 825	39.508	39.072	0.436	20.93	--	19.53	19.54	4	5-20*	
	MW-6	--	37.692	37.435	0.257	21.00	21	17.95	19.49	2	6-21	
	MW-10	--	38.222	37.929	0.293	22.09	22	17.00	20.93	2	7-22	
	SCS-3	ABV 826	36.401	36.342	0.059	21.62	--	17.02	19.32	4	5-20*	Minor silt on bottom
	MW-7	--	35.609	35.072	0.537	17.92	18	15.70	19.37	2	8-18	Minor silt on bottom
8 th Avenue	SCS-4	--	35.272	34.793	0.479	19.43	20	15.72	19.07	4	5-20	Silty bottom
	MW-9	--	41.046	40.716	0.330	22.08	--	17.76	22.96	2	--	Not bolted; contained sampling tubing
Public Alley	MW-105**	--	31.053	30.747	0.306	29.80	--	12.87	17.88	2	--	Minor silt on bottom; not bolted
	MW-102	--	30.994	30.367	0.627	15.20	16	11.19	19.18	2	6-16	Not bolted; no cap; debris in groundwater
	MW-101	--	30.450	29.987	0.463	14.99	16	10.63	19.36	2	6-16	Not bolted
Subject Property	MW-4	BIQ 039	30.721	30.488	0.233	20.03	20	12.92	17.57	2	5-20	Contained transducer
	MW-5	BIQ 038	30.942	30.718	0.224	15.15	15	12.38	18.34	2	5-15	Silty bottom
	MW-6	BIQ 037	30.812	30.570	0.242	20.29	20	12.20	18.37	2	10-20	Contained transducer
	MW-7	BIQ 036	30.849	30.698	0.151	19.69	19.75	12.24	18.46	2	10-20	Contained transducer

Notes:

*Screened interval is assumed based on the known interval of wells installed in the same installation event.

**Wells were excluded from groundwater flow direction and gradient calculations due to unknown screened interval (MW-105) or evidence of being undeveloped (SCS-1).

-- = unknown



Neighborhood Vicinity Map

South Lake Union Marriott AC
Seattle, Washington



Figure 1

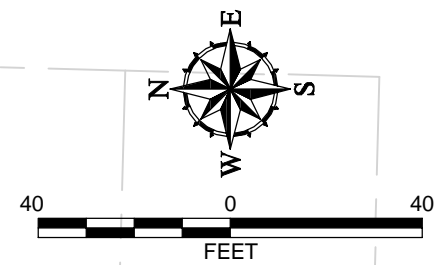
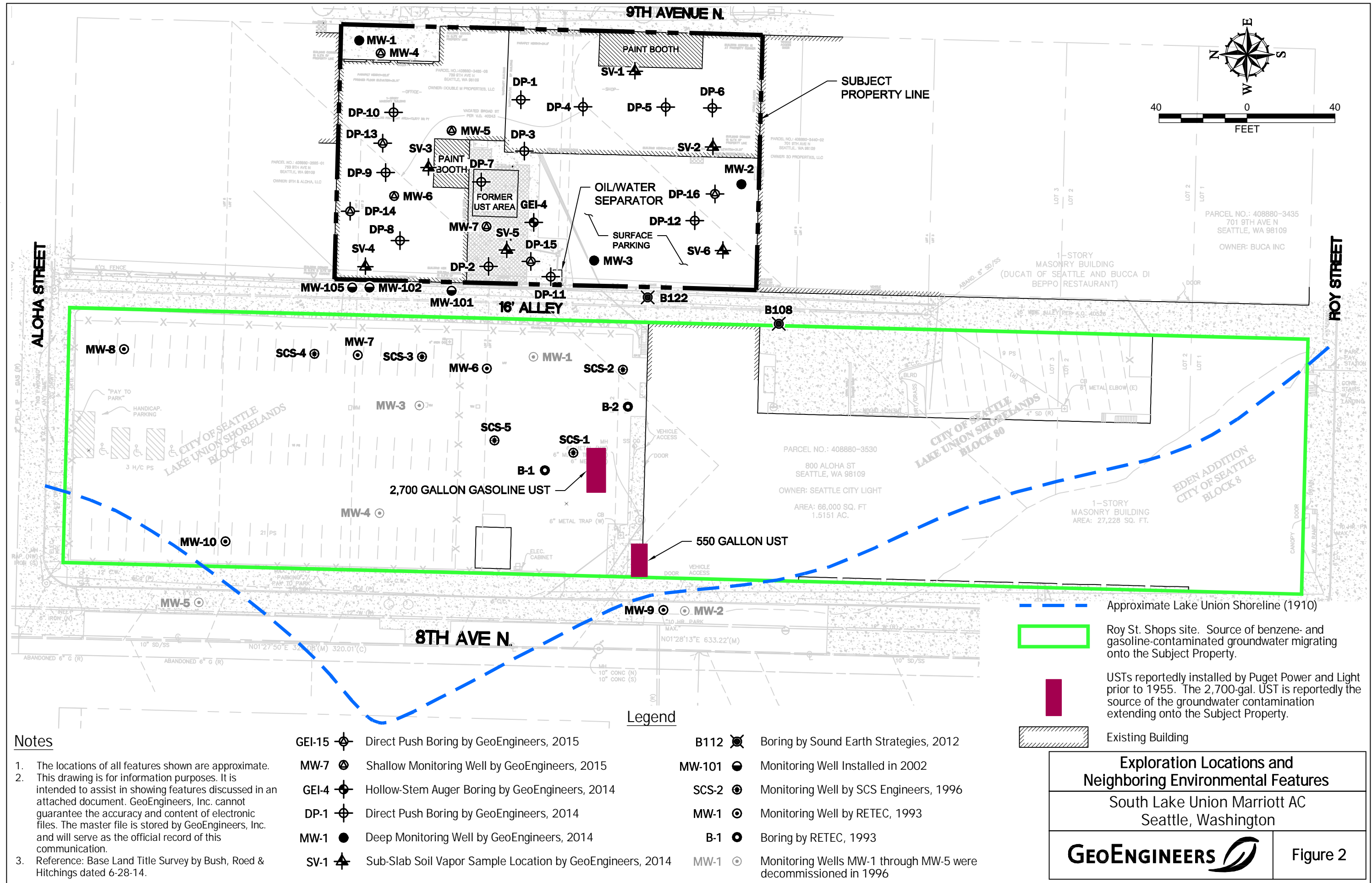
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Notes:

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.

Data Source: Mapbox Open Street Map, 2015

Projection: NAD 1983 UTM Zone 10N



Notes

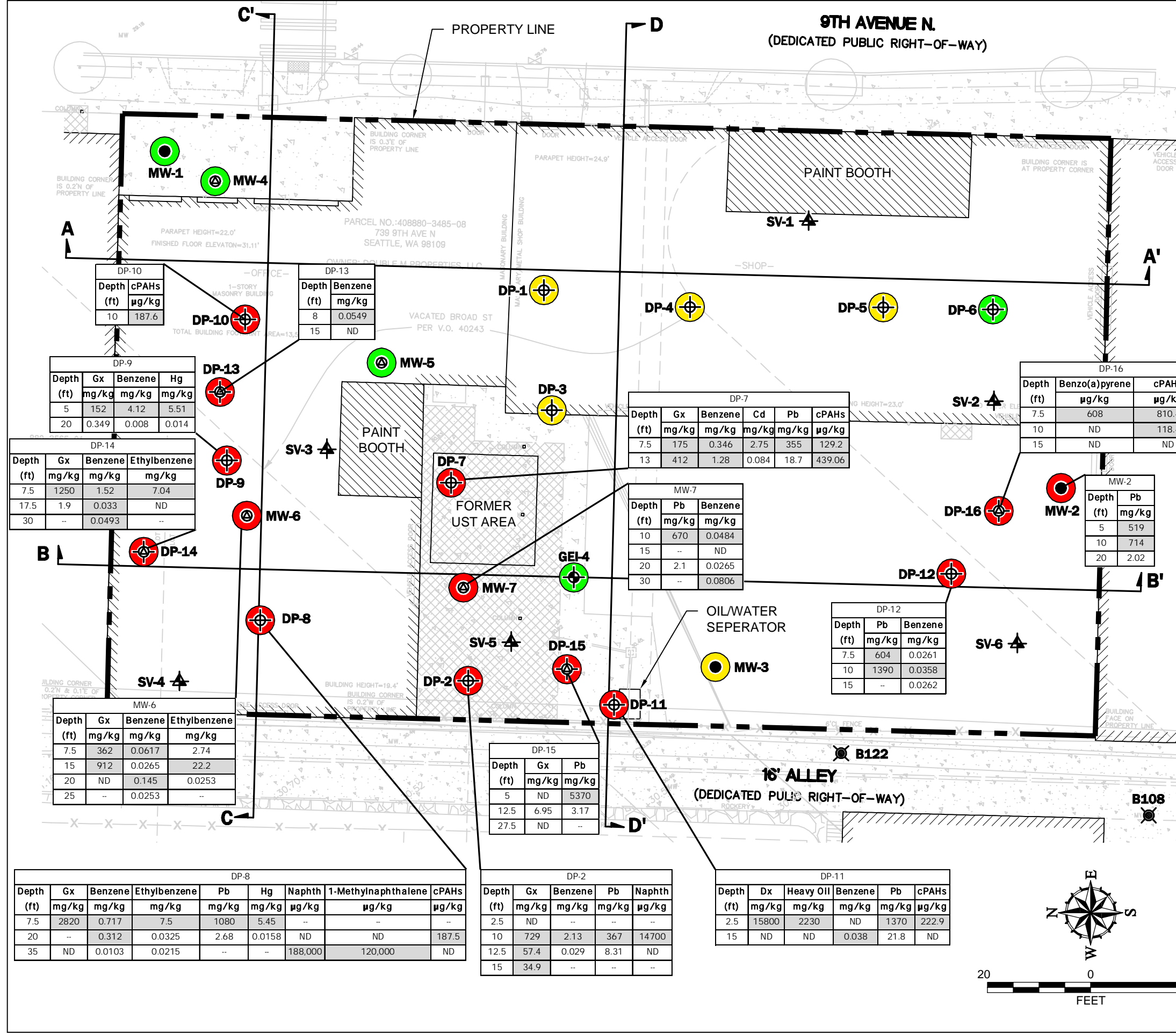
- The locations of all features shown are approximate.
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- Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

- | | | | | | |
|--------|---|---|--------|---|--|
| GEI-15 | ⊕ | Direct Push Boring by GeoEngineers, 2015 | B112 | ⊗ | Boring by Sound Earth Strategies, 2012 |
| MW-7 | ⊕ | Shallow Monitoring Well by GeoEngineers, 2015 | MW-101 | ● | Monitoring Well Installed in 2002 |
| GEI-4 | ⊕ | Hollow-Stem Auger Boring by GeoEngineers, 2014 | SCS-2 | ⊕ | Monitoring Well by SCS Engineers, 1996 |
| DP-1 | ⊕ | Direct Push Boring by GeoEngineers, 2014 | MW-1 | ⊕ | Monitoring Well by RETEC, 1993 |
| MW-1 | ● | Deep Monitoring Well by GeoEngineers, 2014 | B-1 | ● | Boring by RETEC, 1993 |
| SV-1 | ⬆ | Sub-Slab Soil Vapor Sample Location by GeoEngineers, 2014 | MW-1 | ⊕ | Monitoring Wells MW-1 through MW-5 were decommissioned in 1996 |

- Approximate Lake Union Shoreline (1910)
- Roy St. Shops site. Source of benzene- and gasoline-contaminated groundwater migrating onto the Subject Property.
- USTs reportedly installed by Puget Power and Light prior to 1955. The 2,700-gal. UST is reportedly the source of the groundwater contamination extending onto the Subject Property.
- Existing Building

Exploration Locations and Neighboring Environmental Features	
South Lake Union Marriott AC Seattle, Washington	
	Figure 2

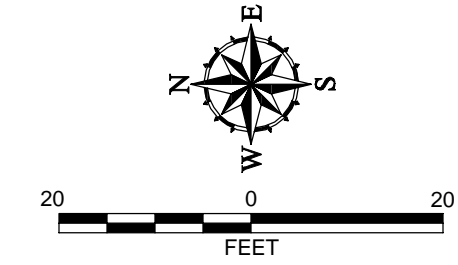
P:\20\20776003\CAD\JUNE 2015 WPPI MEETING FIGURES\20776003-00_Fig 3 SOIL RESULTS AND FIGS 6-9 CROSS-SECTIONS.DWG\TAB:SITE PLAN - LANDSCAPE MODIFIED BY TRICHAUD ON SEP 01, 2015 - 9:32



- Legend**
- GEI-15 Direct Push Boring by GeoEngineers, 2015
 - MW-7 Shallow Monitoring Well by GeoEngineers, 2015
 - GEI-4 Hollow-Stem Auger Boring by GeoEngineers, 2014
 - DP-1 Direct Push Boring by GeoEngineers, 2014
 - MW-1 Deep Monitoring Well by GeoEngineers, 2014
 - SV-1 Sub-Slab Soil Vapor Sample by GeoEngineers, 2014
 - B112 Boring by Sound Earth Strategies, 2012
 - ⊕ Cross-Section Location
 - Contaminants of concern detected at concentrations greater than the MTCA Method A cleanup levels.
 - Contaminants of concern detected at concentrations less than the MTCA Method A cleanup levels.
 - Contaminants of concern were not detected; metal concentrations were detected below natural background concentrations.
 - Gx= Gasoline-range petroleum hydrocarbons
 - Dx= Diesel-range petroleum hydrocarbons
 - Heavy Oil= Heavy oil-range petroleum hydrocarbons
 - Cd= Cadmium
 - Pb= Lead
 - Hg= Mercury
 - Naphth= Naphthalene
 - cPAHs= Carcinogenic PAHs

- Notes**
- Only analytes detected at concentrations greater than the corresponding MTCA Method A or B cleanup levels are shown in the data boxes above. For a full list of soil chemical analytical detections, see Tables 1-3.
 - Shading indicates analyte detected at a concentration greater than the MTCA Method A or B cleanup level.
 - The locations of all features shown are approximate.
 - 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.

Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.



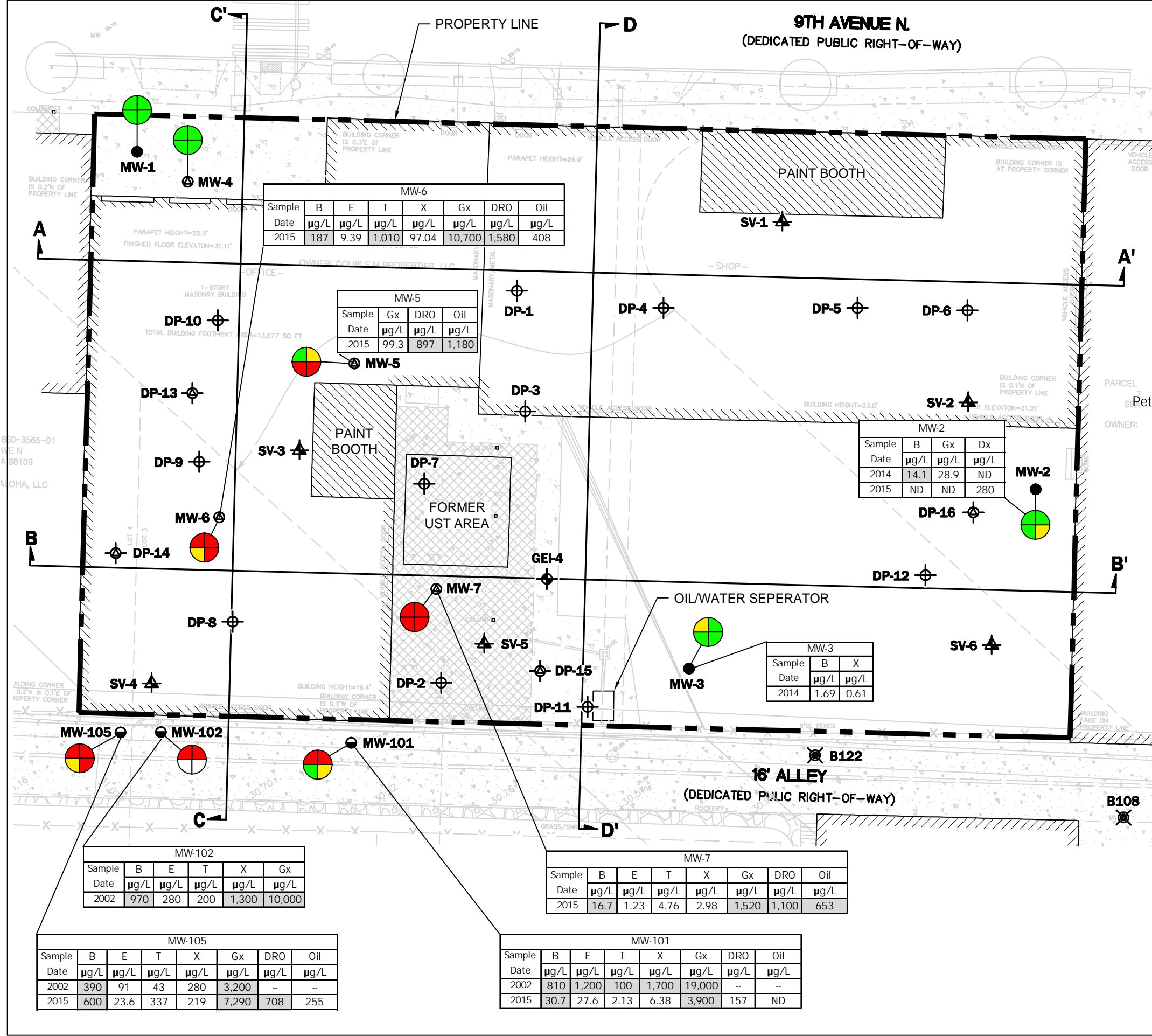
**Boring Locations and
Soil Chemical Analytical Results**

South Lake Union Marriott AC
Seattle, Washington

GEOENGINEERS

Figure 3

P:\20\20776003\CAD\JUNE 2015 WPPI MEETING FIGURES\20776003-00_Fig 4 GW RESULTS.DWG\TAB SITE PLAN - LANDSCAPE MODIFIED BY THICHAUD ON JUL 16, 2015 - I1:14



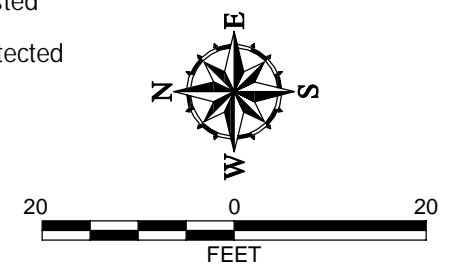
- Legend**
- GEI-15 Direct Push Boring by GeoEngineers, 2015
 - MW-7 Shallow Monitoring Well by GeoEngineers, 2015
 - MW-101 Monitoring Well Sampled for Urban Development, LLC, 2002
 - GEI-4 Hollow-Stem Auger Boring by GeoEngineers, 2014
 - DP-1 Direct Push Boring by GeoEngineers, 2014
 - MW-1 Deep Monitoring Well by GeoEngineers, 2014
 - SV-1 Sub-Slab Soil Vapor Sample Location
 - B112 Boring by Sound Earth Strategies, 2012
 - ⊠ Cross-Section Location

Chemical Analytical Results of Discrete Soil Samples

BETX (Benzene, Ethylbenzene, Toluene and Xylenes) Gasoline-Range Petroleum Hydrocarbons (Gx)

Heavy Oil-Range Petroleum Hydrocarbons (Oil) Diesel-Range Organics (DRO) (C12 to C24)

- Contaminants of concern detected at concentrations greater than the MTCA Method A cleanup levels.
- Contaminants of concern detected at concentrations less than the MTCA Method A cleanup levels.
- Contaminants of concern were not detected; metal concentrations were detected below natural background concentrations.
- Not Tested
- ND Not Detected



- Notes**
- Only analytes detected at concentrations greater than the corresponding laboratory detection levels are shown in the data boxes above. Shaded values are in exceedance of corresponding MTCA cleanup levels. For a full list of groundwater chemical analytical detections, see Table 4.
 - The locations of all features shown are approximate.
 - 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.
 - Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

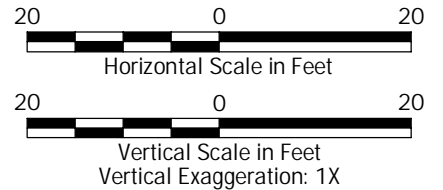
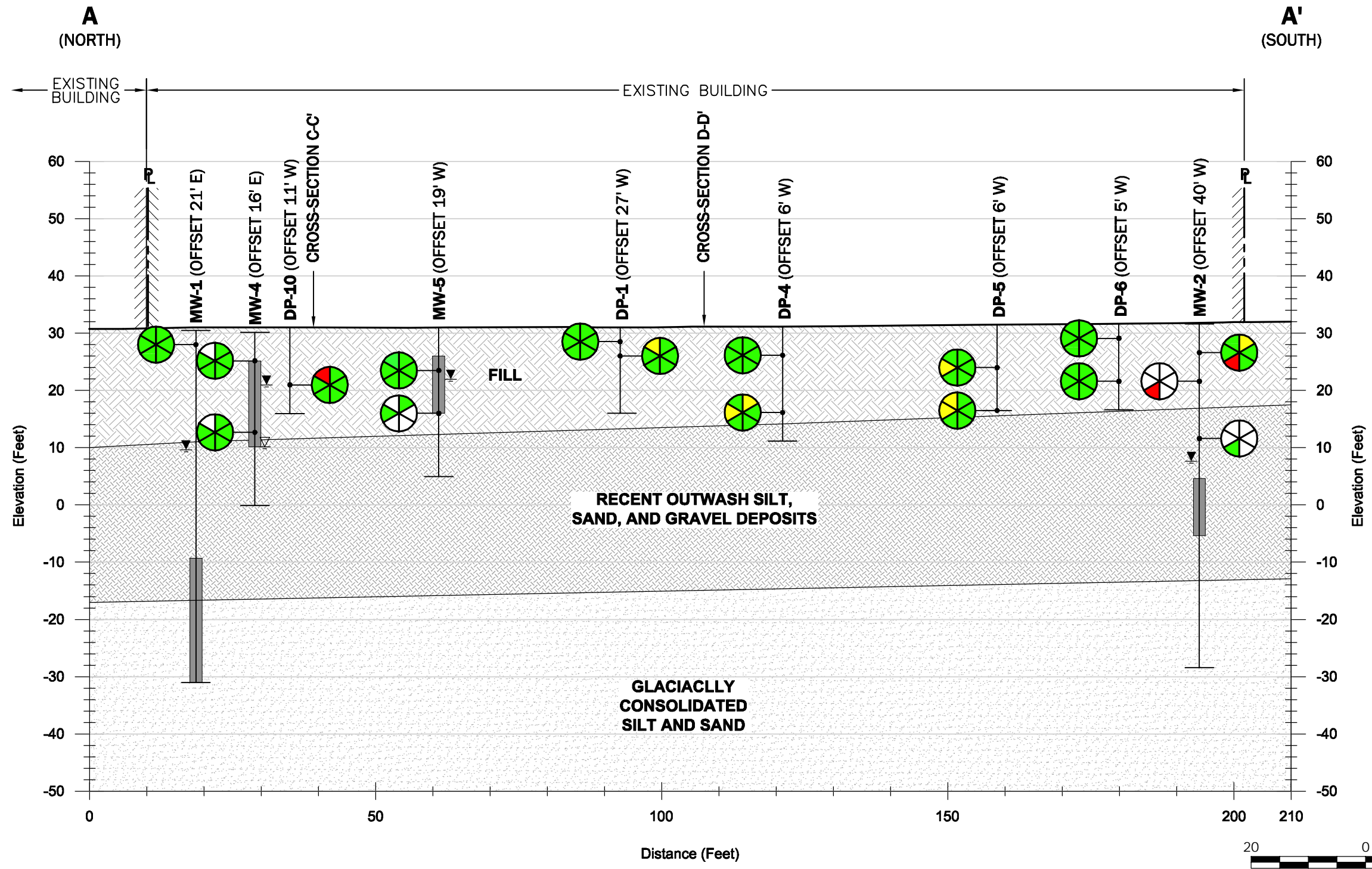
Groundwater Chemical Analytical Results

South Lake Union Marriott AC
Seattle, Washington

GEOENGINEERS

Figure 4

P:\20\20776003\CAD\JUNE 2015 WPPJ MEETING FIGURES\20776003-00_Fig 3 SOIL RESULTS AND FIGS 6-9 CROSS-SECTIONS.DWG\TAB:CROSS-SECTION AA MODIFIED BY THICHAUD ON JUL 16, 2015 - 10:18



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.

Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

Chemical Analytical Results of Discrete Soil Samples

PAHs		Gasoline-Range Petroleum Hydrocarbons
BETX		Diesel-Range Petroleum Hydrocarbons
Metals		Heavy Oil-Range Petroleum Hydrocarbons

	Detected at a concentration greater than the MTCA Method A cleanup level.
	Detected at a concentration less than the MTCA Method A cleanup level.
	Not Detected
	Not Analyzed

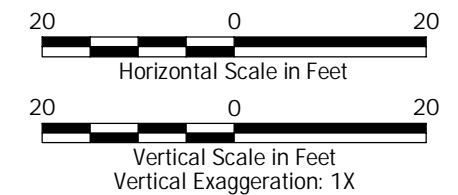
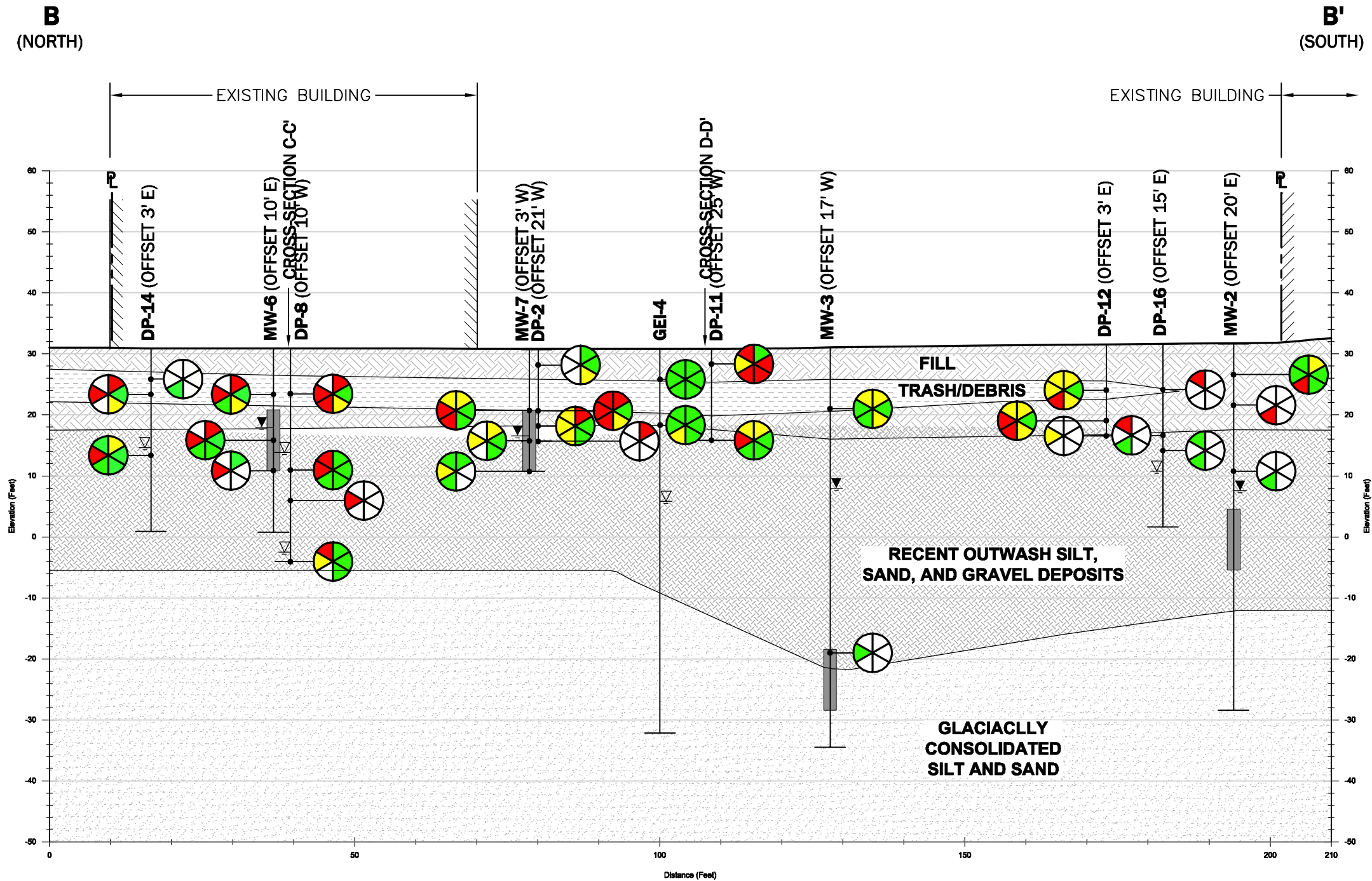
Boring Id

	Inferred Soil Contact
	Analytical Sample Location
	Perched Groundwater Observed During Drilling
	Groundwater Level Observed During Drilling
	Measured Groundwater Level
	Well Screen Interval

Cross-Section A-A'

South Lake Union Marriott AC
Seattle, Washington

Figure 5



Chemical Analytical Results of Discrete Soil Samples

PAHs		Gasoline-Range Petroleum Hydrocarbons
BETX		Diesel-Range Petroleum Hydrocarbons
Metals		Heavy Oil-Range Petroleum Hydrocarbons

	Detected at a concentration greater than the MTCA Method A cleanup level.
	Detected at a concentration less than the MTCA Method A cleanup level.
	Not Detected
	Not Analyzed

	GEI-4	Boring Id
		Inferred Soil Contact
		Analytical Sample Location
		Perched Groundwater Observed During Drilling
		Groundwater Level Observed During Drilling
		Measured Groundwater Level
		Well Screen Interval

Notes

- The locations of all features shown are approximate.
- 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.

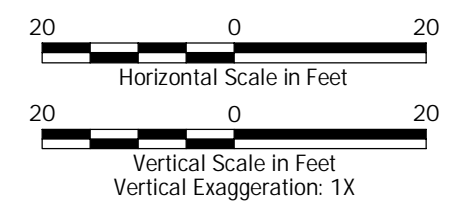
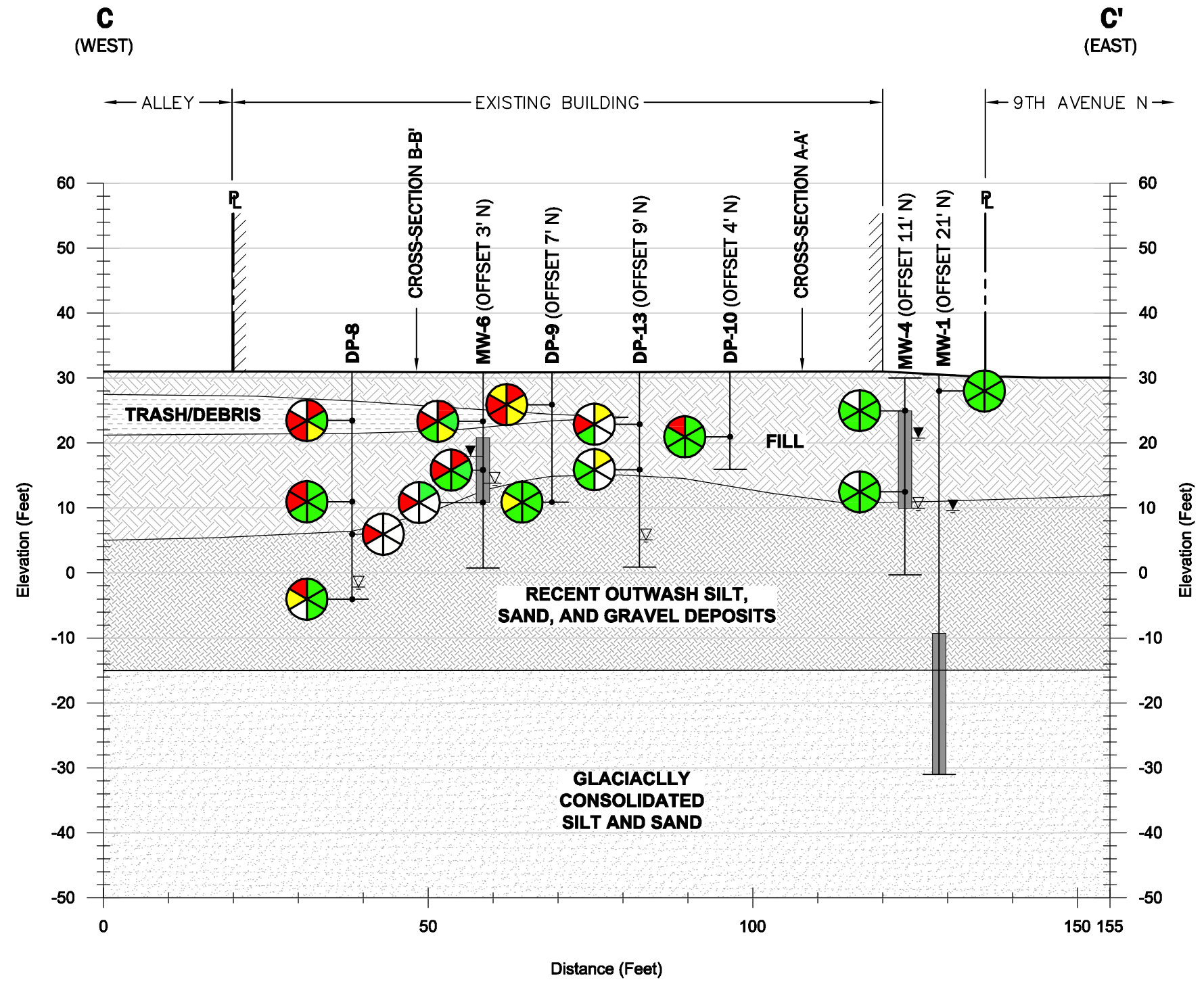
Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

Cross-Section B-B'

South Lake Union Marriott AC
Seattle, Washington

Figure 6

P:\20\20776003\CAD\JUNE 2015 WPPJ MEETING FIGURES\20776003-00_Fig 3 SOIL RESULTS AND FIGS 6-9 CROSS-SECTIONS.DWG\TAB:CROSS-SECTION CC MODIFIED BY THICHAUD ON JUL 16, 2015 - 10:26



Chemical Analytical Results of Discrete Soil Samples

PAHs		Gasoline-Range Petroleum Hydrocarbons
BETX		Diesel-Range Petroleum Hydrocarbons
Metals		Heavy Oil-Range Petroleum Hydrocarbons
		Detected at a concentration greater than the MTCA Method A cleanup level.
		Detected at a concentration less than the MTCA Method A cleanup level.
		Not Detected
		Not Analyzed

	Boring Id
	Inferred Soil Contact
	Analytical Sample Location
	Perched Groundwater Observed During Drilling
	Groundwater Level Observed During Drilling
	Measured Groundwater Level
	Well Screen Interval

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.

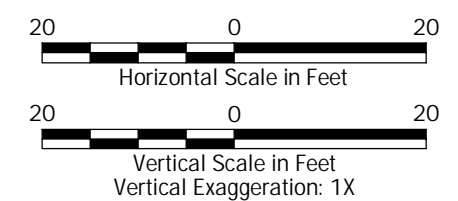
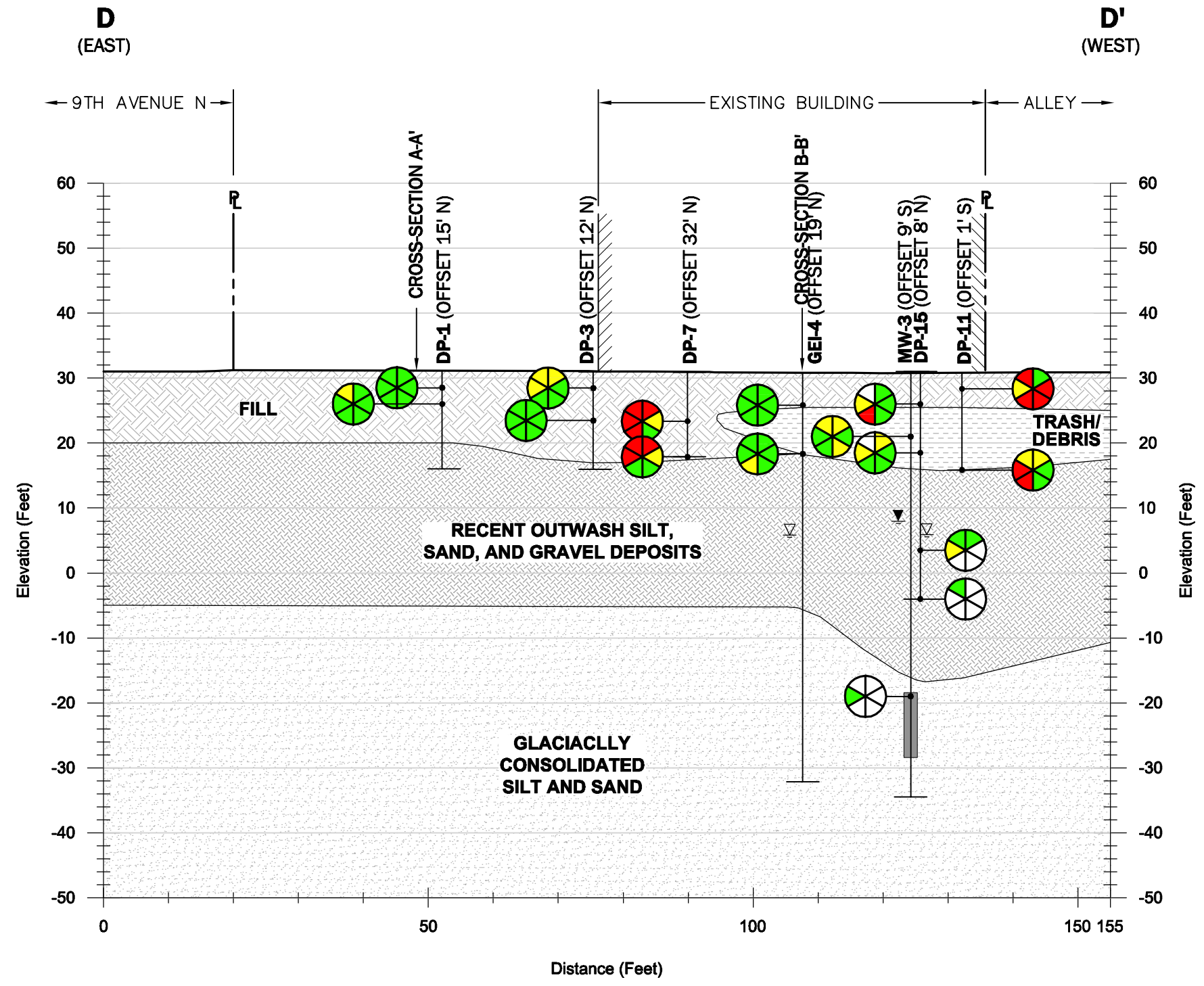
Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

Cross-Section C-C'

South Lake Union Marriott AC
Seattle, Washington

Figure 7

P:\20\20776003\00\CAD\JUNE 2015 WPPJ MEETING FIGURES\20776003-00_Fig 3 SOIL RESULTS AND FIGS 6-9 CROSS-SECTIONS AND DD MODIFIED BY TMICHAUD ON JUL 16, 2015 - 10:28



Chemical Analytical Results of Discrete Soil Samples

PAHs		Gasoline-Range Petroleum Hydrocarbons
BETX		Diesel-Range Petroleum Hydrocarbons
Metals		Heavy Oil-Range Petroleum Hydrocarbons
		Detected at a concentration greater than the MTCA Method A cleanup level.
		Detected at a concentration less than the MTCA Method A cleanup level.
		Not Detected
		Not Analyzed

	Boring Id
	Inferred Soil Contact
	Analytical Sample Location
	Perched Groundwater Observed During Drilling
	Groundwater Level Observed During Drilling
	Measured Groundwater Level
	Well Screen Interval

Notes

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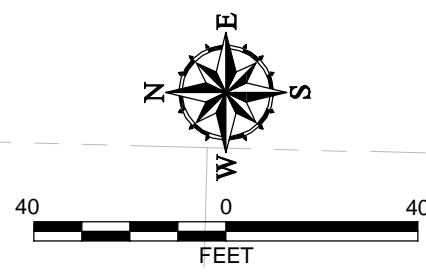
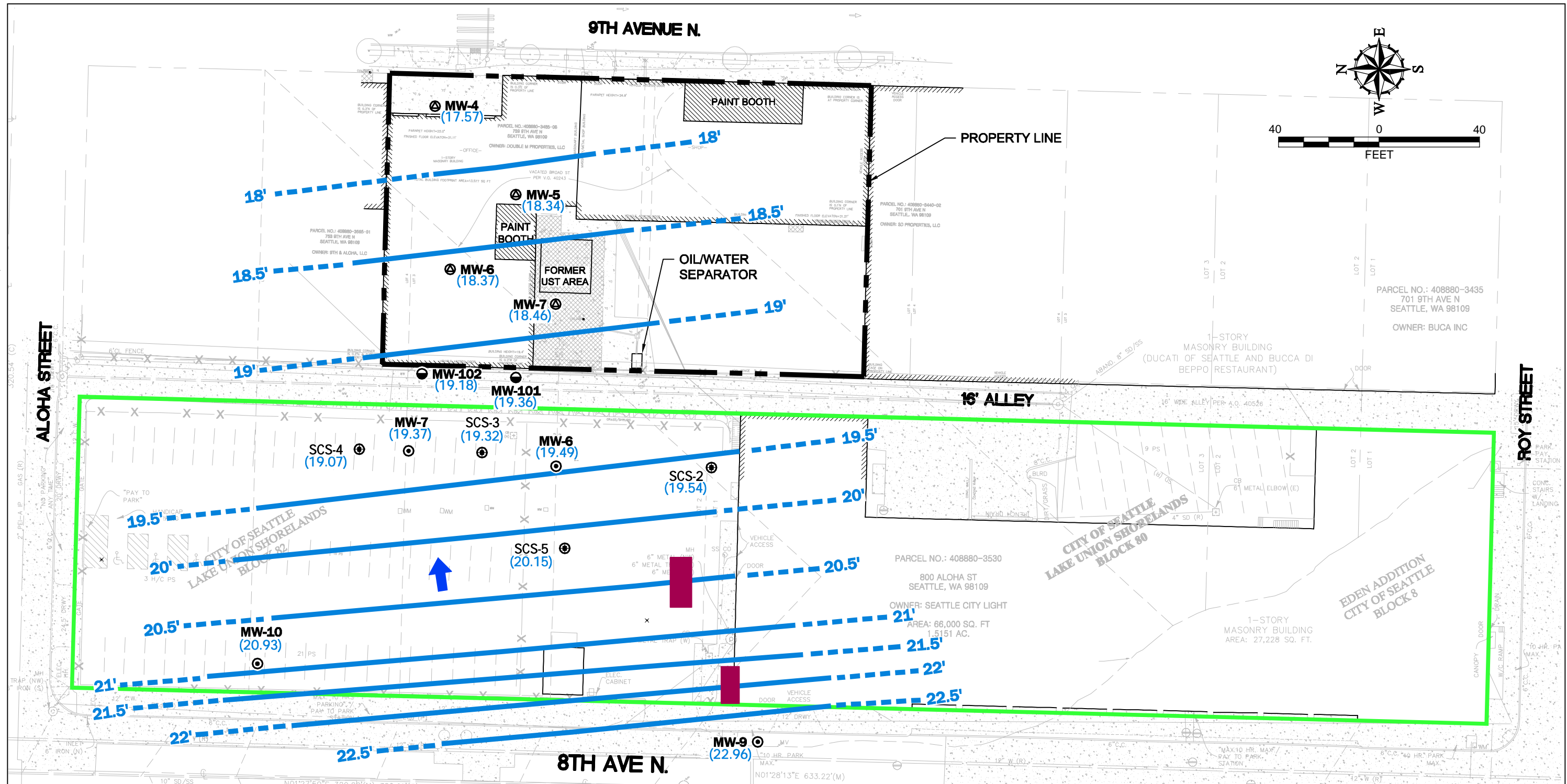
Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

Cross-Section D-D'

South Lake Union Marriott AC
Seattle, Washington

GEOENGINEERS

Figure 8



Notes

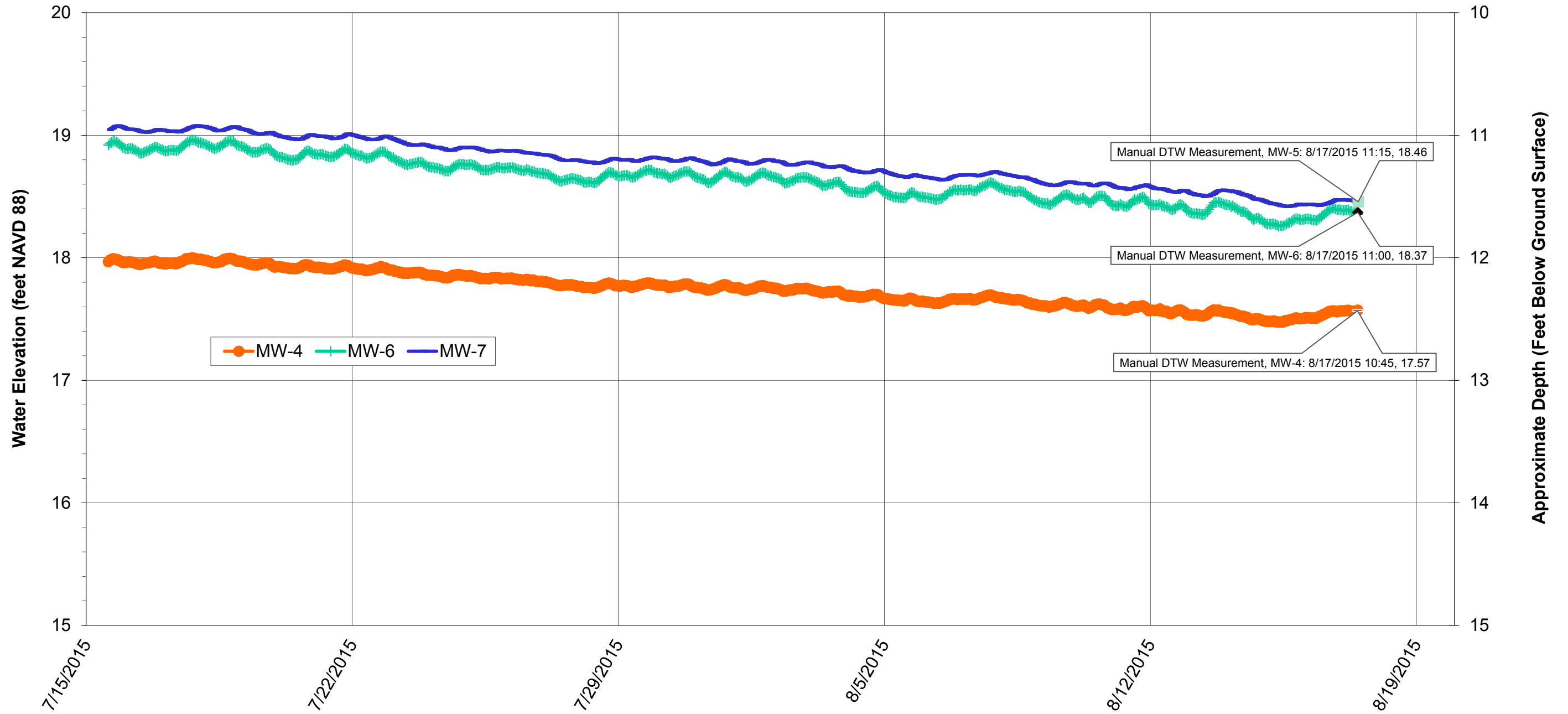
- The locations of all features shown are approximate.
- This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
- Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

- MW-7 Shallow Monitoring Well Installed by GeoEngineers, 2015
- MW-101 Monitoring Well Installed in 2002
- SCS-2 Monitoring Well by SCS Engineers, 1996
- MW-1 Monitoring Well by RETEC, 1993
- (19.07) Water Table Elevation Measured August 17, 2015
- Groundwater Elevation Contours for Shallow Aquifer

Legend

- Roy St. Shops site. Source of benzene- and gasoline-contaminated groundwater migrating onto the MAACO property.
- USTs reportedly installed by Puget Power and Light prior to 1955. The 2,700-gal. UST is reportedly the source of the groundwater contamination extending onto the MAACO property.
- Approximate Groundwater Flow Direction of Shallow Auqifer

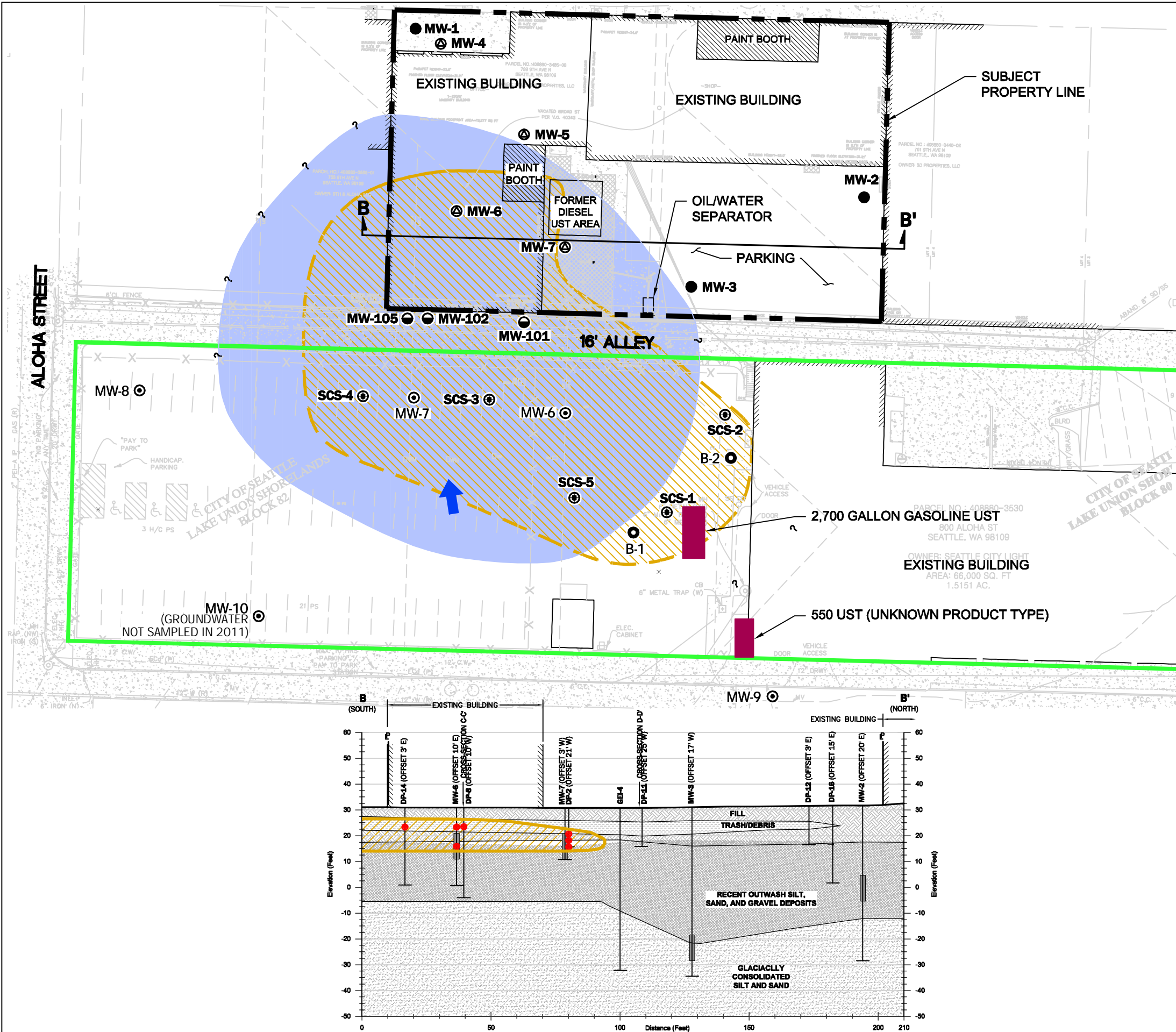
Groundwater Elevation Contours for the Shallow Aquifer	
South Lake Union Marriott AC Seattle, Washington	
	Figure 9



Notes:

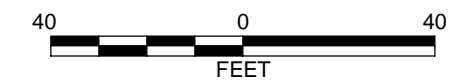
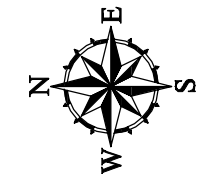
1. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
2. DTW = Depth to water

Groundwater Elevation Data	
SLU Marriott AC Seattle, Washington	
	Figure 10



Legend

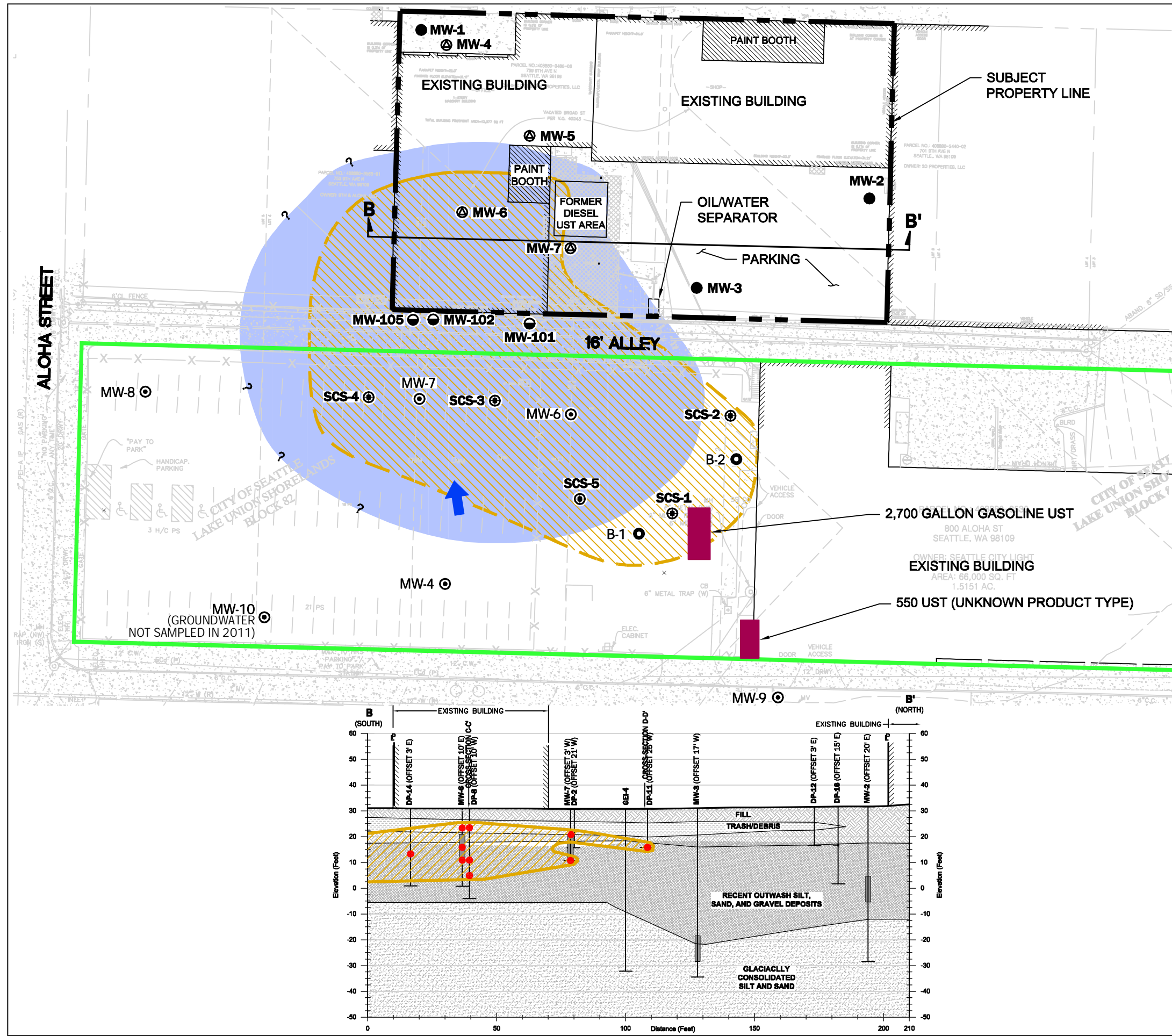
- MW-7 Shallow Monitoring Well by GeoEngineers, 2015
- MW-101 Monitoring Well Installed in 2002
- MW-1 Deep Monitoring Well by GeoEngineers, 2014
- SCS-2 Monitoring Well by SCS Engineers, 1996
- MW-1 Monitoring Well by RETEC, 1993
- B-1 Boring by RETEC, 1993
- Roy St. Shops site. Source of benzene- and gasoline-contaminated soil and groundwater migrating onto the Subject Property.
- USTs reportedly installed by Puget Power and Light prior to 1955. The 2,700-gal. UST is reportedly the source of the groundwater contamination extending onto the Subject Property.
- Approximate shallow groundwater flow direction of shallow aquifer. Shallow groundwater is about 10-20 feet bgs.
- Approximate Extent of Gasoline Contamination**
- Soil Data for Roy St. Shops Site obtained from February 1995 RETEC Revised Report data from 2011 Shannon & Wilson Report and GeoEngineers 2014 and 2015 Site Characterization
- Groundwater
- Gasoline Contaminated Soil Sample (Exceeding MTCA Method A)



Notes

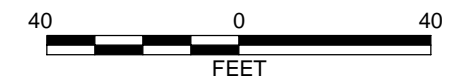
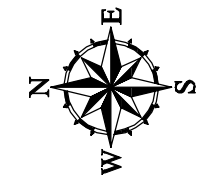
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.
4. MW-6: One soil sample was submitted from MW-6 and showed gasoline at a contamination below MTCA Method A CUL.

Gasoline Contaminated Soil and Groundwater Sourced from Off-Property	
South Lake Union Marriott AC Seattle, Washington	
	Figure 11



Legend

- MW-7 Shallow Monitoring Well by GeoEngineers, 2015
- MW-101 Monitoring Well Installed in 2002
- MW-1 Deep Monitoring Well by GeoEngineers, 2014
- SCS-2 Monitoring Well by SCS Engineers, 1996
- MW-1 Monitoring Well by RETEC, 1993
- B-1 Boring by RETEC, 1993
- Roy St. Shops site. Source of benzene- and gasoline-contaminated soil and groundwater migrating onto the Subject Property.
- USTs reportedly installed by Puget Power and Light prior to 1955. The 2,700-gal. UST is reportedly the source of the groundwater contamination extending onto the Subject Property.
- Approximate shallow groundwater flow direction of shallow aquifer. Shallow groundwater is about 10-20 feet bgs.
- Approximate Extent of Benzene Contamination**
- Soil Data for Roy St. Shops Site obtained from February 1995 RETEC Revised Report data from 2011 Shannon & Wilson Report and GeoEngineers 2014 and 2015 Site Characterization
- Groundwater
- Benzene Contaminated Soil Sample (Exceeding MTCA Method A)

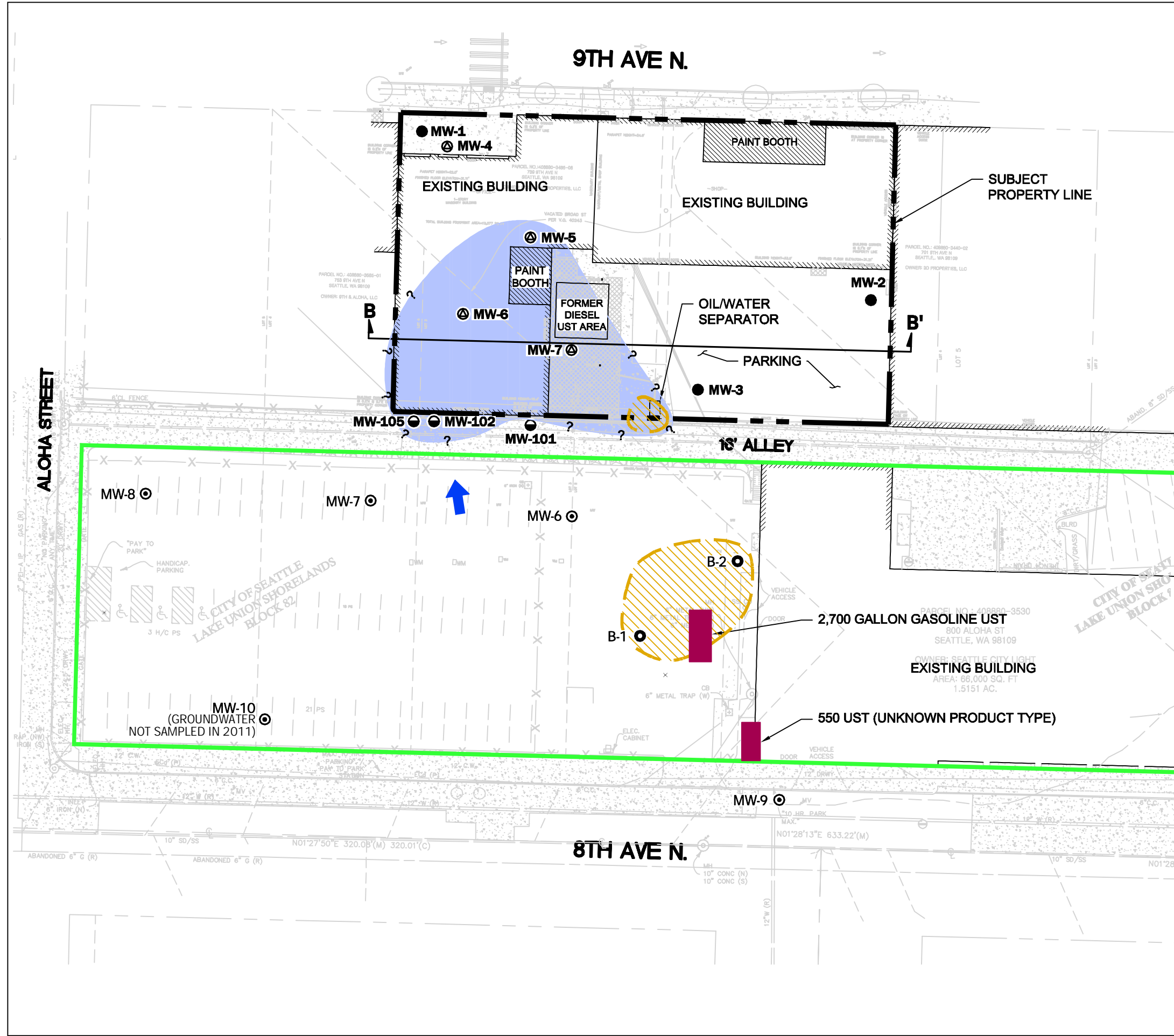


Notes

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3. Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

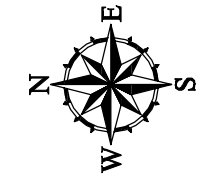
Benzene Contaminated Soil and Groundwater Sourced from Off-Property	
South Lake Union Marriott AC Seattle, Washington	
GEOENGINEERS	Figure 12

P:\20120776003\00\CAD\JUNE 2015 WPPI MEETING FIGURES\20776003-00_Fig 13_DIESEL CONTAMINATION.DWG\TAB:SITE PLAN - LANDSCAPE MODIFIED BY TRICHAUD ON SEP 01, 2015 - 10:55



Legend

- MW-7 Shallow Monitoring Well by GeoEngineers, 2015
 - MW-101 Monitoring Well Installed in 2002
 - MW-1 Deep Monitoring Well by GeoEngineers, 2014
 - SCS-2 Monitoring Well by SCS Engineers, 1996
 - MW-1 Monitoring Well by RETEC, 1993
 - B-1 Boring by RETEC, 1993
 - Roy St. Shops site. Source of benzene- and gasoline-contaminated soil and groundwater migrating onto the Subject Property.
 - USTs reportedly installed by Puget Power and Light prior to 1955. The 2,700-gal. UST is reportedly the source of the groundwater contamination extending onto the Subject Property.
 - Approximate shallow groundwater flow direction of shallow aquifer. Shallow groundwater is about 10-20 feet bgs.
 - Approximate Extent of Diesel Contamination**
 - Soil
 - Groundwater
- Data for Roy St. Shops Site obtained from February 1995 RETEC Revised Report data from 2011 Shannon & Wilson Report and GeoEngineers 2014 and 2015 Site Characterization

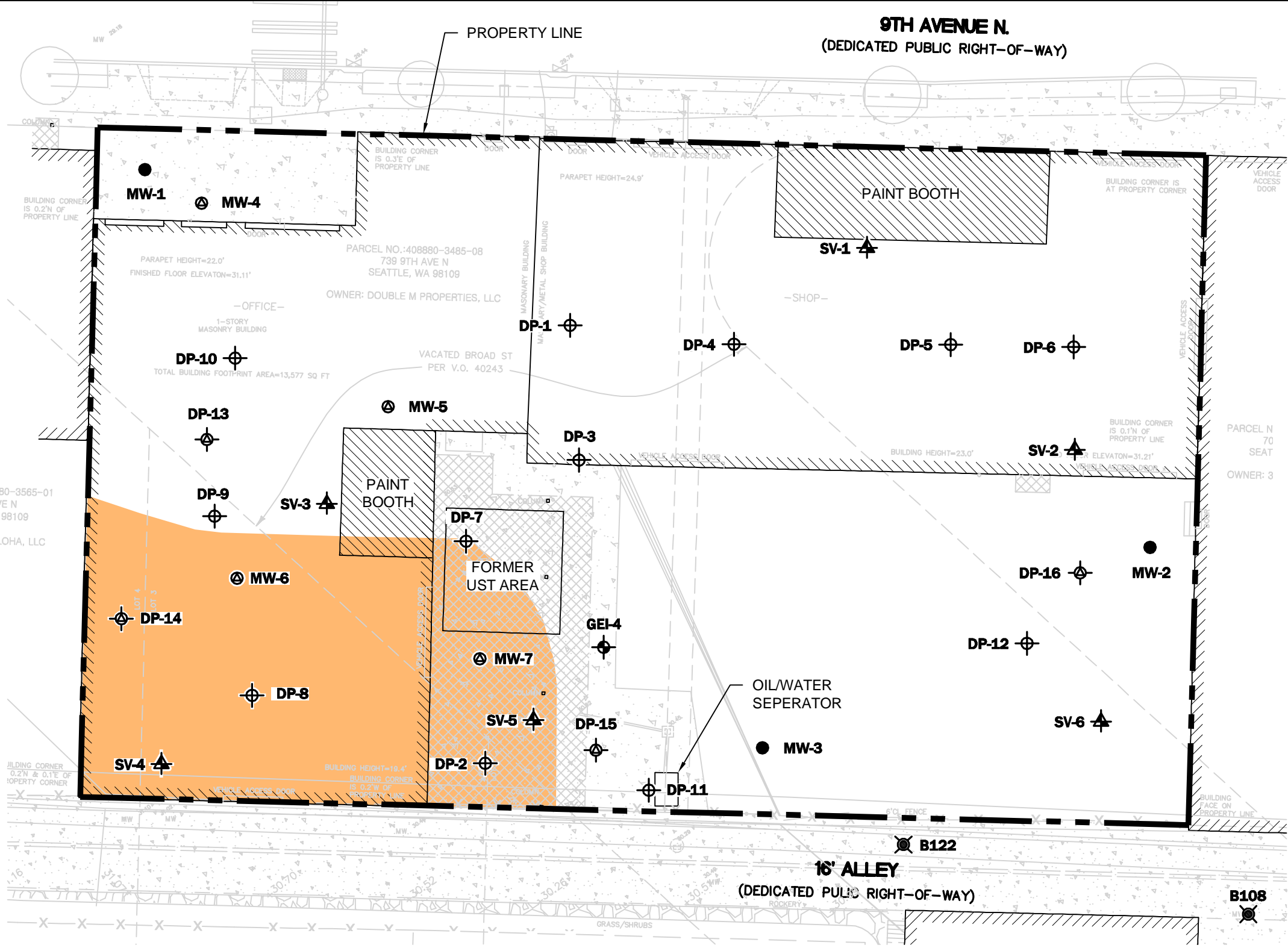


Notes









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3. Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.

Diesel Contaminated Soil and Groundwater	
South Lake Union Marriott AC Seattle, Washington	
	Figure 13

P:\20\20776003\CAD\JUNE 2015 WPPI MEETING FIGURES\20776003-00_FIG 14 IN-SITU TREATMENT AREA.DWG\TAB SITE PLAN - LANDSCAPE MODIFIED BY THICHAUD ON SEP 01, 2015 - 12:55



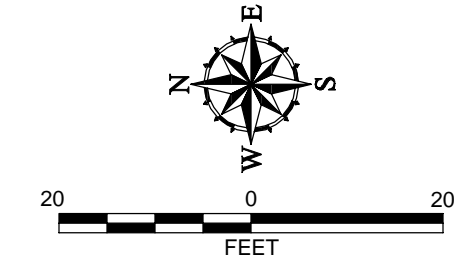
Legend

-  Approximate Area of Gasoline and Benzene In-Situ Soil Treatment
-  Direct Push Boring by GeoEngineers, 2015
-  Shallow Monitoring Well by GeoEngineers, 2015
-  Hollow-Stem Auger Boring by GeoEngineers, 2014
-  Direct Push Boring by GeoEngineers, 2014
-  Deep Monitoring Well by GeoEngineers, 2014
-  Sub-Slab Soil Vapor Sample by GeoEngineers, 2014
-  Boring by Sound Earth Strategies, 2012

Notes

1. See Figure 3 and Tables 1 through 3 for soil chemical analytical results.
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.

Reference: Base Land Title Survey by Bush, Roed & Hitchings dated 6-28-14.



Approximate Area of Gasoline and Benzene In-Situ Soil Treatment	
South Lake Union Marriott AC Seattle, Washington	
	Figure 14

APPENDIX A
Ecology Response Letter dated May 11, 2015



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

May 11, 2015

Mr. Richard J. Parks
White/Peterman Properties Inc.
1000 East 80th Place, Suite 700N
Merrillville, IN 46410

Re: Opinion Pursuant to WAC 173-340-515(5) on Remedial Action for the Following Hazardous Waste Site:

- **Site Name:** Maaco Auto Painting Bodywork 9th Ave
- **Address:** 739 9th Avenue North, Seattle, WA 98109
- **Facility/Site No.:** 2224749
- **VCP No.:** NW2953
- **Cleanup Site ID:** 12571

Dear Mr. Parks:

Thank you for submitting documents regarding your proposed remedial action for the Maaco Auto Painting Bodywork 9th Ave (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases at the Site:

- Gasoline-, diesel- and oil-range petroleum hydrocarbons (TPH-g, TPH-d and TPH-o) into the Soil.
- TPH-g into the Ground Water.
- Benzene, toluene, ethylbenzene and xylenes (BTEX) into the Soil.
- Benzene, ethylbenzene and xylenes into the Ground Water.
- Carcinogenic polyaromatic hydrocarbons (cPAHs) into the Soil.



Mr. Richard J. Parks
May 11, 2015
Page 2

- Cadmium, lead and mercury into the Soil.
- Naphthalene and 1-methylnaphthalene into the Soil.
- Arsenic into the Ground Water.
- Cis-1,2 dichloroethene, 1,2-dichloroethane and Vinyl Chloride into the Ground Water.

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial action(s):

1. GeoEngineers, *Conceptual Cleanup Action and Request for NFA-Likely Opinion Letter*, dated February 17, 2015.
2. GeoEngineers, *Phase II Environmental Site Assessment*, dated November 13, 2014.
3. GeoEngineers, *Phase I Environmental Site Assessment*, dated November 13, 2014.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or by sending an e-mail to nwro_public_request@ecy.wa.gov.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the release(s) at the Site, Ecology has determined:**

- Additional data is needed to define the interaction between soil and ground water contamination related to source areas on the Property and off-Property sources of contamination. Unless it can be demonstrated that there is separation between the on Property contamination and contamination migrating onto the Property from off-Property sources, the resulting contamination is viewed by Ecology as one Site under MTCA. Specifically, additional ground water data is needed at the upgradient Property boundary, in the Property source areas, and in between to demonstrate where upgradient sources interact with on-Property sources. In addition, engineered controls are necessary as part of any cleanup of the Property to prevent recontamination of the Property from off-Property sources. This opinion letter focuses on the data gaps identified for the Site as it relates to releases that occurred at this Property.
- The vertical extent of soil contamination was not defined at the following locations:
 - Soil samples were not collected to define the vertical extent of TPH-g at boring locations DP-2 and DP-7.
 - Soil samples were not collected to define the vertical extent of benzene at boring locations DP-7 and DP-11.
 - Soil samples were not collected to define the vertical extent of cPAHs at boring locations DP-7 and DP-10. In samples DP-11 and DP-12, cPAHs were not detected but the reporting limit for these samples exceeded the MTCA Method A cleanup level for benzo-a-pyrene.
 - Soil samples were not collected to define the vertical extent of lead at boring locations DP-12 and MW-2.
 - Soil samples were not collected to define the vertical extent of naphthalene at boring location B-3.
- The lateral extent of soil contamination was not defined at the following locations:
 - TPH-g and benzene contamination in soil has not been defined in the north and northeastern portions of the Site beyond DP-8, DP-9 and DP-10 or to the west of DP-8, DP-2 and DP-11. Although TPH-g and benzene were not detected in soil at location DP-10 at 10 feet below the ground surface (bgs) contamination above MTCA Method A cleanup levels was confirmed at five feet bgs and therefore it is unknown how far north or east the shallow contamination extends. TPH-g and benzene concentrations detected in soil at locations DP-2 and DP-11 suggest an off-Property source. Neither contaminant was detected at 2.5 feet bgs but exceeded the MTCA Method A cleanup level at 10 and 15 feet bgs respectively.

The minimum depth of benzene contamination is between 2.5 and 10 feet bgs and as mentioned previously, the vertical extent is unknown in some locations.

- TPH-d and TPH-o contamination in soil has not been defined in the vicinity of the oil/water separator, west of DP-11 and likely extends off-Property. Based on detections of TPH-d at DP-7 (468 and 844 mg/kg at 7.5 and 13 feet bgs respectively) below the MTCA Method A cleanup level, a release may have occurred in the former UST area. However, based on the proposed depth of 15 feet bgs for the remedial excavation, any shallow TPH-d contamination not yet identified and delineated in association with the former UST area, would likely be removed.
- Lead contamination in soil has not been defined in the western, northwestern and southwestern portions of the Property and may extend off-Property.
- The extent of mercury contamination in soil has not been defined in the north and west of the DP-8 and DP-9 and may extend off-Property.
- The extent of naphthalene contamination in soil has not been defined north and west of DP-2 and DP-8 and may extend off-Property.
- Based on the above-mentioned data gaps, the remedial investigation for soil contamination at the Site and Property is not complete. Although the data collected to date is useful for guiding further characterization, additional soil sampling and analysis are needed to define the extent of contamination prior to evaluating cleanup options. Therefore, Ecology cannot provide an opinion regarding the appropriateness of the proposed remedial action for addressing soil contamination associated with the Property at this time. At various locations (as detailed above) soil contamination is more than double the MTCA Method A cleanup levels at 13 feet or greater and/or the vertical and lateral extent has not been delineated.
- Any future samples collected at the Property should be analyzed according to Table 830-1 of the MTCA regulation and Table 7.2, page 95, in the *Guidance of the Remediation of Petroleum Contaminated Sites*, Ecology Publication No. 10-09-057, September 2011. The additional parameters listed on Table 830-1 of the MTCA regulation should be analyzed in the samples with the greatest TPH concentrations.
- The extent of ground water impacts has not been characterized at the Site. Monitoring wells must be placed in and immediately downgradient of each identified source area on the Property. The predominant ground water flow direction and gradient, has not been established for the Site, and must be to determine optimum well locations. Based on data submitted to date, it appears that monitoring wells MW-1 through MW-3 are not

correctly positioned to assess conditions related to releases that have occurred at the Property. Additional ground water monitoring wells are needed at the Site to determine the ground water flow direction and to fully characterize the nature and extent of contamination at the Property.

In addition, during the September 2014 sampling event nearby dewatering activities lowered the water table to depths of between 21 to 24 feet bgs. Following the completion of a nearby construction project where the dewatering had been occurring, the depth to ground water measured between approximately 13 and 18 feet bgs on an unspecified date. Ground water monitoring wells should be placed and screened appropriately to determine if light non-aqueous phase liquid is present and migrating onto the Property from the adjacent Roy Street Shops and to assess the dissolved plume originating on the Property and from off-Property sources. Therefore, well screens in and downgradient of the likely on-Property source areas should straddle the water table, and ground water samples collected within a few feet of the water table.

- Ecology agrees that based on the soil vapor data collected to date; further evaluation of the potential vapor intrusion threat is needed. At this time, additional Site characterization is needed prior to selecting a cleanup action for the Property. Ecology recommends incorporating further vapor assessment as part of the development of the cleanup action plan.
- A Terrestrial Ecological Evaluation (TEE) may be required unless it is determined the Site qualifies for an exclusion. The TEE decision-making process must be documented as per WAC 173-340-7490. A TEE process interactive user's guide can be found at: <http://www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm>

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Mr. Richard J. Parks
May 11, 2015
Page 6

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (425) 649-7097 or e-mail at desc461@ecy.wa.gov.

Sincerely,



Diane Escobedo
Site Manager
Toxics Cleanup Program

Enclosure: A – Site description

cc: Sonia Fernandez, VCP Coordinator, Ecology

Site Description

This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined by the release of gasoline-, diesel- and oil-range petroleum hydrocarbons (TPH-g, TPH-d and TPH-o), benzene, toluene, ethylbenzene, xylenes (BTEX), carcinogenic polyaromatic hydrocarbons (cPAHs), cadmium, lead, mercury and naphthalene to soil and TPH-g, benzene, ethylbenzene, xylenes, arsenic, cis-1,2-dichloroethene, 1,2-dichloroethane and vinyl chloride into ground water associated with the operation of automobile body repair and servicing, painting at the Property and potential off-Property sources to the west and southwest associated with an industrial laundry facility and gasoline service station. The Site is located at 739 9th Avenue North in Seattle, WA (Property).

Area and Property Description: The Property corresponds to King County parcel number 4088803485 which is 0.52 acres in size. The Property is occupied by two one-story buildings. The Property is bounded by 9th Avenue North to the east, a public right-of-way alley to the west, to the north by a commercial building used by an architectural firm and a building occupied by motorcycle dealership to the south. Land use surrounding the Site is mixed use (commercial businesses, industrial, hotels and residential) and is currently undergoing extensive redevelopment. Past uses of adjacent parcels may impact the Property. A former automotive repair facility, Bayside Volvo, Facility Site Identification No. (FSID):45221945, was located to the north. Three USTs were closed in place and petroleum hydrocarbons were released to soil and ground water. The south adjacent parcel was historically as a truck repair facility (Frank Kenney Toyota, FSID 43288835. A City of Seattle and Puget Sound Power and Light maintenance facility and gasoline service station (Roy Street Shops 89, FSID 95811428) with confirmed petroleum hydrocarbon and benzene contamination in soil and ground water is located on the adjacent parcel to the west. A large chlorinated solvent plume associated with a former industrial laundry and dry cleaning facility (American Linen Supply Company Dexter Avenue which is VCP project number NW2652) is located southwest of the Property.

Property History and Current Use: The Property was first developed in the 1920s and has been used for truck body assembly and welding (1940 to 1980), automobile body repair and servicing, steel tank manufacturing and welding (1948, north building) and vehicle painting. The north building was built in 1924 and the south building was built in 1955. An auto body repair and painting facility has operated at the Property from approximately 1980 to present. Proposed redevelopment will include an eight-story hotel building with one floor of underground parking.

Contaminant Source and History: Specifics regarding the possible use and storage of petroleum or hazardous substances on the Property and waste disposal practices associated with the historical businesses (truck body assembly and welding, automobile repair and servicing and/or vehicle or truck painting) that occupied the Property have not been identified. Significant quantities of paint and automotive fluids (oils, coatings) are currently and were likely historically used and stored at the Property. Vehicle fueling is not known to have occurred on the Property. A 500-gallon heating oil UST was formerly in use in the northwest corner of the Property storage yard. The UST was

closed in place in 1999 but soil and ground water sampling was not conducted at the time. Fill material containing fragments of glass, brick and other debris was identified in shallow soil and may be a source of the metals, petroleum and PAH contamination identified in soil. A floor drain is located in the work area and may be a potential pathway for contamination to enter soil and ground water. Paints and automotive fluids (paints, oils, coatings) are currently and likely were historically used and stored at the Property. Spills may have occurred that were then released to the subsurface via storm drains in the north building floor and in the northwest corner of the paved storage/work yard. Paint spray booths were installed in 1993 in the southern building and 1996 in the northern building. In 1996, the existing paint mix and storage room was added at the northwest corner of the south existing building.

Physiographic Setting: The Property is located in the Puget Sound Lowland. The Property is located approximately 30 feet above mean sea level.

Surface/Storm Water System: Storm drains are located in the north building floor and in the northwest corner of the paved storage/work yard. Precipitation collected on the paved storage/work yard flows into the catch basin located near the northwest corner of the yard and then enters the combined sewer stormwater system. The stormwater drainage pipes for the building connect to combined sewer and drainage subsurface piping that passes through the oil/water separator before connecting to the city pipe line in the alley. Lake Union is located approximately 0.1 miles to the northeast.

Ecological Setting: The Property is located in an urban setting; land surfaces are primarily covered by asphalt, buildings and landscaping. Lake Union Park is located approximately 450 feet east of the Property. The park is 12-acres and consists of landscaped lawns, paved footpaths and shoreline.

Geology: The fill material encountered from 12.5 to 19.5 feet below ground surface (bgs) consists of sand with variable silt and gravel and silt with variable gravel and cobble content with debris layers up to 10 feet thick containing decaying wood, plastic, glass and metal. Silt and clay with occasional sand interbeds and variable gravel or sand with variable silt and gravel were observed below the fill to depths of 35.5 to 55 feet bgs. Glacial till-like deposits were encountered at a depth of 56 feet in boring MW-1.

Ground Water: Depth to ground water measured during nearby redevelopment dewatering was between 21 and 24 feet bgs. Depth to ground water post-redevelopment dewatering ranged from 13 to 18 feet bgs. Ground water flows east-northeast.

Water Supply: Drinking water on the Property is provided by Seattle Public Utilities. According to Ecology's online well log database there are no drinking water wells located within ¼ mile of the Property.

Release and Extent of Soil and Ground Water Contamination: TPH-g, TPH-d and TPH-o , BTEX, cPAHs, cadmium, lead, mercury and naphthalene- contaminated soil has been identified at concentrations exceeding MTCA Method A cleanup levels on the western half of the Property to a maximum depth of 35 feet bgs. The vertical and lateral extent of contamination in soil has not been fully delineated.

Three ground water monitoring wells were installed, two in the southwest corner of the Property (MW-2 and MW-3) and one in the northeast corner (MW-1) of the Property. Benzene, vinyl chloride and arsenic were detected at concentrations exceeding MTCA Method A cleanup levels in southwest corner of the Property. The vertical and lateral extent of contamination in ground water has not been fully delineated.

The Property is located downgradient from a large chlorinated solvent ground water plume related to an industrial laundry facility, American Linen Supply Company, appears to extend onto the southwest corner of the Property. A historic gasoline service station and maintenance facility, Roy Street Shops, is located west of the Property. A gasoline release to soil and ground water also appears to be migrating onto the western portion of the Property. Ground water monitoring wells located in the west adjacent alley have not been sampled since the 1990s.

APPENDIX B
Reports Provided by City of Seattle

**Environmental Review, Seattle City Light
8th and Roy Street Property
800 Aloha Street
Seattle, Washington**

December 20, 2010

Submitted To:
Ms. Jennifer Kindred
Seattle City Light, Environmental Affairs Division
700 5th Avenue, Suite 3316
Seattle, WA 98124-4023

By:
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, Washington 98103

21-1-12305-030

December 20, 2010

Ms. Jennifer Kindred
City of Seattle
Seattle City Light, Environmental Affairs Division
700 Fifth Avenue, Suite 3316
Seattle, WA 98104

**RE: ENVIRONMENTAL REVIEW, SEATTLE CITY LIGHT, 8TH AND ROY STREET
PROPERTY, 800 ALOHA STREET, SEATTLE, WASHINGTON**

Dear Ms. Kindred:

This letter report provides our review of available environmental information concerning the Seattle City Light (SCL) property located at 800 Aloha Street in Seattle, Washington (the Property). Our review was completed in general accordance with our proposal dated September 20, 2010, and included a review of available site files provided by SCL, a site visit, a review of available Washington State Department of Ecology (Ecology) files for select adjacent properties, and an interview with the owners of the neighboring Maryatt Industries property.

PROPERTY LOCATION AND BACKGROUND

The Property is located at 800 Aloha Street in Seattle, Washington (Figure 1). The Property occupies the west half of the block along 8th Avenue N, between Aloha and Roy Streets. Historical land use in the vicinity of the Property has predominantly been commercial and light industrial (Figure 2). According to the 1995 RETEC, Inc. report provided in SCL files, the shoreline around Lake Union was expanded using fill from the Denny Regrade and topped with additional fill placed during development of the area. Fill soils described in this report are 18 to 27 feet thick and consist of sands, silts, clays, gravels, and construction debris. Beneath the fill is a medium dense layer of silty, clayey sand believed to act as a semi-confining aquitard. The aquitard is reported to be only a few feet thick. Gravelly sands underlie the medium dense sand layer to an unknown depth. Hydraulic groundwater gradients discussed in the 1995 RETEC report indicate an east-northeast groundwater flow direction with a depth to water range from 12 to 18 feet below ground surface (bgs).

SEATTLE CITY LIGHT RECORDS REVIEW

This section provides an overview of environmental-related activities that have occurred at the Property and on select adjacent sites, based on our review of SCL-provided files. Table 1 provides a list and brief summary of the documents contained in the SCL file. Figure 2 is an area map of the Property and adjacent sites, and Figure 3 is a site map of the Property.

8th and Roy Street Property

The Property was owned by SCL until it was transferred to the Seattle Department of Parks and Recreation (SDPR) in 1981. Potential subsurface contamination was first noted in a January 1992 memo from SDPR to SCL. The contamination resulted from a broken suction line on an 2,700-gallon underground storage tank (UST) that supplied unleaded gasoline to a fuel pump island located in the parking lot north of the building (Figure 3). Other tanks identified on the Property include an abandoned 550-gallon UST located at the northwest corner of the building and an aboveground storage tank (AST) associated with a boiler located at the southeast corner of the building. At the time, SDPR suspected that a 4,000-gallon UST was also present on the property. Subsequent activities conducted at the Property are summarized below:

- April 1992 A site investigation to locate tanks was conducted by SCS Engineers. Using ground penetrating radar, the presence of the 2,700-gallon and 550-gallon USTs were confirmed, but the suspected 4,000-gallon UST was not found and was not believed to exist. A soil vapor survey indicated the release from the 2,700-gallon tank was likely limited to the immediate area around pump island, but also discovered contamination on the east side of the 550-gallon tank.

- March 1993 Removal of the 2,700-gallon and 550-gallon USTs and a preliminary site assessment was conducted by E.P. Johnson Construction & Environmental. Seven borings were drilled and sampled; five of which had monitoring wells installed (MW-1 through MW-5). Gasoline, benzene, toluene, ethylbenzene, and xylenes (BTEX), and heavy oil were detected in soil above cleanup criteria, primarily from 12.5 to 17.5 feet bgs. Gasoline and BTEX were detected in groundwater above cleanup criteria. A total of 437 cubic yards (cy) of soil were removed, of which

an estimated 325 cy were contaminated with petroleum hydrocarbons.

- June 1993 A site investigation was conducted by RETEC, Inc. Five existing monitoring wells (MW-1 through MW-5) and two trenches were excavated and sampled. Gasoline and BTEX were detected in soil and groundwater above cleanup criteria. Chlorinated solvents (vinyl chloride, 1,1-dichloroethene, t-1,1-dichloroethene, c-1,2-dichloroethene, trichloroethene, and tetrachloroethene) were detected above cleanup criteria in one groundwater sample (MW-2).
- September 1993 Additional contaminated soil was excavated by E.P. Johnson Construction & Environmental under supervision of SDPR. There was no separate report of this activity; it was described in a revised site investigation report prepared by RETEC, Inc. in February 1995. An additional 1,913 cy of soil was excavated and removed, with the base of the excavation between 20 and 25 feet bgs. Thirteen soil samples were collected. Gasoline and BTEX were detected in soil above cleanup criteria. Contamination appeared to be concentrated at the top of the water table (12 to 18 feet bgs).
- October 1993 Supplementary observations were made by RETEC, Inc. after contaminated soil was excavated. There was no separate report of this activity; it was described in a revised site investigation report prepared by RETEC, Inc. in February 1995. RETEC observed a semi-confining aquitard at approximately 20 feet bgs and questioned the usefulness of the existing monitoring wells (MW-1 through MW-5) because the well screens were placed across the aquitard. Five new monitoring wells (MW-6 through MW-10) and three borings were drilled and sampled. The five wells were also sampled in January 1994, April 1994, and September 1994. Gasoline and BTEX were detected in soil and groundwater above cleanup criteria.
- July 1994 A remedial alternatives report was prepared by RETEC, Inc. and submitted to SDPR. Remediation options targeting gasoline and BTEX included air sparge/bioventing and

dewatering/bioventing.

- February 1996 Boring logs for five additional wells and vapor extraction test results were presented by SCS Engineers. Information suggests an air sparge/soil vapor extraction system was chosen as the remediation alternative.
- February 1997 A Puget Sound Air Pollution Control Agency permit application and notice of construction was submitted by SCS Engineers.
- September 1997 Final air sparge/soil vapor extraction system drawings were presented by SCS Engineers. A cover letter indicates groundwater sampling was conducted in February and April 1996, but the data were not present in the file. The file itself terms the drawings “As-Built,” suggesting the remediation system was installed.
- June 2002 A site evaluation was conducted by Urban Redevelopment, Inc. Forty-four soil, 11 groundwater, and one concrete core sample was collected and analyzed, but no narrative or evaluation of the data was present in the file. (These data are further discussed in the *Recent Analytical Results* section of this letter report [starting on page 10].)
- September 2003 The property was transferred back to SCL from SDPR.

Maryatt Industries/American Linen Supply (adjacent west)

A notification of contamination was prepared by Maryatt Industries, a former dry cleaner, for Ecology in December 1992. The letter includes an environmental summary report prepared by Dalton, Olmsted & Fuglevand, Inc. for Maryatt Industries.

- The report indicates that USTs were removed from the northeast corner of the property. The date of removal, the number removed, and the contents of the USTs are not known.
- Six monitoring wells were installed and sampled. The depths of the wells or well screen intervals are not known. The water level data indicates that the groundwater flow gradient is to the southeast.

- Tetrachloroethene ranging from 3 to 4,500 parts per billion (ppb) and benzene ranging from 0.6 to 480 ppb were detected in groundwater above their cleanup criteria of 5 ppb. The highest concentrations were detected at the southeast corner of the site.

Seattle Public Schools/Futon Dealer (adjacent west)

A site characterization report was prepared by Hart Crowser in July 1989 to address petroleum contaminated soil encountered during UST removal and to develop a remediation plan.

- Six USTs containing gasoline (leaded and unleaded), diesel, waste oil, and heating oil were removed. The date of UST removal is not known. Two gasoline USTs were reported to be 2,000 gallons each; the sizes of the others are not known.
- Fifteen soil and five groundwater samples were collected from four monitoring wells installed and seven shallow test pits excavated.
- Total petroleum hydrocarbons ranging from 4 to 7,771 parts per million (ppm) were detected in soil above the cleanup criteria of 200 ppm established at that time. Low levels of total petroleum hydrocarbons were detected in groundwater below cleanup criteria.
- The report indicates that petroleum contamination was found to be adjacent to and hydraulically downgradient from each of the previously removed USTs. The groundwater flow gradient was reported to be toward the northeast.

Bay Side Volvo/Architecture Firm (adjacent east)

A UST site assessment report was prepared by Geotech Consultants in September 1992.

- Three USTs were removed in July 1992: 1,000-gallon gasoline, 500-gallon waste oil, and 500-gallon fuel oil.
- Groundwater was not encountered in the UST excavations.
- Gasoline-range petroleum hydrocarbons ranging from 80 to 3,000 ppm, benzene at 0.6 ppm, toluene ranging from 0.06 to 1.6 ppm, ethylbenzene ranging from 0.92 to 22 ppm, and xylenes ranging from 2.24 to 111 ppm were detected in soil above their respective cleanup criterion.
- The report indicates that the petroleum and BTEX soil contamination was believed to emanate from an upgradient source to the west (i.e., the Property); however, monitoring

well data evaluated but not presented in the report showed petroleum detections to the northeast of the property, but not to the west.

PROPERTY SITE VISIT

On September 29, 2010, we conducted a site visit with Greg Aramaki of SCL Real Estate Services. Our intent during the visit was to visually observe findings contained in the SCL files, identify additional potential environmental concerns, and to find evidence of the air sparge/soil vapor extraction remediation system installation. Observations made during our visit are summarized below:

- Evidence of the air sparge/soil vapor extraction system was observed in the parking lot, north of the building (Photos 1 through 8). The well monuments and asphalt cuts shown in Photos 1 through 6 mirror the final remediation system drawings in the file. Photos 7 and 8 show what appears to be the pipe collection point where the system equipment appears to have been removed.
- An AST labeled as “oil for waste oil burner” was observed near a wash down area at the northwest corner of the building (Photos 9 and 10). The AST appeared to be empty. A slight sheen was observed in the wash down area catch basin, where the depth to water in the basin was approximately 2 feet bgs.
- Piping believed to be associated with the AST that supplied the former boiler in the southeast corner of the basement was observed; however, the AST was no longer present.
- The basement level was being used primarily as vehicle storage and maintenance (Photos 11 through 21). Drum and container storage of leaded fuel (Photos 12 [in background] and 20), cleaning solvents (Photo 13), and motor oil (Photos 16 and 20) were observed throughout the basement area with no secondary containment. An AST with what appears to be a slight oil stain on the floor below the tank was also observed (Photo 14). Additional stored items observed included paints, thinners, grease, and coolants.
- The main floor of the building was primarily being used as storage of electrical transformers and associated equipment (Photos 22 through 28). Also observed was an empty, portable storage tank (Photo 22), a utility elevator (Photo 26), and a maintenance shop utility sink (Photos 27 and 28).

ECOLOGY FILE REVIEW

On October 6, 2010, we reviewed available Ecology files for the Property and select adjacent sites. The intent of this review was three-fold: (1) to locate information pertaining to the installation of the air sparge/soil vapor extraction remediation system at the Property and supplement information contained in the SCL files, (2) to locate information pertaining to the reported solvent release at the Maryatt Industries site, and (3) to review any other information available that pertains to sites adjacent to the Property. Additional findings from this review are described below:

8th and Roy Street Property

- Information pertaining to the installation and performance of the air sparge/soil vapor extraction remediation system was not present in the file.
- The information in the Ecology file was the same as that found in the SCL files, with the exception of a dangerous waste compliance inspection conducted by Ecology in August 2002. The letter report cites several areas of non-compliance pertaining to waste drums that were present at the Property. The inspection report indicated that the Property was in the process of being closed and that a contractor was collecting environmental samples in preparation of the transaction.

Maryatt Industries/American Linen Supply (adjacent west)

- There was no information pertaining to this site in Ecology's files.

Seattle Public Schools/Futon Dealer (adjacent west)

- The site characterization report prepared by Hart Crowser and provided by SCL was in the file.
- The site was reported cleaned up in 1989; however, documentation that Ecology granted a no further action (NFA) designation was not found in the file.

Bay Side Volvo/Architecture Firm (adjacent east)

- The UST site assessment report prepared by Geotech Consultants and provided by SCL was in the file.
- No additional information was found.

Jarvie Paint/Yellow Cab/Neptune Apartments (adjacent northwest)

- Several reports were found in the file indicating that the southern portion of this block was formerly occupied by Jarvie Paint Manufacturing Co. (Jarvie) and a Yellow Cab parking and maintenance yard. A large portion of the entire block was recently redeveloped as Neptune Apartments (Neptune).
- Solvent-stained soil was reported in 1977, and volatile organic compounds were detected in the 8th Avenue storm sewer in 1995.
- Six USTs were removed at the Jarvie property: 6,000-gallon toluene, 7,000-gallon mineral spirits 350, 2,700-gallon lacquer thinner, 1,000-gallon aliphatic petroleum distillates, 1,000-gallon xylene, and 2,700-gallon alkyd resin. The date of removal is not known. A 1,500-gallon heating oil tank was left during removal of the other USTs and its status is unknown; however, the UST was likely removed during the recent redevelopment of the property.
- One UST with unknown contents was removed at the Yellow Cab Facility. The date of removal is not known.
- Toluene, mineral spirits, lacquer thinner, petroleum distillates, xylenes and alkyd resins were detected in soil and groundwater at the Jarvie property. Diesel fuel, barium, cadmium, chromium, and lead were detected in near-surface soils at the Yellow Cab facility.
- The Jarvie property received an NFA from Ecology in 1999 after the site was remediated; however, new contamination was found in 2001 during redevelopment. Upon remediation, an NFA with a restrictive covenant was issued to Neptune by Ecology in 2007.
- The Yellow Cab facility received an NFA from Ecology in 1991 for soil only. A full NFA with restrictive covenant was issued to Neptune by Ecology in 2006.

Westlake Terminals/Double M Hotel (adjacent north)

- A Phase 1 Environmental Site Assessment and Subsurface Investigation report was prepared by Earth Consultants, Inc. in September 1992.
- The report indicated that two gas stations have occupied the property.
- Three USTs of unknown size and contents were removed. The date of removal is not known.

- Gasoline-range hydrocarbons were detected in the soil and groundwater. Off-site detections are believed to be from an unspecified upgradient source to the west.

MAACO Auto Painting (adjacent east)

- The file identifies this site as a small quantity generator.
- No violations or additional information was found in the file.

Ducati Dealership (adjacent east)

- One UST of unknown size and contents was reportedly closed in place. The date of closure is not known.
- A lube oil spill onto the paved roadway was reported. The date of the spill is not known.
- Halogenated organic compounds and petroleum products were detected in soil and groundwater in 1993; however, the source of contamination was not indicated.
- The site is undergoing independent remedial action under Ecology's Voluntary Cleanup Program.

Buca de Beppos Restaurant (adjacent east)

- There was no information pertaining to this site in Ecology files.

Gas Station/Parking Lot (adjacent southwest)

- There was no information pertaining to this site in Ecology files.

MARYATT INDUSTRIES INTERVIEW

On October 12, 2010, a telephone interview was conducted with Dave Maryatt, former owner of the Maryatt Industries site. The intent of this interview was to obtain information pertaining to the reported solvent release at the Maryatt Industries site and any plans for site remediation. Findings from this interview are described below:

- The site has been sold, but the transaction is currently being finalized.
- A solvent release was reported to be due to a minor barrel spill of tetrachloroethene in the 1980s.

- Tetrachloroethene, benzene, and petroleum hydrocarbons (gasoline-, diesel-, and heavy oil-range) were detected in soil and groundwater and are believed to be present under the building.
- One gasoline UST was removed. The tank was not reported as leaking. The date of removal is not known.
- Three diesel USTs that fueled the building's boiler were reported to be in place, but currently empty. They are to be removed during redevelopment.
- No remediation has been conducted; however, plans for remediation have been made but would not take place until the property is transferred. Citing the pending sale of the property, details of the planned remediation were not provided.

RECENT ANALYTICAL RESULTS

Subsurface conditions at the Property were most recently evaluated by Urban Redevelopment in 2002. Forty-four soil, 11 groundwater, and 1 concrete core samples were collected; however, there was no narrative or evaluation of the sampling data present in the files. Figure 2 shows sampling locations and Tables 2 and 3 show soil and groundwater analytical results, respectively. Based on our evaluation of the raw data, the following conclusions can be made:

Soil Results

- Gasoline-range hydrocarbons were detected above the Washington State Model Toxics Control Act (MTCA) cleanup criterion of 100 ppm (30 ppm where benzene also detected) in 11 of 33 samples analyzed. Detection exceedences were predominantly 12 to 15 feet bgs in the parking area and 3 to 8 feet bgs below the building basement.
- Benzene was detected above the MTCA cleanup criterion of 0.03 ppm in 20 of 33 samples analyzed. Detection exceedences were predominantly 12 to 15 feet bgs in the parking area and 3 to 8 feet bgs below the building basement.
- Toluene was detected above the MTCA cleanup criterion of 7 ppm in 5 of 33 samples analyzed. Detection exceedences were predominantly 15 feet bgs in the parking area and 3 to 8 feet bgs below the building basement.
- Ethylbenzene was detected above the MTCA cleanup criterion of 6 ppm in 7 of 33 samples analyzed. Detection exceedences were predominantly 15 feet bgs in the parking area.

- Xylenes were detected above the MTCA cleanup criterion of 9 ppm in 7 of 33 samples analyzed. Detection exceedences were predominantly 15 feet bgs in the parking area and 3 to 8 feet bgs below the building basement.
- Diesel-range hydrocarbons were detected above the MTCA cleanup criterion of 2,000 ppm in one of 22 samples analyzed. The detection exceedence was 0 to 4 feet bgs in the parking area near the existing shed.
- Carcinogenic PAHs (cPAHs) were detected above the MTCA cleanup criterion of 0.1 ppm in the three samples analyzed. The detection exceedences were 0 to 4 feet bgs in the parking area near the existing shed.
- Mercury was detected above the MTCA cleanup criterion of 2 ppm in 1 of 13 samples analyzed. The detection exceedence was 0 to 4 feet bgs in the parking lot.
- Lead was detected above the MTCA cleanup criterion of 250 ppm in 2 of 13 samples analyzed. One lead exceedence was 0 to 4 feet bgs in the parking lot and the second exceedence was 0 to 3 feet bgs below the building basement.

Groundwater Results

- Gasoline-range hydrocarbons were detected above the MTCA cleanup criterion of 1,000 ppb (800 ppb where benzene also detected) in five of 11 samples analyzed. Detection exceedences were in the parking area and adjacent alley.
- Benzene was detected above the MTCA cleanup criterion of 5 ppb in 5 of 11 samples analyzed. Detection exceedences were in the parking area and adjacent alley.
- Ethylbenzene was detected above the MTCA cleanup criterion of 700 ppb in 1 of 11 samples analyzed. Detection exceedences were in the parking area and adjacent alley.
- Xylenes were detected above the MTCA cleanup criterion of 1,000 ppb in 2 of 11 samples analyzed. Detection exceedences were in the parking area and adjacent alley.
- cPAHs were detected above the MTCA cleanup criterion of 0.1 ppb in one of three samples analyzed. The detection exceedence was in the parking area.
- Naphthalene was detected above the MTCA cleanup criterion of 160 ppb in one of three samples analyzed. The detection exceedence was in the parking area.
- Arsenic was detected above the MTCA cleanup criterion of 5 ppb in the five samples analyzed. The detection exceedences were predominantly in the parking area.
- Cadmium was detected above the MTCA cleanup criterion of 5 ppb in four of five samples analyzed. The detection exceedences were predominantly in the parking area.

- Chromium was detected above the MTCA cleanup criterion of 50 ppb in two of five samples analyzed. The detection exceedences were predominantly in the parking area.
- Mercury was detected above the MTCA cleanup criterion of 2 ppb in one of five samples analyzed. The detection exceedence was in the parking area.
- Lead was detected above the MTCA cleanup criterion of 15 ppb in the five samples analyzed. The detection exceedences were predominantly in the parking area.
- Silver was detected above the MTCA cleanup criterion of 0.32 ppb in one of five samples analyzed. The detection exceedence was in the parking area.
- Turbidity was analyzed for two samples and was 75 and 270 nephelometric turbidity units (NTU).

SUMMARY

Based on our review, field observations, and most recent analytical data, we offer the following summary regarding potential contamination at the Property:

- Two USTs were removed in 1993 and petroleum-contaminated soil (PCS) was encountered. Approximately 2,350 cy of PCS were subsequently excavated.
- An air sparge/soil vapor extraction remediation system was apparently installed based on 1997 drawings and site observations. However, records are incomplete regarding the installation and operation of the remediation system.
- Potential solvent contamination from Maryatt Industries reported in 1992 was not detected in site soil or groundwater samples collected in 2002 by Urban Redevelopment. Remediation plans have been developed, but the details were not divulged due to the pending sale of the property.
- The 2002 Urban Redevelopment sample results are the most recent environmental information found for the Property. They indicated the following:
 - Gasoline and BTEX exceeding MTCA cleanup criteria were present in site soil and groundwater in the parking lot and adjacent alley (SP-9, SP-10, SP-12, SP-13, SP-14, SP-17, SP-18, SP-19, SP-20, SP-21, MW-101, MW-102, MW-105, MW-6, and MW-7). The contamination was concentrated near the water table at 12 to 18 feet bgs and extended under the north end of the building basement. Assuming the remediation system was installed and operated, these petroleum contamination levels have probably been reduced.

- Diesel and cPAHs exceeding MTCA cleanup criteria were present in shallow soils near the existing storage building (SP-1, SP-3, and SP-7).
- Lead and mercury exceeding MTCA cleanup criteria were present in shallow soils in the parking area and below the building basement (B-102 and SP-7). This contamination does not appear to be widespread and may be due to undocumented fill.
- Metals were present in site groundwater exceeding MTCA cleanup criteria; however, due to the low mobility of these constituents and relatively high turbidity measurements (75 and 270 NTU), these exceedences may have been due to unfiltered samples and may not have truly represented site groundwater (MW-6, MW-7, MW-8, MW-9, and MW-10).

CLOSURE

The findings and conclusions documented in this letter report have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our agreement. The conclusions presented in this letter report are professional opinions based on interpretation of information currently available to us and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

Shannon & Wilson, Inc. has prepared the enclosed "Important Information About Your Geotechnical/Environmental Report." While not written specifically for this project, this enclosure should assist you and others in understanding the use and limitations of our reports.

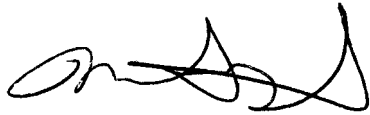
Ms. Jennifer Kindred
City of Seattle
December 20, 2010
Page 14 of 14

SHANNON & WILSON, INC.

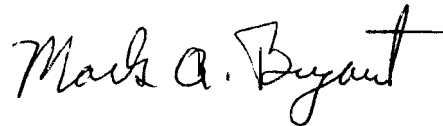
We appreciate the opportunity to be of service to you. If you have any questions or concerns, please call us at (206) 632-8020.

Sincerely,

SHANNON & WILSON, INC.



Michael S. Reynolds
Environmental Engineer



Mark A. Bryant, P.E.
Associate

MSR:ACT:MAB:DNC/msr

Enc: Site Visit Reference Photographs, September 29, 2010 (14 pages)
Table 1 – Seattle City Light File Review, 8th and Roy Street Property (6 pages)
Table 2 – 2002 Urban Redevelopment Soil Analytical Results, Seattle City Light, 8th and Roy Street Property (5 pages)
Table 3 – 2002 Urban Redevelopment Groundwater Analytical Results, Seattle City Light, 8th and Roy Street Property (3 pages)
Figure 1 – Vicinity Map
Figure 2 – Area Map
Figure 3 – Site and Exploration Map
Important Information about Your Geotechnical/Environmental Report

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 1 – Possible air sparge well heads in parking lot at north end of property.



Photo 2 – Possible vapor extraction well head in parking lot at north end of property.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 3 – Possible vapor extraction well head in parking lot at north end of property.



Photo 4 – Active and abandoned monitoring wells along west edge of property in 8th Avenue.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 5 – Possible vapor extraction well head in parking lot at north end of property.



Photo 6 – Possible vapor extraction well head in parking lot at north end of property.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 7 – Possible concrete pad for air sparge and soil vapor extraction equipment.



Photo 8 – Closeup of possible concrete pad for air sparge and soil vapor extraction equipment.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 9 – Aboveground oil storage tank at northwest corner of building.



Photo 10 – Aboveground oil storage tank and wash down area at north end of property.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 11 – Vehicle storage in southern portion of basement.



Photo 12 – Ducati maintenance shop with fuel drum storage in southern portion of basement.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 13 – Parts washing station in Ducati maintenance shop.



Photo 14 – Storage tank in central portion of basement; contents unknown.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 15 – Ducati test bay in central portion of basement.



Photo 16 – Oil storage in central portion of basement.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 17 – General view of basement looking south.

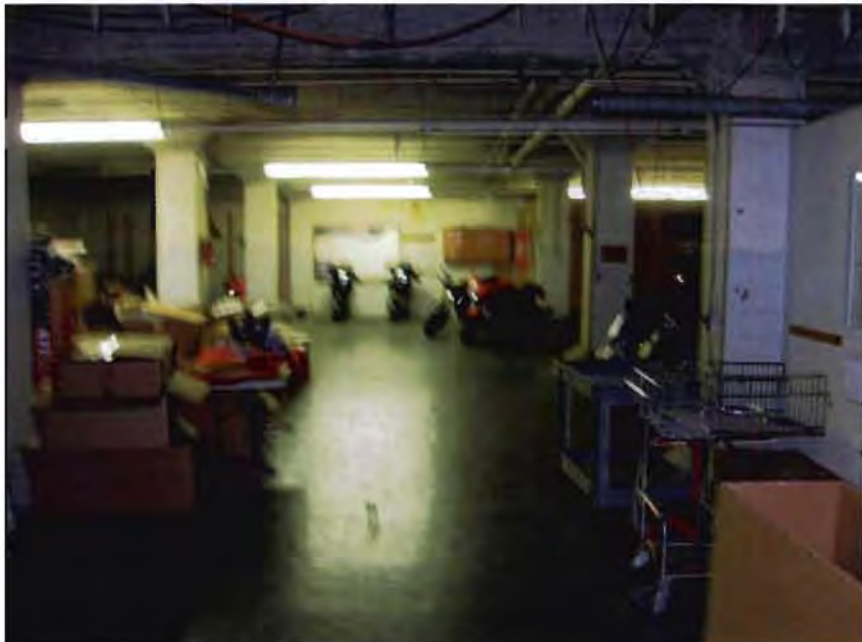


Photo 18 – General view of basement looking north.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 19 – Coolant usage in central portion of basement.



Photo 20 – Oil and fuel container storage in northern portion of basement.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 21 – Motorcycle storage in northern portion of basement.



Photo 22 – Portable storage tank on main floor at north end of building.

**SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010**



Photo 23 – View looking south of covered loading area on main floor of building.



Photo 24 – Transformer storage in central portion of building main floor.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 25 – Transformer storage in central portion of building main floor.



Photo 26 – Utility elevator in central portion of building main floor.

SITE VISIT REFERENCE PHOTOGRAPHS
SEPTEMBER 29, 2010



Photo 27 – Cleaning area in maintenance shop in southern portion of building main floor.



Photo 28 – Closeup of cleaning area in maintenance shop in southern portion of building main floor.

**TABLE 1
SEATTLE CITY LIGHT FILE REVIEW
8TH AND ROY STREET PROPERTY**

Date	Name of File/Document	Purpose	Scope and Key Findings
1987	Roy Street Shops Roofing Dust Collection System	Roofing O&M Manual	Operations & Maintenance manual prepared by Western Construction dated July 29, 1987.
1988	O&M Manual for Roy Street Shops HVAC Improvements, Hart, Inc.	HVAC O&M Manual	Operations & Maintenance manual prepared by Hart, Inc. dated October 5, 1988.
1989	Hart Crowser Report, Seattle Public Schools Site Characterization	Collect additional soil and groundwater quality data at property adjacent west necessary to develop a remediation work plan. PCS encountered during removal of 6 USTs containing leaded and unleaded gasoline.	<ul style="list-style-type: none"> · Report dated July 24, 1989 · 4 exploratory borings (3 on site; 1 off site upgradient); MW installed in all · Soil samples screened at 2.5-ft intervals; 2 per boring submitted for analysis (the 2 with highest screening levels) · 7 test pits excavated · 5 GW samples (1 from each new well, 1 from existing well) · Soil Analyses: TPH, VOCs, and BTEX · GW Analyses: TPH, VOCs, BTEX, and Total Metals · Test Pit Analyses: TPH, VOCs, BTEX, Toxicity Metals, and PCBs · TPH appears to be primary contaminant · TPH and benzene above cleanup guidelines (TPH all downgradient from former UST sites) · VOCs detected in MW-4 (in Aloha St) and possibly from upgradient source · Low potential for GW contamination to migrate off-site · Develop remediation work plan · Unconfined, shallow water table (DTW = 7.5 to 11.0 ft bgs); flow NE towards Lake Union
1991	Roy St Shops	Tank testing sheets	<ul style="list-style-type: none"> · Tank info is for 2,700-gal tank (deemed a 2,800-gal tank) · Test show tank is "tight" in May 1990 and 1991
1992	Project Manual, Roy St Shops UST Removal	(1) Vehicle fuel pump malfunction at "Roy Street Shops"; and (2) UST identification and prep for removal at SCL property	<ul style="list-style-type: none"> · Several memos included in file: SDPR, January 16, 1992 and March 27, 1992; SCS, May 13, 1992; SCL, May 15, 1992; and a few hand written notes · SDPR renting site in 1975; purchased in 1981 · Gasoline-contaminated soil under concrete pad due to pump malfunction (the 2,700-gal tank) · 1 UST was abandoned and left in place when a replacement was installed; exact location of tanks unknown to SDPR · UST removal on April 1, 1992; SCS Engineers to consult; GPR to locate tank (approx 40-50 ft from existing gas pump) · Soil vapor survey indicates that leak at fuel pump likely limited to immediate area around pump; however, survey suggest soil contamination on east side of an abandoned 550-gal UST near main gate entrance · Total of 3 USTs (2 indicated; 1 suspected); 1=550 gal, 1=2,700-gal, 1~4,000-gal · Suspected tank between storage shed and fuel island · SCL indicates 2 abandoned tanks · 2,700-gal unleaded gasoline tank approx 20 ft from north end of building · 550-gal gasoline tank at NW corner of service shop · 4,000-gal diesel tank adjacent to an oil storage building (existing storage shed) approx 60 feet north of main service building on west side of property

**TABLE 1
SEATTLE CITY LIGHT FILE REVIEW
8TH AND ROY STREET PROPERTY**

Date	Name of File/Document	Purpose	Scope and Key Findings
1992	SCS Engineers Site Investigation to Assess Soil Contamination and Locate USTs	Site characterization for release of fuel product and locate USTs	<ul style="list-style-type: none"> · GPR survey performed in May 1992 inconclusive due to concrete and rebar in subsurface structures; only 2,700-gal tank identified · Part of report missing
1992	Geotech Consultants, Bayside Volvo UST Removal & Supplemental Environmental Studies	UST removal at property adjacent east	<ul style="list-style-type: none"> · Report dated September 15, 1992 · 3 USTs removed by Geotech at property to east of SCL site; gasoline (1,000 gal), used oil (300 gal), and fuel oil (675 gal) · Gasoline-contaminated soil found at each UST location and extending under building and parking lot to west · Contamination on west side of property likely from upgradient source · No GW, but gasoline in wells (installed by Earth Consultants, Inc. for another property) in Aloha Street to north and northeast of property
1992	Memos	UST removal prep and concern about leak	<ul style="list-style-type: none"> · Memos regarding pending UST removal at SCL site dated May through December 1992 · Memos regarding concern that leak from SCL site migrating to Bayside Motors and Westlake Terminals · Memo detailing leak in 2,700-gal tank was in broken suction line not tank itself · Memo indicating RETEC hired to remove tanks · Memo concerning review of adjacent studies: Seattle Public School Characterization Report and Seattle Commons Report; neither provide data showing that the Roy St area is receiving substantial upgradient contamination
1992	Maryatt Industries Environmental Review	Notification of contamination by Maryatt to Ecology	<ul style="list-style-type: none"> · Letter dated December 16, 1992 · Six wells installed; DTW approx 7 to 22 feet with flow to SE · GW samples tested for TPH, VOCs and SVOCs · Contamination encountered likely associated with former dry cleaners on site (PCE and benzene) · Petroleum also encountered possibly due to former service station adjacent south or from on site USTs previously removed
1992	Project Manual for Roy Street Shops UST Removal	Bid specifications for UST removal contract	<ul style="list-style-type: none"> · Framework for contract dated December 1992
1993	Photos	Photos and slides	<ul style="list-style-type: none"> · Photos appear to be of soil excavation after tanks removed
1993	RETEC Preliminary Cost Estimate for Remediation of Roy St Maint	Remedial options and cost estimates	<ul style="list-style-type: none"> · Three alternatives presented September 10, 1993: No action; excavation and disposal; and air sparging · Contaminants of concern are TPH and BTEX

**TABLE 1
SEATTLE CITY LIGHT FILE REVIEW
8TH AND ROY STREET PROPERTY**

Date	Name of File/Document	Purpose	Scope and Key Findings
1993	DOE 30 Day Notice to Close UST	DOE Notice of removal	<ul style="list-style-type: none"> · Signed notice on February 10, 1993
1993	Roy Street Tank Technical Committee	Summary of activities to date regarding tank removal and site remediation	<ul style="list-style-type: none"> · Summary of activities for March through July 1, 1993 includes awarding UST removal contract to E.P. Johnson on February 3, 1993 and removal began on March 1, 1993 (SDPR memo dated March 17, 1993) · Contractor encountered significant contamination during removal of 2,700- and 550-gal tanks; confirmed 4,000-gal tank was NOT present · Contamination at deep as 27 ft bgs in area of 550-gal tank; subsequent investigation indicated clean soil at 40 ft bgs · Removal contractor report insufficient; new consultant to be hired to complete work (RETEC)
1993	E.P. Johnson Construction & Environmental, Roy Street Shops Tank Removal	UST removal report	<ul style="list-style-type: none"> · USTs removed on March 1, 1993; Reports dated March 26 and April 9, 1993 · 2,700- and 55-gal UST removed; 4,000-gal UST NOT present · Contractor encountered significant contamination during removal of 2,700- and 550-gal tanks · Report indicates knowledge of chlorinated solvent release from Maryatt Industries adjacent west (based on recently completed subsurface study) and sample taken nearest to point of suspected migration showed non-detect · Post-removal site assessment examined gasoline, BTEX, heavy oils, and PCBs, all except PCBs were found above cleanup criteria · 437 cy of soil removed (325 petroleum contaminated; treated by thermal desorption) · Identified possible petroleum contaminated GW from upgradient source · Gasoline contamination is estimated at 12.5 to 17.5 feet bgs; no free product observed
1993	Site Characterization Report Roy Street Facility, Seattle Department of Parks and Recreation, Seattle, WA	Evaluate the extent and magnitude of possible soil and GW contamination from UST removal.	<ul style="list-style-type: none"> · Report dated August 1993 · Site covered by fill from Denny Regrade and other known sources · From previous reports, area water quality in vicinity of Roy Street site exceeds cleanup criteria for several contaminants · 5 wells sampled and analyzed for BTEX (VOCs in MW-2 nearest cleaners); 7 borings UST removal excavation sampled and analyzed for gasoline, diesel, heavy oil, and BTEX; 2 trenches dug to delineate extent of contamination to north and east, and sampled for gasoline and BTEX · From Maryatt Report review (GW): fuel constituents (gasoline, diesel and heavy-range) detected in 5 of 6 wells, with highest near where USTs removed. Benzene detected above cleanup criterion with levels up to 0.48 ppm. Gasoline (4.2 ppm) and diesel (10.5 ppm) below. Solvents trichloroethene (0.27 ppm), 1,2-dichloroethene (0.83 ppm), and vinyl chloride (0.068 ppm). TCE and vinyl chloride exceed cleanup criteria · From Jarvie Paint report review (GW): solvents and metals used in paints. Soils stained with solvents observed; evidence of solvent leaks or dumping into storm system along 8th Avenue N documented. VOCs detected in sewer. Potential for soil and groundwater contamination considered high, but no sampling yet · From Seattle School District report review: petroleum releases from USTs. From 5 GW samples: no BTEX in any, acetone in two (5.7 and 2.9 ppb), carbon disulfide in one (9.1 ppb), cis-1,2-dichloroethene in one (1.8 ppb), TPH in two (2 and 1 ppm), barium in one (0.331 ppm)

**TABLE 1
SEATTLE CITY LIGHT FILE REVIEW
8TH AND ROY STREET PROPERTY**

Date	Name of File/Document	Purpose	Scope and Key Findings
1993	Site Characterization Report (cont')		<ul style="list-style-type: none"> · Soil excavation analytical results from this study: gasoline detected from < 20 to 15,000 ppm (around leaking pump dispenser), diesel at < 50 ppm, heavy oils at < 100 ppm, PCBs at < 0.1 ppm, benzene from < 0.05 to 100 ppm, toluene from < 0.05 to 260 ppm, ethylbenzene from < 0.05 to 170 ppm, and xylenes from 0.31 to 460 ppm (high for BTEX around pump dispenser), non-detect at 0.05 ppm for solvents · Soil boring analytical results from this study: gasoline detected from < 20 to 1800 ppm, diesel at < 50 ppm, heavy oils at < 25 to 770 ppm, benzene from < 0.05 to 10 ppm, toluene from < 0.05 to 24 ppm, ethylbenzene from < 0.05 to 23 ppm, and xylenes from < 0.05 to 115 ppm (BTEX highs from 12.5 to 17.5 foot range); solvents and PCBs not analyzed · Soil trench analytical results from this study: gasoline detected from 18 to 2,200 ppm, benzene from < 1 to 14 ppm, toluene from < 1 to 38 ppm, ethylbenzene from < 1 to 32 ppm, and xylenes from < 1 to 180 ppm; solvents and PCBs not analyzed · GW analytical results from this study: benzene from < 1 to 20,000 ppb, toluene from < 1 to 21,000 ppb, ethylbenzene from < 1 to 1,900 ppb, and xylenes from < 1 to 12,300 ppb (highest levels in MW-3); solvents in MW-2: vinyl chloride at 1,100 ppb, 1,1-dichloroethene at 25 ppb (no std), t-1,2-dichloroethene at 25 ppb (no std), c-1,2-dichloroethane at 9,300 ppb, TCE at 1,400 ppb, and PCE at 170 ppb · Contaminated soil delineated to north and west, but not to east (structures, roads, fences and retaining walls) or south (existing building) · Solvent contamination in MW-2 likely from off-site source
1993	RETEC Site Characterization Report	Comments to RETEC site characterization report	<ul style="list-style-type: none"> · Comments for draft report contained in SCL and SDPR memos dated July 16, 1993
1994	RETEC Monitoring Well Data 10-10-94	Comments to RETEC site characterization report	<ul style="list-style-type: none"> · Comments for draft report contained in an SCL memo dated July 26, 1994 and an SDPR memo dated September 7, 1994
1994	MOA SCL/DPR	Memorandum of agreement and discussions	<ul style="list-style-type: none"> · Determination of responsibilities contained in SDPR memos from July 1993 to December 1994
1994	Request for Information, Webster, Mrak and Blumberg	Request for pollution information, City Attorney reply	<ul style="list-style-type: none"> · Memo in January 1994 from owner of 739-9th Avenue N wanted copies of studies regarding pollution pertaining to Roy Street Property; City Attorney reply in March 1994 indicates site report in the works
1994	RETEC Roy St Monitoring Wells Data	Quarterly GW sample results	<ul style="list-style-type: none"> · Quarterly results dated October 10, 1994 also includes info on sampling from April 1994 · Gasoline and BTEX above for MW-6 and MW-7 (downgradient from tanks), below for MW-8, MW-9, and MW-10 · These MWs replace the five earlier wells due to poor installation (across aquifers)

**TABLE 1
SEATTLE CITY LIGHT FILE REVIEW
8TH AND ROY STREET PROPERTY**

Date	Name of File/Document	Purpose	Scope and Key Findings
1994	RETEC Remedial Alternatives Report – Roy St	Remedial alternatives report	<ul style="list-style-type: none"> · Remediation options presented July 1994 target gasoline and BTEX · Option 1: air sparge/bioventing · Option 2 : dewatering/bioventing
1995	Revised Site Characterization Report – RETEC	Revised RETEC report	<ul style="list-style-type: none"> · Report dated February 1995 includes supplementary site info (groundwater monitoring)
1995	SCS Consultant Contract	Comments to revised RETEC report and consultant contract with SCL	<ul style="list-style-type: none"> · Comments for revised report contained in an SCL memo dated January 25, 1995 and SDPR memos dated January 24 and February 14, 1995
1995	RETEC – Revised Site Characterization Report, Roy St Facility	Re-revised RETEC report	<ul style="list-style-type: none"> · Key change in conclusions: GW flowing onto site is not currently a source of contamination · Solvents not sampled by RETEC since June 1993 (MW-2)
1995	Minority Set Aside Requirements SCS Engineers	Contractual agreements with SCS	<ul style="list-style-type: none"> · Affirmative action agreement detailed in documents from October to December 1995
1996	Roy St Boring Log, SCS Engineers	Boring logs	<ul style="list-style-type: none"> · 5 logs dated February 1996; no detail on locations
1996	Onsite Enviro, Roy St VES Lab Data	Vapor extraction air sampling test results	<ul style="list-style-type: none"> · Notes indicate that vapor extraction being utilized at remediation option
1996	Northwest Pump Invoice	Equipment rental quote	<ul style="list-style-type: none"> · Quote dated April 29, 1996 for Self-Recuperative Catalytic Oxidizer · Catalytic oxidizer needed because sample results indicate that lifetime TPH emissions (est. at 70,000 pounds over years) would exceed permit criteria of 1,000 pounds
1996	Roy St UST	Remediation test results and modeled scenarios	<ul style="list-style-type: none"> · Data, modeling results and cost estimates in document dated May 1996
1997	Sound Enviro Estimate for Roy Street Remediation Activities	Cost estimate for remediation activities	<ul style="list-style-type: none"> · Sound Enviro started by Rick Alvord (formerly of SCS) · Scope dated July 18 and August 20, 1997 for review and equipment purchase through setup and monitoring
1997	SCS Roy St Maint Fac Drawings	Cover letter for drawings	<ul style="list-style-type: none"> · Letter dated August 15, 1995 indicates air sparge system installed
1997	SCS Roy St Remediation Monitoring Cost	Cost estimate for monitoring activities	<ul style="list-style-type: none"> · Estimate dated February 17, 1997 for water and air emission testing
1997	PSAPCA Application and Approval Order	Permit application and notice of construction	<ul style="list-style-type: none"> · Application submitted by SCS in February 1997 to PSAPCA · Notice of construction by GC Engineers to PSAPCA
1997	RETEC – Roy St Maintenance Facility Remediation System As-Builts	As-Builts of vapor extraction system	<ul style="list-style-type: none"> · Drawings of system dated September 17, 1997
1999	Roy St – Citizen Inquiry	Inquiry regarding petroleum odor	<ul style="list-style-type: none"> · Reply to inquiry on January 8, 1999 indicates Air Sparge system not running yet and odor possibly from a test

TABLE 1
SEATTLE CITY LIGHT FILE REVIEW
8TH AND ROY STREET PROPERTY

Date	Name of File/Document	Purpose	Scope and Key Findings
2002	Soil and Groundwater Lab Results – Urban Redevelopment	Boring logs and analytical results	<ul style="list-style-type: none"> · 28 boring logs prepared by Shannon & Wilson, Inc. in June 2002 · GW sample results from MW-6, MW-7, MW-8, MW-9, and MW-10; no interpretation · Soil and GW sample results from new borings; no interpretation · Soil and GW analytical results are presented separately in Tables 2 and 3 of this report · File also includes aerial photos from 1936 and 1946
2003	DOE Letters	Memos from SDPR to adjacent owner	<ul style="list-style-type: none"> · Memos dated April through May 2003 indicates transfer of parcel from SDPR back to SCL · Letters to adjacent owner at 753 9th Avenue N regarding providing info on pollution upgradient to property (from site)

Notes:

< = less than value indicated

bgs = below ground surface

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes

cy = cubic yard

DOE = Washington Department of Ecology

DTW = Depth to water

gal = gallon

GPR = Ground penetrating radar

GW = Groundwater

HVAC = heating, ventilation, air conditioning

MW = Monitoring Well

NE = northeast

NW = northwest

O&M = operation and maintenance

PCB = Polychlorinated Biphenyls

PCE = tetrachloroethane

PCS = petroleum-contaminated soil

ppb = parts per billion

ppm = parts per million

PSAPCA = Puget Sound Air Pollution Control Agency

SCL = Seattle City Light

SDPR = Seattle Department of Parks and Recreation

SE = southeast

SVOC = semivolatile organic compound

TCE = trichloroethane

TPH = Total Petroleum Hydrocarbons

UST = Underground Storage Tank

VOC = Volatile Organic Compound

TABLE 2
2002 URBAN REDEVELOPMENT SOIL ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY

Sample ID:	B-100, S1	B-100, S2	B101-S1&2	B101-S3	B102-S1	B102-S2	SP-1 (S-1)	SP-1 (S-2)	SP-2 (S-1)	SP-2 (S-2)
Sample Depth:	5-6.5'	10-11.5'	0-3' & 3-6'	8'	0-3'	4'	0-2'	2-4'	1-2'	2-3'
Sample Date:	6/10/2002	6/10/2002	6/17/2002	6/17/2002	6/17/2002	6/17/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002
Matrix:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Petroleum & Constituents (ppm)										
Gasoline-range Hydrocarbons	< 1	< 1	2	< 1	6	< 1	7	2	--	--
Diesel-range Hydrocarbons	< 50	< 50	140	< 50	430	< 50	2400	110	740	230
Benzene	< 0.02	< 0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.1	< 0.02	--	--
Toluene	< 0.02	< 0.02	< 0.02	< 0.02	0.09	< 0.02	< 0.1	< 0.02	--	--
Ethylbenzene	< 0.02	< 0.02	< 0.02	< 0.02	0.04	< 0.02	< 0.1	< 0.02	--	--
Xylenes	< 0.02	< 0.02	< 0.02	< 0.02	0.13	< 0.02	< 0.1	< 0.02	--	--
Volatile Compounds (ppm)										
Vinyl Chloride	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
Chloroethane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
1,1-Dichloroethene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
trans-1,2-Dichloroethane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
1,1-Dichloroethane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
cis-1,2-Dichloroethene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
1,2-Dichloroethane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
1,1,1-Trichloroethane	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
Trichloroethene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
Tetrachloroethene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	--	--	--	--
Semi-Volatile Compounds (ppm)										
Naphthalene	--	--	--	--	--	--	0.063	--	--	--
Acenaphthylene	--	--	--	--	--	--	< 0.05	--	--	--
Acenaphthene	--	--	--	--	--	--	< 0.05	--	--	--
Fluorene	--	--	--	--	--	--	< 0.05	--	--	--
Pentachlorophenol	--	--	--	--	--	--	< 0.05	--	--	--
Phenanthrene	--	--	--	--	--	--	0.12	--	--	--
Anthracene	--	--	--	--	--	--	< 0.05	--	--	--
Fluoranthene	--	--	--	--	--	--	0.15	--	--	--
Pyrene	--	--	--	--	--	--	0.26	--	--	--
Benzo(a)anthracene	--	--	--	--	--	--	0.12	--	--	--
Chrysene	--	--	--	--	--	--	0.20	--	--	--
Benzo(a)pyrene	--	--	--	--	--	--	0.13	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--	--	0.22	--	--	--
Benzo(k)fluoranthene	--	--	--	--	--	--	< 0.05	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	--	0.061	--	--	--
Dibenz(a,h)anthracene	--	--	--	--	--	--	0.059	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--	--	0.094	--	--	--
cPAHs TEF-Adjusted	--	--	--	--	--	--	0.181	--	--	--
RCRA 8 Metals (ppm)										
Silver	< 10	< 10	< 10	< 10	< 10	< 10	< 10	--	--	< 10
Arsenic	< 10	< 10	< 10	< 10	< 10	< 10	< 10	--	--	< 10
Barium	50	45	170	82	210	59	170	--	--	83
Cadmium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	--	--	1.7
Chromium	25	24	18	27	24	28	24	--	--	18
Mercury	< 0.2	< 0.2	0.362	< 0.2	1.56	< 0.2	1.28	--	--	< 0.2
Lead	4.5	4.1	230	5.3	440	9.9	140	--	--	44
Selenium	< 10	< 10	< 10	< 10	< 10	< 10	< 10	--	--	< 10
Polychlorinated Biphenyls (ug/cm²)⁽¹⁾										
Aroclor 1221	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--	--	--	--	--
Aroclor 1016	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	--	--	--	--	--	--	--	--	--	--

Notes:

Exceeds regulatory criteria = (1) Results reported in ug/cm² because concrete sample could not be broken in to small pieces.

-- = Not measured

< = Analyte not detected above practical quantitation limit shown

Bold = Analyte detected

cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons

MTCA = Model Toxics Control Act

NTU = Nephelometric Turbidity Units

ppm = parts per million

RCRA = Resource Conservation and Recovery Act

TEF = Toxicity Equivalent Factor

ug/cm² = micrograms per centimeter squared

TABLE 2
2002 URBAN REDEVELOPMENT SOIL ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY

Sample ID:	SP-3 (S-1)	SP-4 (S-1)	SP-5 (S-1)	SP-6 (S-1)	SP-6 (S-2)	SP-7 (S-1)	SP-8 (S-1)	SP-9 (S-1)	SP-9 (S-2)	SP-10 (S-2)
Sample Depth:	0-4'	0-4'	0-4'	11-12'	15-16'	0-4'	12-16'	12'	15'	15'
Sample Date:	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002
Matrix:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Petroleum & Constituents (ppm)										
Gasoline-range Hydrocarbons	--	--	--	--	< 1	--	< 1	32	500	3400
Diesel-range Hydrocarbons	670	320	280	190	--	210	--	1800	--	--
Benzene	--	--	--	--	< 0.02	--	< 0.02	0.14	0.94	9.6
Toluene	--	--	--	--	< 0.02	--	< 0.02	0.17	1.7	11
Ethylbenzene	--	--	--	--	< 0.02	--	< 0.02	0.13	3.3	60
Xylenes	--	--	--	--	< 0.02	--	< 0.02	0.47	5.1	240
Volatile Compounds (ppm)										
Vinyl Chloride	< 0.05	--	--	--	--	--	--	--	--	--
Chloroethane	< 0.05	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	< 0.05	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethane	< 0.05	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	< 0.05	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	< 0.05	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	< 0.05	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	< 0.05	--	--	--	--	--	--	--	--	--
Trichloroethene	< 0.05	--	--	--	--	--	--	--	--	--
Tetrachloroethene	< 0.05	--	--	--	--	--	--	--	--	--
Semi-Volatile Compounds (ppm)										
Naphthalene	< 0.025	--	--	--	--	0.042	--	--	--	--
Acenaphthylene	< 0.025	--	--	--	--	0.019	--	--	--	--
Acenaphthene	< 0.025	--	--	--	--	0.022	--	--	--	--
Fluorene	< 0.025	--	--	--	--	0.020	--	--	--	--
Pentachlorophenol	< 0.05	--	--	--	--	< 0.01	--	--	--	--
Phenanthrene	0.12	--	--	--	--	0.12	--	--	--	--
Anthracene	0.033	--	--	--	--	0.034	--	--	--	--
Fluoranthene	0.17	--	--	--	--	0.12	--	--	--	--
Pyrene	0.30	--	--	--	--	0.23	--	--	--	--
Benzo(a)anthracene	0.13	--	--	--	--	0.11	--	--	--	--
Chrysene	0.18	--	--	--	--	0.11	--	--	--	--
Benzo(a)pyrene	0.13	--	--	--	--	0.099	--	--	--	--
Benzo(b)fluoranthene	0.25	--	--	--	--	0.14	--	--	--	--
Benzo(k)fluoranthene	0.081	--	--	--	--	0.056	--	--	--	--
Indeno(1,2,3-cd) pyrene	0.08	--	--	--	--	0.044	--	--	--	--
Dibenzo(a,h)anthracene	< 0.025	--	--	--	--	0.012	--	--	--	--
Benzo(g,h,i)perylene	0.08	--	--	--	--	0.044	--	--	--	--
cPAHs TEF-Adjusted	0.187	--	--	--	--	0.136	--	--	--	--
RCRA 8 Metals (ppm)										
Silver	< 10	--	--	--	--	< 10	--	--	--	--
Arsenic	< 10	--	--	--	--	16	--	--	--	--
Barium	120	--	--	--	--	230	--	--	--	--
Cadmium	< 1.0	--	--	--	--	1.0	--	--	--	--
Chromium	20	--	--	--	--	18	--	--	--	--
Mercury	1.32	--	--	--	--	2.81	--	--	--	--
Lead	230	--	--	--	--	410	--	--	--	--
Selenium	< 10	--	--	--	--	< 10	--	--	--	--
Polychlorinated Biphenyls (ug/cm²)⁽¹⁾										
Aroclor 1221	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--	--	--	--	--
Aroclor 1016	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	--	--	--	--	--	--	--	--	--	--

Notes:

Exceeds regulatory criteria = (1) Results reported in ug/cm² because concrete sample could not be broken in to small pieces.

-- = Not measured

< = Analyte not detected above practical quantitation limit shown

Bold = Analyte detected

cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons

MTCA = Model Toxics Control Act

NTU = Nephelometric Turbidity Units

ppm = parts per million

RCRA = Resource Conservation and Recovery Act

TEF = Toxicity Equivalent Factor

ug/cm² = micrograms per centimeter squared

TABLE 2
2002 URBAN REDEVELOPMENT SOIL ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY

Sample ID:	SP-11 (S-1)	SP-12 (S-1)	SP-13 (S-1)	SP-14 (S-1)	SP-15 (S-6)	SP-16 (S1&S2)	SP-16 (S-5)	SP-16 (S-6)	SP-16 (S-7)	SP-17 (S-2)
Sample Depth:	15'	15'	8-12'	16'	20-24'	0-1' & 6.5-8'	16-20'	20-24'	25'	3'
Sample Date:	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/11/2002	6/12/2002	6/12/2002	6/12/2002	6/12/2002	6/12/2002
Matrix:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Petroleum & Constituents (ppm)										
Gasoline-range Hydrocarbons	< 1	9	26	600	< 1	--	--	--	--	530
Diesel-range Hydrocarbons	--	--	--	--	--	650	< 50	< 50	< 50	--
Benzene	< 0.02	0.10	0.34	0.81	< 0.02	--	--	--	--	2.6
Toluene	< 0.02	0.07	0.17	3.3	< 0.02	--	--	--	--	24
Ethylbenzene	< 0.02	0.04	0.03	9.7	< 0.02	--	--	--	--	15
Xylenes	< 0.02	0.06	0.15	36	< 0.02	--	--	--	--	66
Volatile Compounds (ppm)										
Vinyl Chloride	--	--	--	--	--	--	--	--	--	--
Chloroethane	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	--	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	--	--	--
Semi-Volatile Compounds (ppm)										
Naphthalene	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	--	--	--	--	--
Fluorene	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	--	--	--	--
Anthracene	--	--	--	--	--	--	--	--	--	--
Fluoranthene	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--	--	--	--	--	--
cPAHs TEF-Adjusted	--	--	--	--	--	--	--	--	--	--
RCRA 8 Metals (ppm)										
Silver	--	--	--	--	--	< 10	--	--	--	--
Arsenic	--	--	--	--	--	< 10	--	--	--	--
Barium	--	--	--	--	--	400	--	--	--	--
Cadmium	--	--	--	--	--	< 1.0	--	--	--	--
Chromium	--	--	--	--	--	30	--	--	--	--
Mercury	--	--	--	--	--	0.247	--	--	--	--
Lead	--	--	--	--	--	220	--	--	--	--
Selenium	--	--	--	--	--	< 10	--	--	--	--
Polychlorinated Biphenyls (ug/cm²)⁽¹⁾										
Aroclor 1221	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--	--	--	--	--
Aroclor 1016	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	--	--	--	--	--	--	--	--	--	--

Notes:

Exceeds regulatory criteria = (1) Results reported in ug/cm² because concrete sample could not be broken in to small pieces.

-- = Not measured

< = Analyte not detected above practical quantitation limit shown

Bold = Analyte detected

cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons

MTCA = Model Toxics Control Act

NTU = Nephelometric Turbidity Units

ppm = parts per million

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TEF = Toxicity Equivalent Factor

ug/cm² = micrograms per centimeter squared

TABLE 2
2002 URBAN REDEVELOPMENT SOIL ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY

Sample ID:	SP-17 (S-3)	SP-18 (S-2)	SP-19 (S-1)	SP-19 (S-2)	SP-20 (S-2-5')	SP-20 (S-2-8')	SP-21 (S-1)	SP-21 (S-2)	MW101-S3	MW-102, S1
Sample Depth:	11-12'	5-8'	0-4'	7-8'	5'	8'	3-4'	7-8'	16'	5-6.5'
Sample Date:	6/12/2002	6/12/2002	6/12/2002	6/12/2002	6/12/2002	6/12/2002	6/12/2002	6/12/2002	6/14/2002	6/10/2002
Matrix:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Petroleum & Constituents (ppm)										
Gasoline-range Hydrocarbons	11	2600	85	4100	5	< 1	25	1200	< 1	99
Diesel-range Hydrocarbons	--	--	570	--	--	--	350	--	--	--
Benzene	0.04	12	2.2	16	0.14	0.07	0.84	3.5	0.07	0.67
Toluene	0.07	83	1.0	120	0.03	< 0.02	0.23	12	< 0.02	0.47
Ethylbenzene	0.29	74	1.9	110	0.15	< 0.02	0.17	19	0.04	1.0
Xylenes	0.26	320	3.6	500	0.26	0.05	0.17	52	0.05	2.5
Volatile Compounds (ppm)										
Vinyl Chloride	--	--	--	--	--	--	--	--	--	--
Chloroethane	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	--	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	--	--	--
Semi-Volatile Compounds (ppm)										
Naphthalene	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	--	--	--	--	--
Fluorene	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--	--	--	--	--
Anthracene	--	--	--	--	--	--	--	--	--	--
Fluoranthene	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd) pyrene	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--	--	--	--	--	--
cPAHs TEF-Adjusted	--	--	--	--	--	--	--	--	--	--
RCRA 8 Metals (ppm)										
Silver	--	--	--	--	--	--	--	--	< 10	--
Arsenic	--	--	--	--	--	--	--	--	< 10	--
Barium	--	--	--	--	--	--	--	--	27	--
Cadmium	--	--	--	--	--	--	--	--	< 1.0	--
Chromium	--	--	--	--	--	--	--	--	16	--
Mercury	--	--	--	--	--	--	--	--	< 0.2	--
Lead	--	--	--	--	--	--	--	--	3.6	--
Selenium	--	--	--	--	--	--	--	--	< 10	--
Polychlorinated Biphenyls (ug/cm²)⁽¹⁾										
Aroclor 1221	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	--	--	--	--	--	--	--	--	--	--
Aroclor 1016	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	--	--	--	--	--	--	--	--	--	--

Notes:
 Exceeds regulatory criteria =
 (1) Results reported in ug/cm² because concrete sample could not be broken in to small pieces.
 -- = Not measured
 < = Analyte not detected above practical quantitation limit shown
 Bold = Analyte detected
 cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons
 MTCA = Model Toxics Control Act
 NTU = Nephelometric Turbidity Units
 ppm = parts per million
 RCRA = Resource Conservation and Recovery Act
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 ug/cm² = micrograms per centimeter squared

TABLE 2
2002 URBAN REDEVELOPMENT SOIL ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY

Sample ID:	MW-102, S2	MW103-S1&S2	MW-105, S2	MW-105, S4	Concrete Core	MTCA Method A Soil Cleanup Criteria	MTCA Method B Soil Cleanup Criteria	Puget Sound Background
Sample Depth:	10-11.5'	5-6.5' & 10-11.5'	10-11.5'	20-21.5'				
Sample Date:	6/10/2002	6/14/2002	6/10/2002	6/10/2002	6/12/2010			
Matrix:	Soil	Soil	Soil	Soil	Concrete			
Petroleum & Constituents (ppm)								
Gasoline-range Hydrocarbons	2	< 0.02	650	< 1	--	100/30	*	*
Diesel-range Hydrocarbons	--	--	--	--	--	2000	*	*
Benzene	0.05	< 0.02	2.1	0.05	--	0.03	*	*
Toluene	< 0.02	< 0.02	1.5	< 0.02	--	7	*	*
Ethylbenzene	0.12	< 0.02	11	< 0.02	--	6	*	*
Xylenes	0.07	< 0.02	24	0.03	--	9	*	*
Volatile Compounds (ppm)								
Vinyl Chloride	--	--	--	--	--	0.67	*	*
Chloroethane	--	--	--	--	--	*	*	*
1,1-Dichloroethene	--	--	--	--	--	*	*	*
trans-1,2-Dichloroethane	--	--	--	--	--	*	1600	*
1,1-Dichloroethane	--	--	--	--	--	*	16000	*
cis-1,2-Dichloroethene	--	--	--	--	--	*	800	*
1,2-Dichloroethane	--	--	--	--	--	*	1600	*
1,1,1-Trichloroethane	--	--	--	--	--	2	*	*
Trichloroethene	--	--	--	--	--	0.03	*	*
Tetrachloroethene	--	--	--	--	--	0.05	*	*
Semi-Volatile Compounds (ppm)								
Naphthalene	--	--	--	--	--	5	*	*
Acenaphthylene	--	--	--	--	--	*	*	*
Acenaphthene	--	--	--	--	--	*	4800	*
Fluorene	--	--	--	--	--	*	3200	*
Pentachlorophenol	--	--	--	--	--	*	8.3	*
Phenanthrene	--	--	--	--	--	*	*	*
Anthracene	--	--	--	--	--	*	24000	*
Fluoranthene	--	--	--	--	--	*	3200	*
Pyrene	--	--	--	--	--	*	2400	*
Benzo(a)anthracene	--	--	--	--	--	*	*	*
Chrysene	--	--	--	--	--	*	*	*
Benzo(a)pyrene	--	--	--	--	--	*	*	*
Benzo(b)fluoranthene	--	--	--	--	--	*	*	*
Benzo(k)fluoranthene	--	--	--	--	--	*	*	*
Indeno(1,2,3-cd) pyrene	--	--	--	--	--	*	*	*
Dibenz(a,h)anthracene	--	--	--	--	--	*	*	*
Benzo(g,h,i)perylene	--	--	--	--	--	*	*	*
cPAHs TEF-Adjusted	--	--	--	--	--	0.1/2	*	*
RCRA 8 Metals (ppm)								
Silver	--	< 10	--	--	--	*	400	*
Arsenic	--	< 10	--	--	--	20	*	7
Barium	--	35	--	--	--	*	*	*
Cadmium	--	< 1.0	--	--	--	2	*	1
Chromium	--	33	--	--	--	19/2000	*	48
Mercury	--	< 0.2	--	--	--	2	*	0.07
Lead	--	4.5	--	--	--	250/1000	*	24
Selenium	--	< 10	--	--	--	*	400	*
Polychlorinated Biphenyls (ug/cm²)⁽¹⁾								
Aroclor 1221	--	--	--	--	< 0.01	*	*	*
Aroclor 1232	--	--	--	--	< 0.01	*	*	*
Aroclor 1016	--	--	--	--	< 0.01	*	*	*
Aroclor 1242	--	--	--	--	< 0.01	*	*	*
Aroclor 1248	--	--	--	--	< 0.01	*	*	*
Aroclor 1254	--	--	--	--	0.04	*	*	*
Aroclor 1260	--	--	--	--	0.03	*	*	*
Aroclor 1262	--	--	--	--	< 0.01	*	*	*

Notes:

Exceeds regulatory criteria = (1) Results reported in ug/cm² because concrete sample could not be broken in to small pieces.

-- = Not measured

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cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons

MTCA = Model Toxics Control Act

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ppm = parts per million

RCRA = Resource Conservation and Recovery Act

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ug/cm² = micrograms per centimeter squared

TABLE 3

**2002 URBAN REDEVELOPMENT GROUNDWATER ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY**

Sample ID:	MW-6	MW-7	MW-8	MW-9	MW-10
Sample Depth (ft):	NA	NA	NA	NA	NA
Sample Date:	6/19/2002	6/19/2002	6/21/2002	6/20/2002	6/19/2002
Matrix:	Water	Water	Water	Water	Water
Petroleum & Constituents (ppb)					
Gasoline-range Hydrocarbons	8500	8400	< 50	< 50	< 50
Diesel-range Hydrocarbons	--	--	--	--	--
Benzene	1900	650	< 1	< 1	< 1
Toluene	14	37	< 1	< 1	< 1
Ethylbenzene	250	470	< 1	< 1	< 1
Xylenes	53	150	< 1	< 1	< 1
Volatile Compounds (ppb)					
Vinyl Chloride	--	--	--	< 1	< 1
Chloroethane	--	--	--	< 1	< 1
1,1-Dichloroethene	--	--	--	< 1	< 1
trans-1,2-Dichloroethane	--	--	--	< 1	< 1
1,1-Dichloroethane	--	--	--	< 1	< 1
cis-1,2-Dichloroethene	--	--	--	< 1	< 1
1,2-Dichloroethane	--	--	--	< 1	< 1
1,1,1-Trichloroethane	--	--	--	< 1	< 1
Trichloroethene	--	--	--	< 1	< 1
Tetrachloroethene	--	--	--	< 1	< 1
Semi-Volatile Compounds (ppb)					
Naphthalene	--	190	--	< 0.1	< 0.1
Acenaphthylene	--	0.1	--	< 0.1	< 0.1
Acenaphthene	--	1.4	--	< 0.1	< 0.1
Fluorene	--	1.5	--	< 0.1	< 0.1
Pentachlorophenol	--	< 0.3	--	< 0.3	< 0.3
Phenanthrene	--	2.8	--	< 0.1	< 0.1
Anthracene	--	0.5	--	< 0.1	< 0.1
Fluoranthene	--	0.4	--	< 0.1	< 0.1
Pyrene	--	0.6	--	< 0.1	< 0.1
Benzo(a)anthracene	--	0.1	--	< 0.1	< 0.1
Chrysene	--	0.1	--	< 0.1	< 0.1
Benzo(a)pyrene	--	0.1	--	< 0.1	< 0.1
Benzo(b)fluoranthene	--	0.1	--	< 0.1	< 0.1
Benzo(k)fluoranthene	--	< 0.1	--	< 0.1	< 0.1
Indeno(1,2,3-cd) pyrene	--	< 0.1	--	< 0.1	< 0.1
Dibenz(a,h)anthracene	--	< 0.1	--	< 0.1	< 0.1
Benzo(g,h,i)perylene	--	0.5	--	< 0.1	< 0.1
cPAHs TEF-Adjusted	--	0.136	--	< 0.1	< 0.1
RCRA 8 Metals (ppb)					
Silver	2.3	< 1	< 1	< 1	< 1
Arsenic	60.8	15.7	15.5	23.5	16.1
Barium	1170	628	188	394	226
Cadmium	147	22.3	< 1	2.16	19.7
Chromium	187	16.2	7.07	62.7	15.4
Mercury	1.05	< 1	< 1	< 1	< 1
Lead	3980	44.5	12.2	56	5.63
Selenium	2.41	1.7	< 1	1.7	< 1
CONVENTIONALS					
Turbidity (NTU)	--	--	--	270	75

Notes:

Exceeds proposed remedial goals = Exceeds 1 or more regulatory criteria = 

-- = Not measured

< = Analyte not detected above practical quantitation limit shown

Bold = Analyte detected

cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons

GW = Groundwater

IND = Insufficient Data

MTCA = Model Toxics Control Act

NA = Not Available

NTU = Nephelometric Turbidity Units

ppb = parts per billion

RCRA = Resource Conservation and Recovery Act

SW = Surface Water



TEF = Toxicity Equivalent Factor

TABLE 3

**2002 URBAN REDEVELOPMENT GROUNDWATER ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY**

Sample ID:	MW-101	MW-102	MW-103	MW-105	B101-W	B102-W
Sample Depth (ft):	NA	NA	NA	NA	12'	14'
Sample Date:	6/20/2002	6/20/2002	6/21/2002	6/20/2002	6/17/2002	6/17/2002
Matrix:	Water	Water	Water	Water	Water	Water
Petroleum & Constituents (ppb)						
Gasoline-range Hydrocarbons	19000	10000	< 50	3200	< 50	150
Diesel-range Hydrocarbons	--	--	--	--	< 250	360
Benzene	810	970	< 1	390	< 1	< 1
Toluene	100	200	< 1	43	< 1	1
Ethylbenzene	1200	280	< 1	91	< 1	< 1
Xylenes	1700	1300	< 1	280	< 1	3
Volatile Compounds (ppb)						
Vinyl Chloride	--	--	--	--	< 1	< 1
Chloroethane	--	--	--	--	< 1	< 1
1,1-Dichloroethene	--	--	--	--	< 1	< 1
trans-1,2-Dichloroethane	--	--	--	--	< 1	< 1
1,1-Dichloroethane	--	--	--	--	< 1	< 1
cis-1,2-Dichloroethene	--	--	--	--	< 1	< 1
1,2-Dichloroethane	--	--	--	--	< 1	< 1
1,1,1-Trichloroethane	--	--	--	--	< 1	< 1
Trichloroethene	--	--	--	--	< 1	< 1
Tetrachloroethene	--	--	--	--	< 1	< 1
Semi-Volatile Compounds (ppb)						
Naphthalene	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	--
Fluorene	--	--	--	--	--	--
Pentachlorophenol	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--
Anthracene	--	--	--	--	--	--
Fluoranthene	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--
Benzo(a)pyrene	--	--	--	--	--	--
Benzo(b)fluoranthene	--	--	--	--	--	--
Benzo(k)fluoranthene	--	--	--	--	--	--
Indeno(1,2,3-cd) pyrene	--	--	--	--	--	--
Dibenz(a,h)anthracene	--	--	--	--	--	--
Benzo(g,h,i)perylene	--	--	--	--	--	--
cPAHs TEF-Adjusted	--	--	--	--	--	--
RCRA 8 Metals (ppb)						
Silver	--	--	--	--	7.8	3.48
Arsenic	--	--	--	--	197	435
Barium	--	--	--	--	14900	6290
Cadmium	--	--	--	--	25.4	10.0
Chromium	--	--	--	--	4940	2740
Mercury	--	--	--	--	4.52	2.53
Lead	--	--	--	--	1430	544
Selenium	--	--	--	--	17.9	11.9
CONVENTIONALS						
Turbidity (NTU)	--	--	--	--	--	--

Notes:

Exceeds proposed remedial goals = Exceeds 1 or more regulatory criteria = 

-- = Not measured

< = Analyte not detected above practical quantitation limit shown

Bold = Analyte detected

cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons

GW = Groundwater

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NTU = Nephelometric Turbidity Units

ppb = parts per billion

RCRA = Resource Conservation and Recovery Act

SW = Surface Water


TEF = Toxicity Equivalent Factor

TABLE 3

**2002 URBAN REDEVELOPMENT GROUNDWATER ANALYTICAL RESULTS
SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY**

Sample ID: Sample Depth (ft): Sample Date: Matrix:	1993 Proposed Remedial Goals (RETEC) Chronic/Acute	MTCA Method A GW Cleanup Criteria	MTCA Method B GW Cleanup Criteria	Freshwater SW Cleanup Criteria (Aquatic Life) Chronic/Acute	MTCA Method B SW Cleanup Criteria
Petroleum & Constituents (ppb)					
Gasoline-range Hydrocarbons	IND/IND	1000/800	*	*	*
Diesel-range Hydrocarbons	*	500	*	*	*
Benzene	700/5100	5	*	*	23
Toluene	500/6300	1000	*	*	19000
Ethylbenzene	IND/430	700	*	*	6900
Xylenes	IND/IND	1000	*	*	*
Volatile Compounds (ppb)					
Vinyl Chloride	*	0.2	*	*	3.7
Chloroethane	*	*	*	*	*
1,1-Dichloroethene	*	*	*	*	*
trans-1,2-Dichloroethane	*	*	160	*	33000
1,1-Dichloroethane	*	*	400	*	23000
cis-1,2-Dichloroethene	*	*	80	*	*
1,2-Dichloroethane	*	5	*	*	59
1,1,1-Trichloroethane	*	200	*	*	93000
Trichloroethene	*	5	*	*	6.7
Tetrachloroethene	*	5	*	*	0.39
Semi-Volatile Compounds (ppb)					
Naphthalene	*	160	*	*	4900
Acenaphthylene	*	*	*	*	*
Acenaphthene	*	*	960	*	640
Fluorene	*	*	640	*	3500
Pentachlorophenol	*	*	0.73	13/20	*
Phenanthrene	*	*	*	*	*
Anthracene	*	*	4800	*	26000
Fluoranthene	*	*	640	*	90
Pyrene	*	*	480	*	2600
Benzo(a)anthracene	*	*	*	*	*
Chrysene	*	*	*	*	*
Benzo(a)pyrene	*	*	*	*	*
Benzo(b)fluoranthene	*	*	*	*	*
Benzo(k)fluoranthene	*	*	*	*	*
Indeno(1,2,3-cd) pyrene	*	*	*	*	*
Dibenz(a,h)anthracene	*	*	*	*	*
Benzo(g,h,i)perylene	*	*	*	*	*
cPAHs TEF-Adjusted	*	0.1	*	*	0.03
RCRA 8 Metals (ppb)					
Silver	*	*	80	*/0.32	*
Arsenic	*	5	*	190/360	*
Barium	*	*	3200	*	*
Cadmium	*	5	*	0.37/0.82	*
Chromium	*	50	*	57/180	*
Mercury	*	2	*	0.012/2.1	*
Lead	*	15	*	0.54/14	*
Selenium	*	*	80	5/20	*
CONVENTIONALS					
Turbidity (NTU)	*	*	*	*	*

Notes:

Exceeds proposed remedial goals = 

Exceeds 1 or more regulatory criteria =

-- = Not measured

< = Analyte not detected above practical quantitation limit shown

Bold = Analyte detected

cPAHs = Carcinogenic Polynuclear Aromatic Hydrocarbons

GW = Groundwater

IND = Insufficient Data

MTCA = Model Toxics Control Act

NA = Not Available

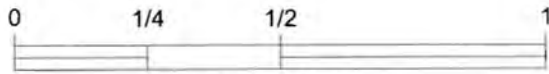
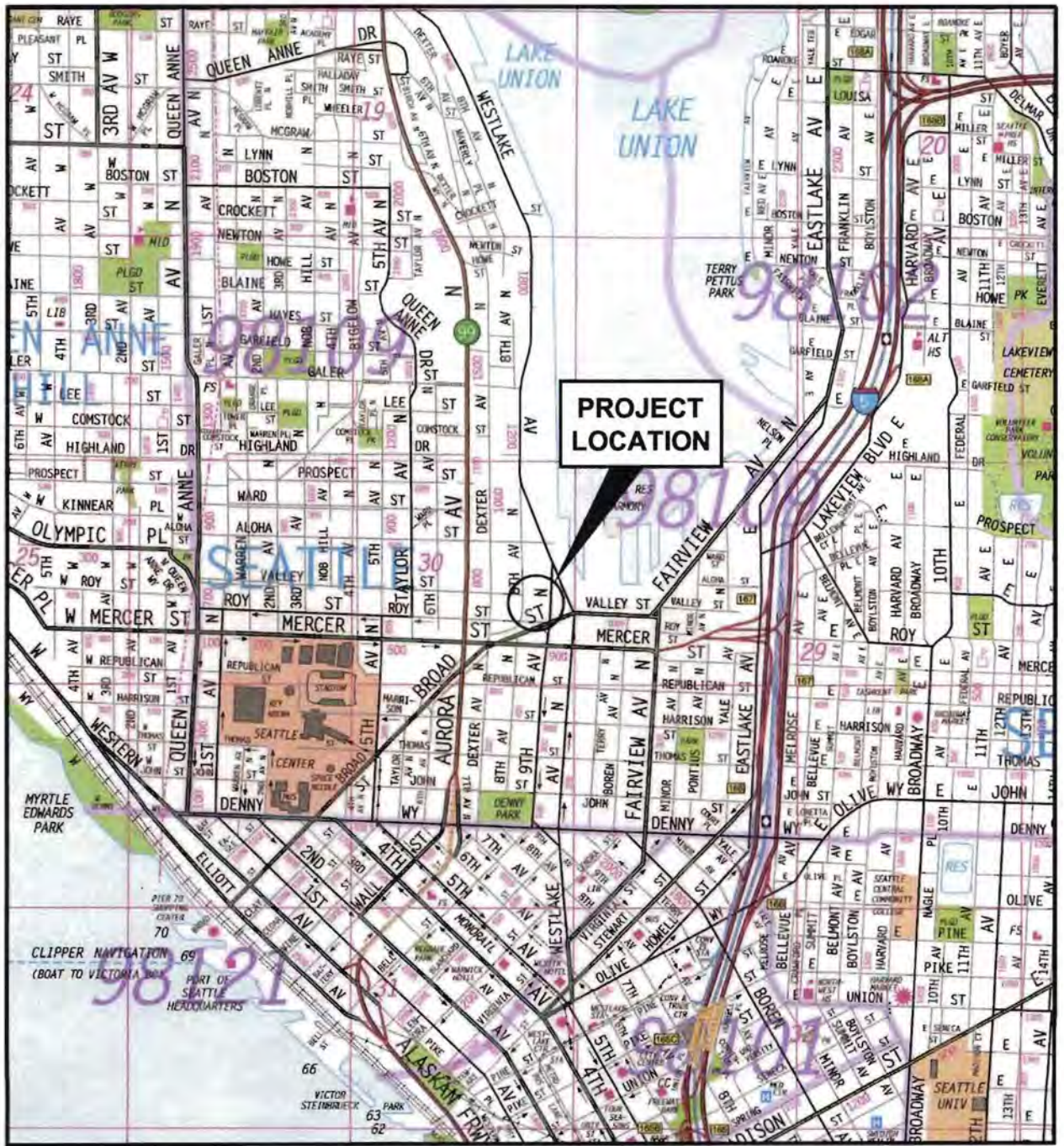
NTU = Nephelometric Turbidity Units

ppb = parts per billion

RCRA = Resource Conservation and Recovery Act

SW = Surface Water

TEF = Toxicity Equivalent Factor



Scale in Miles

NOTE

Reproduced with permission granted by THOMAS BROS. MAPS®. This map is copyrighted by Rand McNally R.L. 09-S-35. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission. All rights reserved.

Seattle City Light
8th & Roy St. Environmental Review
Seattle, Washington

VICINITY MAP

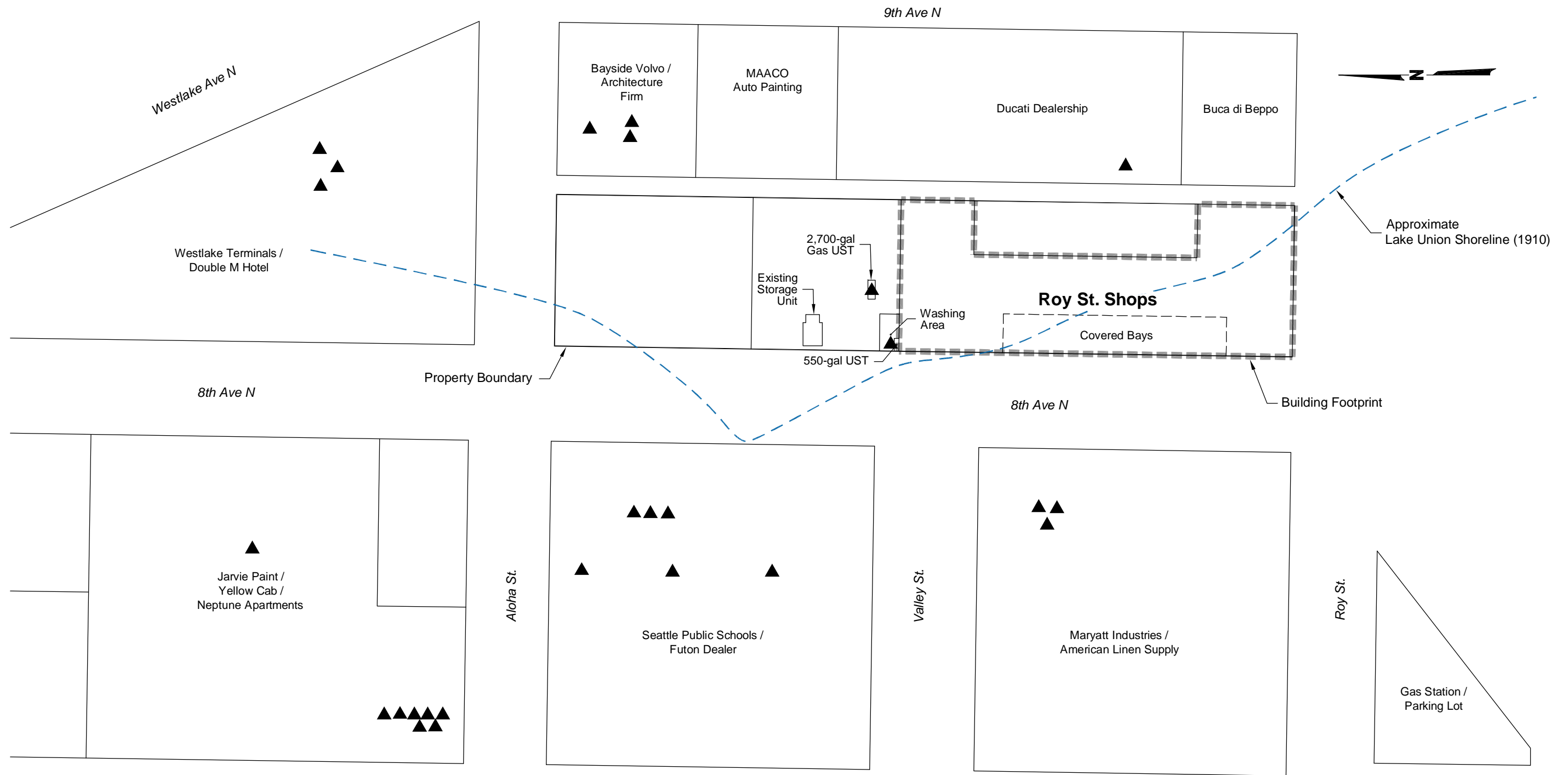
December 2010

21-1-12305-030

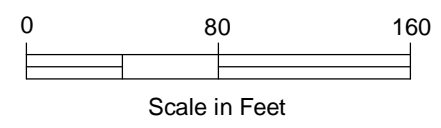
SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 1

Filename: J:\211\12305-030\21-1-1-12305-030 Plans.dwg Date: 12-16-2010 Login: KXW



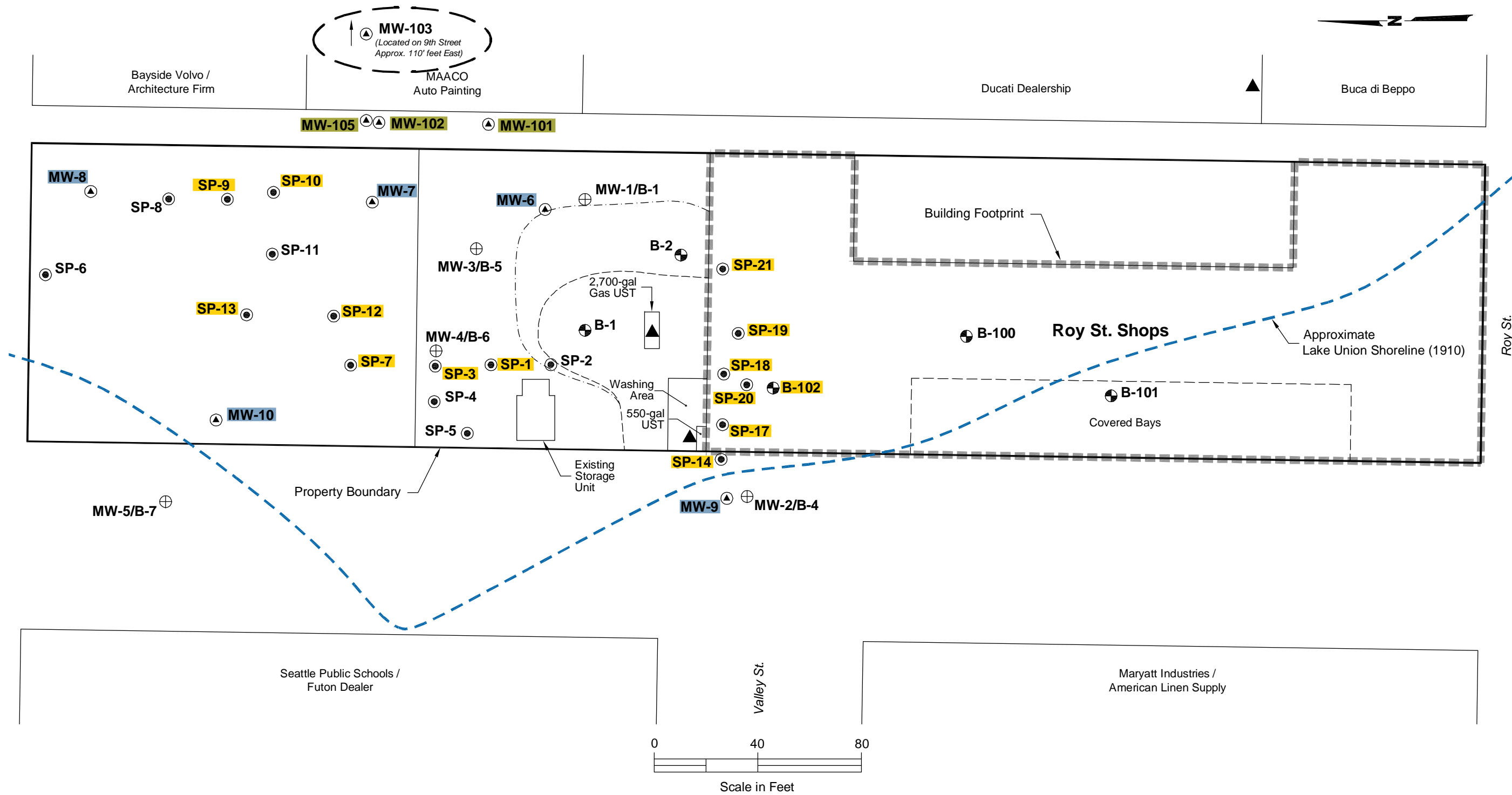
LEGEND
 ▲ UST Removed



NOTE
 Approximate locations of USTs established from Ecology and SCL files reviewed.

Seattle City Light 8th & Roy St. Environmental Review Seattle, Washington	
AREA MAP	
December 2010	21-1-12305-030
SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. 2

Filename: J:\21112305-030\21-1-12305-030 Plans.dwg Date: 12-28-2010 Login: sac



LEGEND

⊕	Soil Boring (Urban Redevelopment, 2002)	- - - - -	Approximate Extent of PCS Excavation
⊙	Strataprobe (Urban Redevelopment, 2002)	- - - - -	Approximate Extent of UST Excavation
⊕	Monitoring Well	B-102	Exceeds MTCA Soil Cleanup Criteria
⊕	Abandoned Monitoring Well	MW-6	Exceeds MTCA Groundwater Cleanup Criteria
▲	UST Removed	MW-101	Exceeds MTCA Soil and Groundwater Cleanup Criteria

NOTE
 Boring locations and results adapted from Urban Redevelopment, Inc. 2002 explorations. Locations for strata probes SP-15 and SP-16 were not included in the available documents and are not shown.

Seattle City Light 8th & Roy St. Environmental Review Seattle, Washington	
SITE AND EXPLORATION PLAN	
December 2010	21-1-12305-030
SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. 3



Date: December 20, 2010
To: Ms. Jennifer Kindred
City of Seattle, Seattle City Light

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland

**Current Conditions Report
Seattle City Light
8th and Roy Street Property
800 Aloha Street
Seattle, Washington**

June 8, 2011

Submitted To:
Ms. Jennifer Kindred
Seattle City Light, Environmental Affairs Division
700 5th Avenue, Suite 3316
Seattle, Washington 98124-4023

By:
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, Washington 98103

21-1-12305-031

June 8, 2011

Ms. Jennifer Kindred
City of Seattle
Seattle City Light, Environmental Affairs Division
700 Fifth Avenue, Suite 3316
Seattle, WA 98104

RE: CURRENT CONDITIONS REPORT, SEATTLE CITY LIGHT, 8TH AND ROY STREET PROPERTY, 800 ALOHA STREET, SEATTLE, WASHINGTON

Dear Ms. Kindred:

This letter report presents the results of our investigation into current environmental conditions at the Seattle City Light (SCL) property located at 800 Aloha Street in Seattle, Washington (the Property). Tasks included additional environmental information research, an inventory of existing monitoring wells, groundwater sampling from select monitoring wells, and preparation of this letter report. This work was completed in general accordance with our proposal dated January 26, 2011.

PROPERTY LOCATION AND BACKGROUND

The Property is located at 800 Aloha Street in Seattle, Washington (Figure 1). The Property occupies the west half of the block along 8th Avenue N, between Aloha and Roy Streets. Historical land use in the vicinity of the Property has predominantly been commercial and light industrial. A fuel spill occurred at the Property in 1992.

Shannon & Wilson performed a review of available environmental information concerning the Property and presented the results of that review in our Environmental Review Report dated December 20, 2010. That review identified significant gaps in the documentation of environmental remediation activities performed at the Property and a lack of recent data on site groundwater conditions. Follow-on actions recommended in our December 28, 2010, supplement to the Environmental Review Report included: (1) performing additional research to obtain missing historical site information such as installation, operation, and decommissioning records for the air sparge/soil vapor extraction (AS/SVE) system and (2) sampling existing monitoring wells to evaluate current groundwater conditions at the site. The scope of services

requested by SCL addresses these recommended follow-on actions. Specifically, the scope of services included the following tasks:

- Additional research to obtain historical information on site remediation activities,
- Preparation of a Sampling and Analysis Plan (SAP) and Health & Safety Plan to guide field activities (provided under separate cover),
- Inventory existing monitoring wells and conduct groundwater sampling at select monitoring wells,
- Coordination with SCL concerning disposal of investigation-derived waste (IDW) from this project temporarily stored at SCL's south service center, and
- Preparation of this letter report.

ADDITIONAL RESEARCH FINDINGS

Additional research was conducted to fill gaps in information regarding the installation, operation, and decommissioning of the AS/SVE remedial system that was identified during our initial review of available environmental information. Our research involved contacting individuals whose names were found on existing documentation during our initial review of the files that were provided to us by SCL and Washington State Department of Ecology.

Per phone conversations with Marrell Livesay, an employee of the Seattle Department of Parks and Recreation who was involved with cleanup of the fuel spill at the Property, the AS/SVE remedial system was installed and tested, but was not operated and eventually was decommissioned. He mentioned that the project manager at the time thought the Property was going to be sold shortly after the system was installed and decided not to operate the system. Specific dates regarding decommissioning of the AS/SVE system were not known, and follow-up calls to Property personnel during the time of installation and decommissioning provided by Mr. Livesay have not been successful.

Mr. Livesay also recalled that: (1) there was a thin aquitard in the fill soils at the site and (2) the fuel spill exhibited channelized subsurface flow toward Lake Union to the east along the glacial till interface. The thin aquitard he mentioned is likely the semi-confining layer described in the 1995 Site Characterization Report prepared by Remediation Technologies, Inc. (RETEC). The semi-confining layer is described by RETEC as a medium dense layer of silty sand that underlies the fill at the site. The fill layer was reported to extend 18 to 27 feet below ground surface (bgs),

and the semi-confining layer was believed to be only a few feet thick. There was no mention of channelized flow at the site in any of the reports or files reviewed in our initial environmental investigation.

FIELD ACTIVITIES

Field activities included an inventory of existing wells located on and adjacent to the Property and groundwater sampling from select wells. Field activities were conducted in general accordance with our SAP dated March 2, 2011.

Well Inventory

The inventory of existing wells was intended to gather information on their presence, purpose, and condition prior to groundwater sampling. Figure 1 shows the location of wells confirmed in our inventory, and Table 1 provides a summary of inventory details. Conclusions from our observations include:

- Seven of eight monitoring wells identified in our records review were confirmed to be present on site. The 2-inch wells are designated as MW-6, MW-7, MW-8, MW-9, MW-10, MW-101, and MW-105. MW-102, suspected to be in the alley adjacent east of the Property, was not found. A round concrete patch observed near MW-101 may have been MW-102; however, no record of decommissioning was found.
- Five remedial wells identified in our records review, designated as SCS-1, SCS-2, SCS-3, SCS-4, and SCS-5, were confirmed to be present on site. A single, 4-inch well casing was observed in each of the five wells. Per as-built plans prepared by SCS Engineers in 1996, all wells except SCS-1, which is not shown as being connected, were associated with the AS/SVE system. Additionally, the monument lid for SCS-1 was broken in half and the monument was filled with a mixture of water, sediment, and bentonite, which had to be removed to access the well head.
- Five vaults identified in our records review as part of the installed AS/SVE system, designated as AS-1, AS-2, AS-3, AS-4, and AS-5, were confirmed to be present on site. Two of the vaults (AS-2 and AS-3) each contained three 2-inch well casings, one vault (AS-5) contained two 2-inch well casings, and one vault (AS-4) contained one 6-inch, one 2-inch, and one 1-inch well casing. Contents of vault AS-1 were not confirmed because the vault was inaccessible under wire spools at the time of our site visit. According to the as-built plans prepared by SCS Engineers, the vaults with 2-inch well casings (including AS-1) housed wells for air sparging and soil vapor

extraction, and the vault with variable casing sizes housed wells for groundwater recovery. The 1-inch and 2-inch pipes in vault AS-4 and one of the 2-inch pipes in vault AS-5 did not have caps. Additionally, a pull cord was observed in the 1-inch pipe at vault AS-4. The vaults appear to be constructed in general accordance with the as-built plans; however, the plans show four pipes (instead of the observed three pipes) in AS-2 and AS-3.

- Petroleum as a non-aqueous phase liquid (NAPL) was not observed floating on the groundwater surface in any location where it was investigated; however, a petroleum odor was observed at wells MW-6, SCS-1, and SCS-5, as well as in the 6-inch standpipe at vault AS-4.

Based on inventory data collected, the horizontal groundwater flow direction was estimated to be toward the east-northeast, as shown in Figure 2. Groundwater elevations shown on this figure were estimated based on field water level measurements in March 2011 and ground surface elevations for MW-6 through MW-10 presented in the 1995 Site Characterization Report by RETEC. Ground surface elevations for the remaining wells at the Property were estimated to a hundredth of a foot relative to MW-9 in the field using a survey transit and rod.

Groundwater at the Property ranged from approximately elevation 46 feet near MW-9 to 43 feet near MW-8. The groundwater elevation at MW-6 is slightly higher relative to other wells in the immediate area and the groundwater contour was generalized. It should be noted that the horizontal groundwater gradient is based on a single monitoring event and may vary throughout the year in response to precipitation.

Groundwater Sampling

Based on our well inventory and subsequent conversations with SCL, seven wells were selected for groundwater sampling instead of the six originally outlined in our SAP. The wells sampled were MW-6, MW-7, MW-8, MW-9, MW-101, MW-105, and SCS-1. A duplicate sample was collected at MW-101 and a sample blank was collected in the vicinity of MW-105, which is located next to a building used for painting and refinishing automobiles.

All environmental samples were submitted to OnSite Environmental (OnSite) in Redmond, Washington, to analyze for gasoline-range hydrocarbons by Method Northwest Total Petroleum Hydrocarbons (NWTPH)-Gasoline, diesel- and heavy oil-range petroleum by Method NWTPH-Diesel Extended, volatile organic compounds (VOCs) by Method Environmental

Protection Agency (EPA) 8260B, and total and dissolved Resource Conservation and Recovery Act 8 metals (arsenic, barium, cadmium, chromium, mercury, lead, selenium, and silver) by Method EPA 7470A/200.8. The sample blank was collected to assess potential VOC contamination and was submitted to OnSite for VOC analysis only.

Groundwater Analytical Results

Groundwater analytical results are summarized in Table 2 and the complete laboratory analytical reports are presented in Appendix A. Figures 3 through 5 show contaminant concentrations for petroleum, VOCs, and metals, respectively. These results were compared to groundwater sampling results from 2002 that were obtained during our review of SCL Property files. Our observations regarding analyte concentrations are described below:

- Gasoline-range petroleum was detected in MW-6, MW-7, MW-101, and MW-105 above its Model Toxics Control Act (MTCA) Method A cleanup criterion of 800 micrograms per liter ($\mu\text{g/L}$) (Figure 3). The detected exceedances ranged from 4,200 to 7,500 $\mu\text{g/L}$ and represent a general decrease in concentrations since the 2002 sampling event. These detections are consistent with the documented petroleum release at the Property.
- Benzene was detected in MW-6, MW-7, MW-101, and MW-105 above its MTCA Method A cleanup criterion of 5 $\mu\text{g/L}$ (Figure 3). The detected exceedances ranged from 19 to 460 $\mu\text{g/L}$ and represent a general decrease in concentrations since the 2002 sampling event. These detections are consistent with the documented petroleum release at the Property.
- Naphthalene was detected at 310 $\mu\text{g/L}$ in MW-6, above its MTCA Method A cleanup criterion of 160 $\mu\text{g/L}$ (Figure 4). While not analyzed in MW-6 during the 2002 sampling event, naphthalene was detected in MW-7 at 190 $\mu\text{g/L}$ in 2002. This detection is likely associated with the documented petroleum release at the Property.
- Vinyl chloride was detected at 0.42 $\mu\text{g/L}$ in MW-9, above its MTCA Method A cleanup criterion of 0.2 $\mu\text{g/L}$ (Figure 4). Vinyl chloride was not detected during the 2002 sampling event. Vinyl chloride is a degradation by-product of tetrachloroethene; the source of contamination is likely a barrel spill of tetrachloroethene that occurred in 1980 at the Maryatt Industries site upgradient of the Property.
- Total and dissolved arsenic was detected in MW-9 and MW-105 above its MTCA Method A cleanup criterion of 5 $\mu\text{g/L}$ (Figure 5). Total and dissolved detections for

MW-9 were 8.8 and 9.1 µg/L, respectively. Total and dissolved detections for MW-105 were 35 and 27 µg/L, respectively. These detections represent a general decrease in concentrations since the 2002 sampling event. The source of contamination is likely naturally-occurring.

Investigation-Derived Waste (IDW)

Approximately 25 gallons of groundwater was purged during sampling at the Property. Purged groundwater was containerized in a 55-gallon drum along with approximately 3 gallons of water used for decontamination of sampling equipment. The drum was labeled and transferred to SCL's south service center, pending disposal.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

A data quality review was conducted using the quality control results submitted by the laboratory and field information provided by the sampling team in conjunction with method requirements. Data review consisted of evaluation of the sample collection activities and documentation, sample handling and hold times, blank sample analyses, matrix spike, laboratory duplicates, and surrogate results.

- **Field Parameters** – Prior to collecting samples, water quality parameters (temperature, pH, dissolved oxygen [DO], oxidation-reduction potential [ORP], specific conductance, and turbidity) were measured at each monitoring well and recorded on the appropriate field sampling sheet. A stabilization goal was established in the SAP for three consecutive readings of these water quality parameters to be within ± 5 percent to indicate that the produced water is representative of groundwater conditions. However, poor recovery in some wells caused us to make the field decision to collect samples before achieving this stabilization goal. Poor recovery was observed at MW-7, MW-9, MW-105, and SCS-1. Conditions at SCS-1 were such that sampling was conducted over the course of two days to allow for well recovery. Based on a review of recorded data, the following parameters were found to be outside of the 5 percent limit: turbidity in MW-7; ORP and turbidity in MW8; DO, ORP, and turbidity in MW-9; turbidity in MW-101; DO, ORP, and turbidity in MW-105; and DO, ORP, and turbidity in SCS-1.
- **Sample Handling and Hold Times** – All samples were preserved according to sample preservation requirements specified in the SAP. The samples arrived at the laboratory in good condition, and were extracted and analyzed within the method-specific holding times.

- **Sample Blank** – The sample blank was collected by filling sample collection vials in the field using laboratory-certified de-ionized water. The sample blank was collected in the vicinity of MW-105 to assess potential impacts from the adjacent auto painting shop. Methylene chloride and chloroform were detected in the sample blank at 9.5 parts per billion (ppb) and 0.98 ppb, respectively. The methylene chloride detection is above its MTCA Method A cleanup criterion but was not detected in any groundwater samples. Chloroform was also detected in groundwater samples collected from MW-7 and SCS-1, but all detections were below its MTCA Method A cleanup criterion. Groundwater detections of chloroform were flagged with a “B” to indicate that the analyte was detected in the sample blank.
- **Method Blanks** – Method blanks were prepared and analyzed by the laboratory to assess potential impacts from the analytical procedures or equipment in the laboratory. No analytes were detected in any method blanks.
- **Field Duplicate** – A field duplicate was collected and submitted blind to the laboratory. The field duplicate, designated Dup 1, was collected at MW-101. For field duplicates, a relative percent difference (RPD) limit of 25 percent was selected as the maximum RPD for data review purposes. All duplicate comparisons were below the 25 percent RPD limit.
- **Laboratory Duplicate Analysis** – Laboratory duplicates were analyzed at the required frequency for all analyses. Acceptable RPD limits are established by the laboratory according to their approved QA/QC parameters. All duplicate comparisons were within established RPD limits.
- **Surrogate Recoveries** – As required by method guidelines, surrogate spikes were added to the project samples. Acceptable recovery control limits are established by the laboratory and laboratory QC samples were analyzed according to method guidelines. All surrogate recoveries were within established control limits.
- **Matrix Spikes/Matrix Spike Duplicates (MS/MSD)** – MS/MSD were analyzed at the required frequency. MS/MSD results were evaluated based on percent recovery and RPD. Spike recovery and RPD for all MS/MSD results were within established limits.
- **Laboratory Flags** – General QA/QC issues associated with the analytical data were flagged by the laboratory. The following diesel-range hydrocarbon results were flagged U1, which indicates that the practical quantitation limit was elevated due to interferences present in the sample: MW-6, MW-7, MW-101, MW-105, SCS-1, and Dup 1. The diesel-range hydrocarbon result for SCS-1 was also flagged M1, which indicates that hydrocarbons in the gasoline range (toluene-naphthalene) were present

in the sample. While diesel-range hydrocarbons were not detected in any samples, these results should be considered estimates.

CONCLUSIONS

Based on our review, well inventory, and groundwater sampling data results, we offer the following conclusions regarding current environmental conditions at the Property:

- Although an AS/SVE remediation system was installed, it was never operated, and was subsequently decommissioned. The reduction in hydrocarbon and VOC concentrations since 2002 is likely due to natural attenuation.
- Detections of gasoline-range hydrocarbons are well below its solubility limit of approximately 100,000 µg/L, which suggests that NAPL is not present. This is supported by field observations.
- Gasoline-range hydrocarbon and benzene concentrations in groundwater at the Property exceed MTCA cleanup criteria. The lower relative concentrations detected at SCS-1, which is located adjacent to the former leaking pump station, suggest that previous excavation of petroleum-contaminated soils was effective at removing source contamination. Downgradient detections are likely the result of residual contamination in soil pore space.
- Vinyl chloride was detected in MW-9 above its MTCA cleanup criterion. Vinyl chloride is a degradation by-product of tetrachloroethene. Given the predominant groundwater flow is east-northeast toward Lake Union, the source of vinyl chloride is likely the 1980 barrel spill of tetrachloroethene reported at the Maryatt Industries site to the west of the Property.
- Dissolved arsenic was detected in MW-9 and MW-105 above its MTCA cleanup criterion. Both wells are located adjacent to the Property. The source of arsenic may be due to the presence of peat deposited prior to the lowering of Lake Union.
- Metals contamination detected in 2002 is likely due to samples being collected using a bailer, a sampling technique which is known to artificially increase turbidity and mobilize particles that are likely not normally mobile in groundwater.
- Groundwater is estimated to flow toward Lake Union based on a single set of water level measurements. Groundwater flow could be influenced by the topography of glacial till that underlies the Property and/or by the building foundation to the south, which is estimated to extend 15 bgs to approximately elevation 47 feet.

Ms. Jennifer Kindred
City of Seattle
June 8, 2011
Page 9 of 9

SHANNON & WILSON, INC.

CLOSURE

The findings and conclusions documented in this letter report have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our agreement. The conclusions presented in this letter report are professional opinions based on interpretation of information currently available to us and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

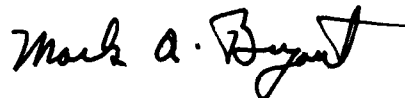
Shannon & Wilson, Inc. has prepared Appendix B, "Important Information About Your Geotechnical/Environmental Report." While not written specifically for this project, this enclosure should assist you and others in understanding the use and limitations of our reports. We appreciate the opportunity to be of service to you. If you have any questions or concerns, please call us at (206) 632-8020.

Sincerely,

SHANNON & WILSON, INC.



Michael S. Reynolds
Environmental Engineer



Mark A. Bryant, P.E.
Associate

MSR:ACT:MAB:DNC/msr

Enc: Table 1 – Well Inventory Summary (2 pages)
Table 2 – Groundwater Analytical Results
Figure 1 – Site Plan
Figure 2 – Groundwater Contour Map
Figure 3 – TPH-G and Benzene Concentrations in Groundwater
Figure 4 – VOC Concentrations in Groundwater
Figure 5 – Metals Concentrations in Groundwater
Appendix A – Laboratory Analytical Results
Appendix B – Important Information About Your Geotechnical/Environmental Report

c: Mr. Bill Devereaux, SCL

**TABLE 1
WELL INVENTORY SUMMARY**

Well ID	Install Date	Purpose	Well Markings	Monument Type	Well Material	Free Product?	Ecology Tag?	Casing Distance Below Ground Surface, ft	Measured Well Depth, ft	Measured Depth to Water, ft	Notes
MW-6	Oct-93	Site Assessment, RETEC	None	8-inch CI	2-inch PVC	No	No	0.25	21.07	14.73	Monument filled with water. No obvious leak at cap. Strong petroleum odor. Monitoring well bolts missing.
MW-7	Oct-93	Site Assessment, RETEC	None	8-inch CI	2-inch PVC	No	No	0.57	17.88	12.36	Monument filled with water. No obvious leak at cap. Slight sheen on water in monument.
MW-8	Oct-93	Site Assessment, RETEC	MW-8	8-inch CI	2-inch PVC	No	No	0.25	19.23	10.81	Monument filled with water. No obvious leak at cap. Slight sheen on water in monument.
MW-9	Oct-93	Site Assessment, RETEC	MW-9	8-inch CI	2-inch PVC	No	No	0.33	22.12	14.81	Monument filled with water. No obvious leak at cap. Slight sheen on water in monument.
MW-10	Oct-93	Site Assessment, RETEC	None	8-inch CI	2-inch PVC	No	No	0.27	22.05	14.78	Monument filled with water. No obvious leak at cap. Slight sheen on water in monument.
SCS-1	Feb-96	Site Assessment, SCS Engineers	None	12-inch CI	4-inch PVC	No	ABV 824	0.75	21.30	16.85	Monument lid broken in two. Monument filled with water, sediment and bentonite. No obvious leak at cap. Slight sheen on water in monument.
SCS-2	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	12-inch CI	4-inch PVC	No	ABV 825	0.42	20.89	16.30	Asphalt cut goes around well. Petroleum odor.
SCS-3	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	12-inch CI	4-inch PVC	No	ABV 826	0.21	21.56	13.78	Asphalt cut goes around well.
SCS-4	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	12-inch CI	4-inch PVC	No	No	0.48	19.69	12.42	Asphalt cut goes around well.
SCS-5	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	12-inch CI	4-inch PVC	No	ANC 751	0.23	20.91	16.21	Monument filled with water. No obvious leak at cap. Petroleum odor.
MW-101	Jun-02	Site Assessment, Urban Redevelopment	None	8-inch CI	2-inch PVC	No	AGI 540	0.49	14.94	7.30	Monitoring well bolts stripped.

**TABLE 1
WELL INVENTORY SUMMARY**

Well ID	Install Date	Purpose	Well Markings	Monument Type	Well Material	Free Product?	Ecology Tag?	Casing Distance Below Ground Surface, ft	Measured Well Depth, ft	Measured Depth to Water, ft	Notes
MW-105	Jun-02	Site Assessment, Urban Redevelopment	None	8-inch CI	2-inch PVC	No	No	0.33	29.69	10.09	
AS-1	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	14-inch x 24-inch Concrete Vault	Not Confirmed	NM	No	NM	NM	NM	
AS-2	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	14-inch x 24-inch Concrete Vault	3-2-inch PVC	No	No	Varies	NM	NM	
AS-3	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	14-inch x 24-inch Concrete Vault	3-2-inch PVC	No	No	Varies	NM	NM	Some water in vault.
AS-4	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	14-inch x 24-inch Concrete Vault	1-1-inch, 2-inch, 6-inch PVC	No	No	Varies	NM	NM	1-inch pipe - uncapped with rope leading down pipe. 2-inch pipe - uncapped and filled with water. 6-inch pipe - petroleum odor.
AS-5	Feb-96	Site Assessment & Remediation System, SCS Engineers	None	14-inch x 24-inch Concrete Vault	2-2-inch PVC	No	No	Varies	NM	NM	One of pipes uncapped.

Notes:

CI = cast iron

ft = feet

PVC = polyvinyl chloride

RETEC = Remediation Technologies, Inc.

**TABLE 2
GROUNDWATER ANALYTICAL RESULTS**

SHANNON & WILSON, INC.

Sample ID:	MW-6	MW-7	MW-8	MW-9	MW-101	MW-105	SCS-1	Dup 1	Sample Blank	MTCA Method A GW Cleanup Criteria	MTCA Method B GW Cleanup Criteria
Sample Date:	3/24/2011	3/24/2011	3/25/2011	3/25/2011	3/25/2011	3/25/2011	3/24/2011	3/25/2011	3/25/2011		
Petroleum and BTEX (ug/L)											
Gasoline-range Hydrocarbons	6,800	4,900	< 100	< 100	7,500	4,200	670	7,500	NM	1,000/800 ⁽¹⁾	*
Diesel-range Hydrocarbons	< 3,700 U1	< 3,200 U1	< 260	< 260	< 4,500 U1	< 1,700 U1	< 370 U1, M1	< 4,700 U1	NM	500	*
Heavy Oil-range Hydrocarbons	< 420	< 410	< 200	< 410	< 420	< 440	< 450	< 410	NM	500	*
Benzene	180	20	< 0.2	< 0.2	19	460	1.2	18	< 0.2	5	*
Toluene	< 5.0	< 2.0	< 1.0	< 1.0	< 10	< 20	< 1.0	< 10	< 1.0	1,000	*
Ethylbenzene	120	22	< 0.2	< 0.2	88	230	< 0.2	88	< 0.2	700	*
Xylenes	20.1	9.3	< 0.4	< 0.4	5.5	78.2	3	5.4	< 0.4	1,000	*
Volatile Compounds (ug/L)⁽²⁾											
Vinyl Chloride	< 1.0	< 0.4	< 0.2	0.42	< 2.0	< 4.0	< 0.2	< 2.0	< 0.2	0.2	0.029
Acetone	< 25	< 10	< 5.0	< 5.0	< 50	< 100	5	< 50	< 5.0	*	800
Methylene Chloride	< 5.0	< 2.0	< 1.0	< 1.0	< 10	< 20	< 1.0	< 10	9.5	5	*
Methyl t-Butyl Ether	< 1.0	< 0.4	< 0.2	< 0.2	< 2.0	< 4.0	3.2	< 2.0	< 0.2	20	24
Chloroform	< 1.0	1.3 B	< 0.2	< 0.2	< 2.0	< 4.0	0.83 B	< 2.0	0.98	*	80
Isopropylbenzene	75	43	< 0.2	< 0.2	73	67	5.8	74	< 0.2	*	800
n-Propylbenzene	170	96	< 0.2	< 0.2	220	120	5.9	230	< 0.2	*	*
1,3,5-Trimethylbenzene	5	1	< 0.2	< 0.2	< 2.0	16	< 0.2	< 2.0	< 0.2	*	400
1,2,4-Trimethylbenzene	12	1.4	< 0.2	< 0.2	2.7	5.3	< 0.2	2.6	< 0.2	*	400
sec-Butylbenzene	10	6.8	< 0.2	< 0.2	18	< 4.0	0.77	19	< 0.2	*	*
n-Butylbenzene	< 1.0	19	< 0.2	< 0.2	< 2.0	< 4.0	< 0.2	< 2.0	< 0.2	*	*
Naphthalene	310	7	< 1.0	< 1.0	61	< 20	< 1.0	63	< 1.0	160	*
RCRA 8 Metals - Total / Dissolved (ug/L)											
Arsenic	< 3.3 / < 3.0	4.7 / < 3.0	3.7 / 4.5	8.8 / 9.1	< 3.3 / < 3.0	35 / 27	7.1 / 4.3	< 3.3 / < 3.0	NM	5	*
Barium	430 / 310	810 / 630	60 / 60	170 / 88	300 / 250	180 / 96	630 / 450	300 / 230	NM	*	3,200
Cadmium	< 4.4 / < 4.0	< 4.4 / < 4.0	< 4.4 / < 4.0	< 4.4 / < 4.0	< 4.4 / < 4.0	< 4.4 / < 4.0	< 4.4 / < 4.0	< 4.4 / < 4.0	NM	5	*
Chromium	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	NM	50	*
Lead	2.6 / < 1.0	4 / < 1.0	< 1.1 / < 1.0	< 1.1 / < 1.0	< 1.1 / < 1.0	< 1.1 / < 1.0	< 1.1 / < 1.0	< 1.1 / < 1.0	NM	15	*
Mercury	< 0.5 / < 0.5	< 0.5 / < 0.5	< 0.5 / < 0.5	< 0.5 / < 0.5	< 0.5 / < 0.5	< 0.5 / < 0.5	< 0.5 / < 0.5	< 0.5 / < 0.5	NM	2	*
Selenium	< 5.6 / < 5.0	< 5.6 / < 5.0	< 5.6 / < 5.0	< 5.6 / < 5.0	< 5.6 / < 5.0	< 5.6 / < 5.0	< 5.6 / < 5.0	< 5.6 / < 5.0	NM	*	80
Silver	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	< 11 / < 10	NM	*	80

Notes:

⁽¹⁾ Criteria is 1,000 parts per billion (ppb) if benzene is not present, 800 ppb if present.

⁽²⁾ Only detected analytes shown.

< = Analyte not detected above practical quantitation limit shown.

Bold = Analyte detected

Highlighted = Analyte detected above cleanup criteria.

B = Analyte detected in sample blank

BTEX = benzene, toluene, ethylbenzene, and xylenes

GW = groundwater

IND = insufficient data

M1 = Hydrocarbons in gasoline range (toluene-naphthalene) present in sample.

MTCA = Model Toxics Control Act

NM = not measured

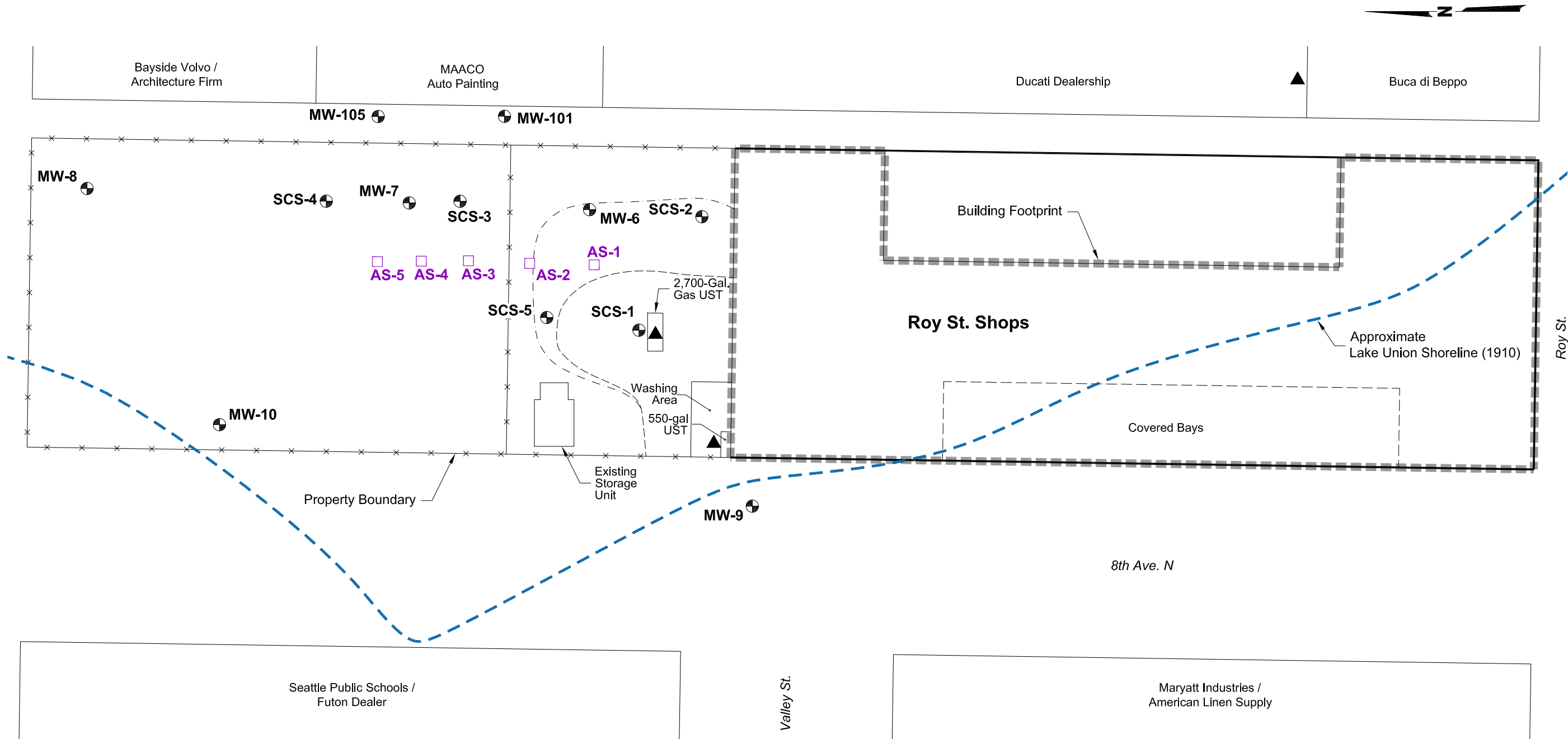
RCRA = Resource Conservation and Recovery Act

SW = surface water

U1 = Practical quantitation limit elevated due to interferences present in sample.

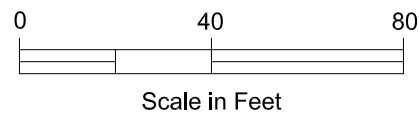
ug/L = micrograms per liter

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LEGEND

- MW-6** Monitoring Well Designation and Approximate Location
- UST Removed
- AS-1** Former Remediation System Vault Designation and Approximate Location
- Approximate Extent of PCS Excavation
- Approximate Extent of UST Excavation
- Fence



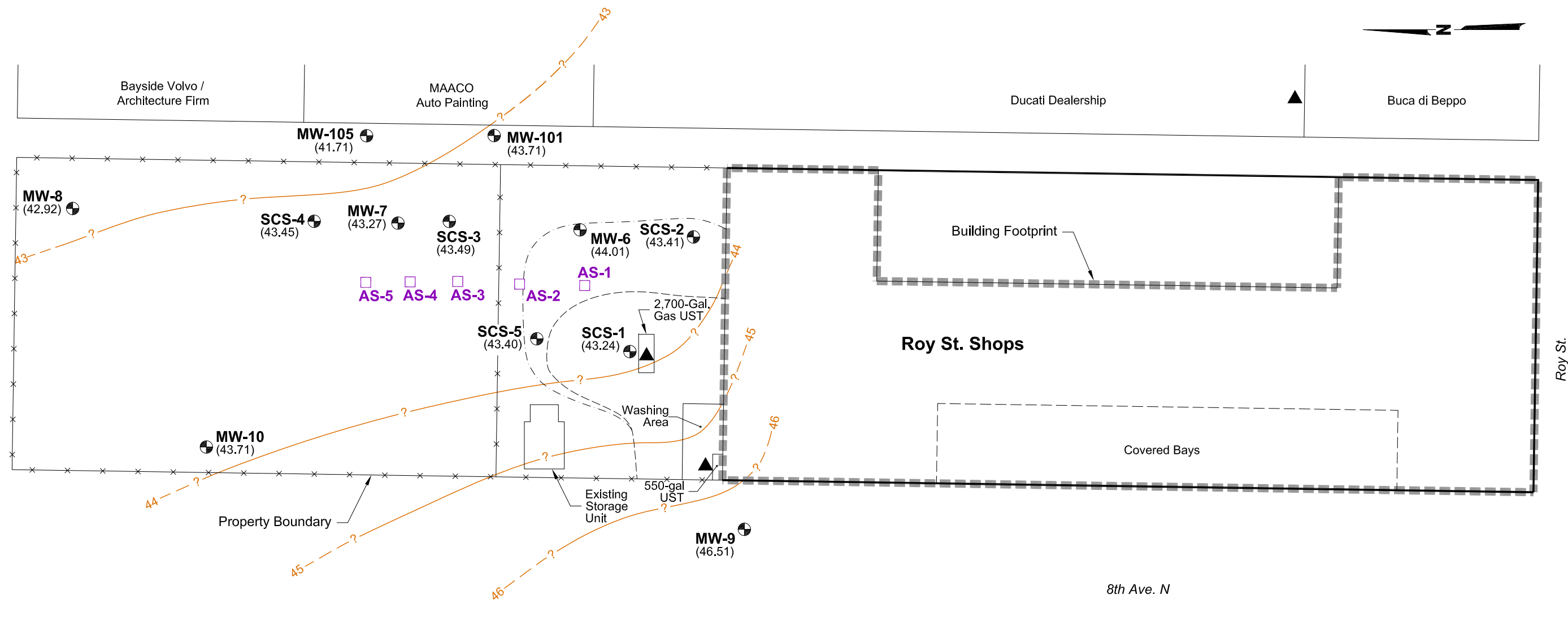
NOTE

Boring locations adapted from Urban Redevelopment, Inc. 2002 explorations, SCS Engineers 1996 remediation as-built plans, and site reconnaissance.



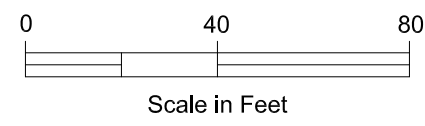
Seattle City Light 8th & Roy St. Current Conditions Seattle, Washington	
SITE PLAN	
June 2011	21-1-12305-031
SHANNON & WILSON, INC. <small>Geotechnical and Environmental Consultants</small>	FIG. 1

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LEGEND

- MW-6** (44.01) Monitoring Well Designation and Approximate Location
- Groundwater Elevation
- UST Removed
- AS-1** Former Remediation System Vault Designation and Approximate Location
- Approximate Extent of PCS Excavation
- Approximate Extent of UST Excavation
- Fence
- 43** Approximate Groundwater Contour and Elevation

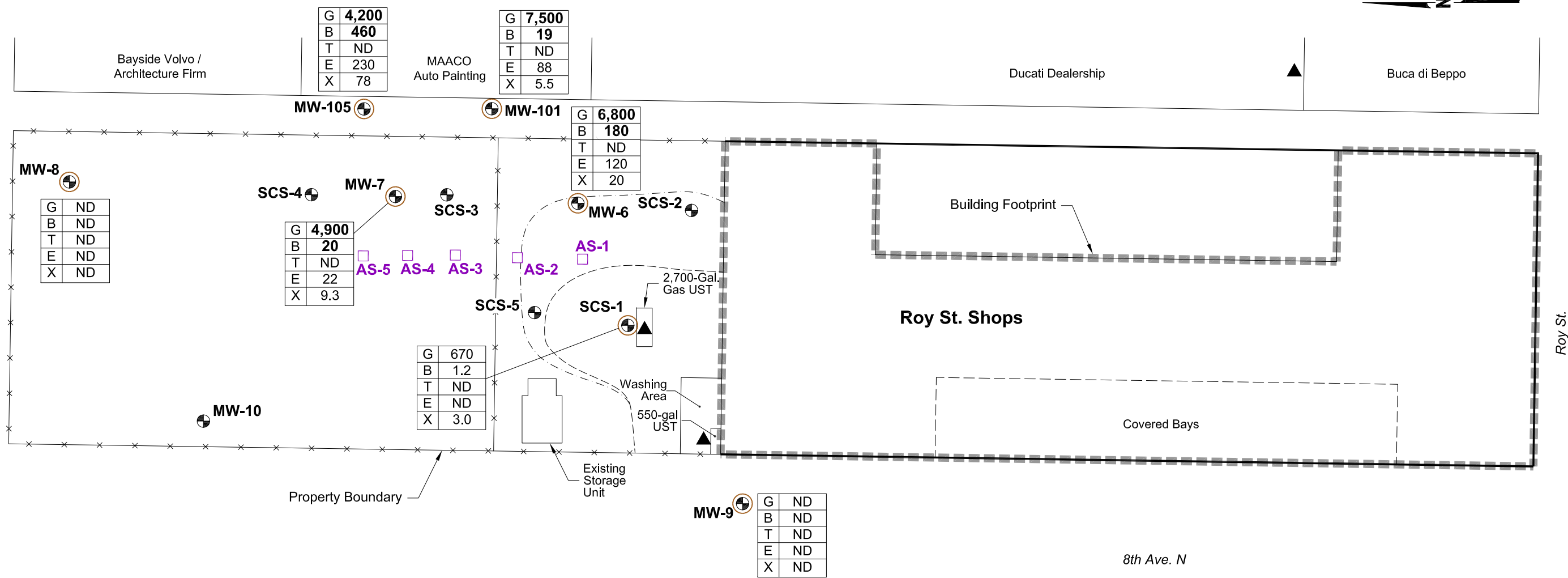


NOTES

1. Boring locations adapted from Urban Redevelopment, Inc. 2002 explorations, SCS Engineers 1996 remediation as-built plans, and site reconnaissance.
2. Surface elevations for MW-6 through MW-10 are based on RETEC 1995 boring logs; all other wells and vaults were measured relative to these elevations for estimating groundwater elevations.

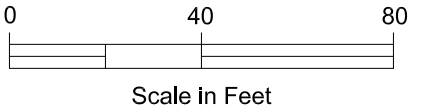
Seattle City Light 8th & Roy St. Current Conditions Seattle, Washington	
GROUNDWATER CONTOUR MAP	
June 2011	21-1-12305-031
SHANNON & WILSON, INC. <small>Geotechnical and Environmental Consultants</small>	FIG. 2

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LEGEND

- MW-6** Monitoring Well Designation and Approximate Location
- UST Removed
- AS-1** Former Remediation System Vault Designation and Approximate Location
- Approximate Extent of PCS Excavation
- Approximate Extent of UST Excavation
- Fence
- Groundwater Sampling Locations
- G** Gasoline-Range Hydrocarbons
- B** Benzene
- T** Toluene
- E** Ethylbenzene
- X** Xylenes
- MTCA** Model Toxics Control Act
- 4,200** Detected Value (in bold text) Exceeds MTCA Method A Criterion
- ND** Not Detected



NOTES

1. Boring locations adapted from Urban Redevelopment, Inc. 2002 explorations, SCS Engineers 1996 remediation as-built plans, and site reconnaissance.
2. All concentration units are in $\mu\text{g/L}$.

Seattle City Light
8th & Roy St. Current Conditions
Seattle, Washington

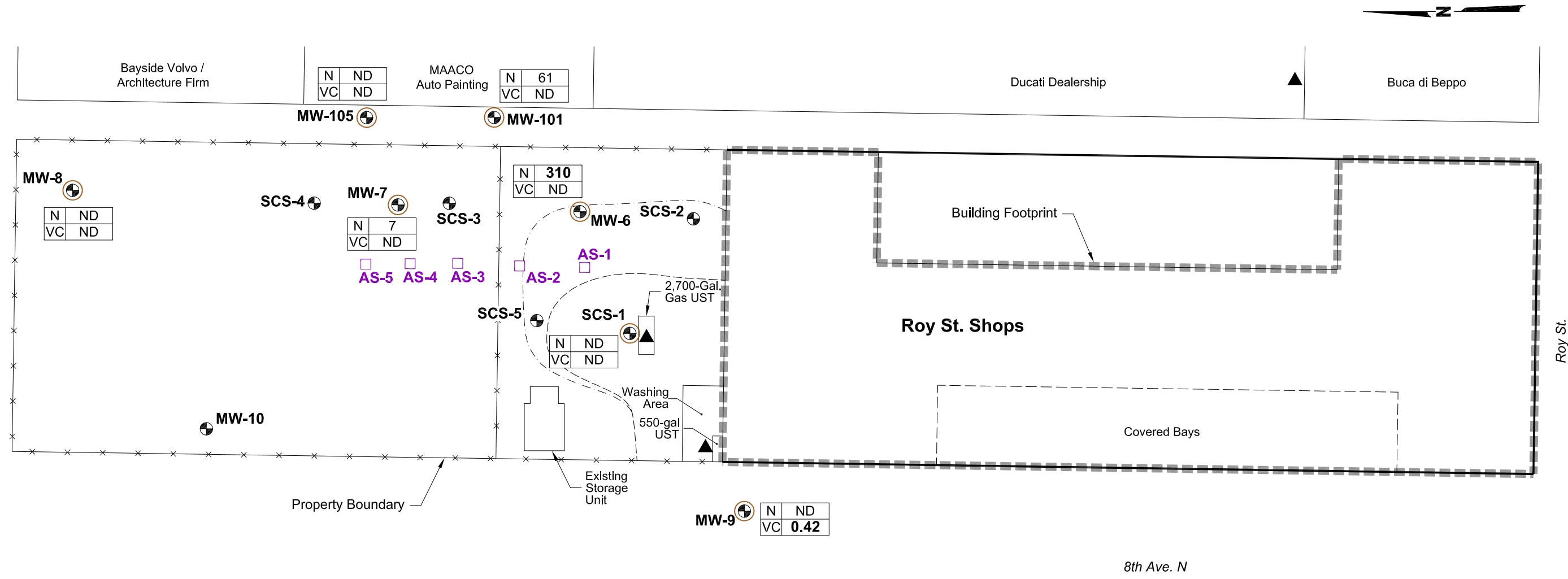
**TPH-G AND BENZENE
CONCENTRATIONS IN
GROUNDWATER**

June 2011 21-1-12305-031

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

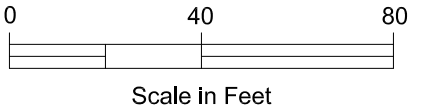
FIG. 3

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LEGEND

- | | | | |
|-------------|--|------------|---|
| MW-6 | Monitoring Well Designation and Approximate Location | N | Napthalene |
| | UST Removed | VC | Vinyl Chloride |
| AS-1 | Former Remediation System Vault Designation and Approximate Location | MTCA | Model Toxics Control Act |
| - - - - - | Approximate Extent of PCS Excavation | 310 | Detected Value (in bold text) Exceeds MTCA Method A Criterion |
| - - - - - | Approximate Extent of UST Excavation | ND | Not Detected |
| - x - x - | Fence | | |
| | Groundwater Sampling Locations | | |



NOTES

- Boring locations adapted from Urban Redevelopment, Inc. 2002 explorations, SCS Engineers 1996 remediation as-built plans, and site reconnaissance.
- All concentration units are in $\mu\text{g/L}$.

Seattle City Light
8th & Roy St. Current Conditions
Seattle, Washington

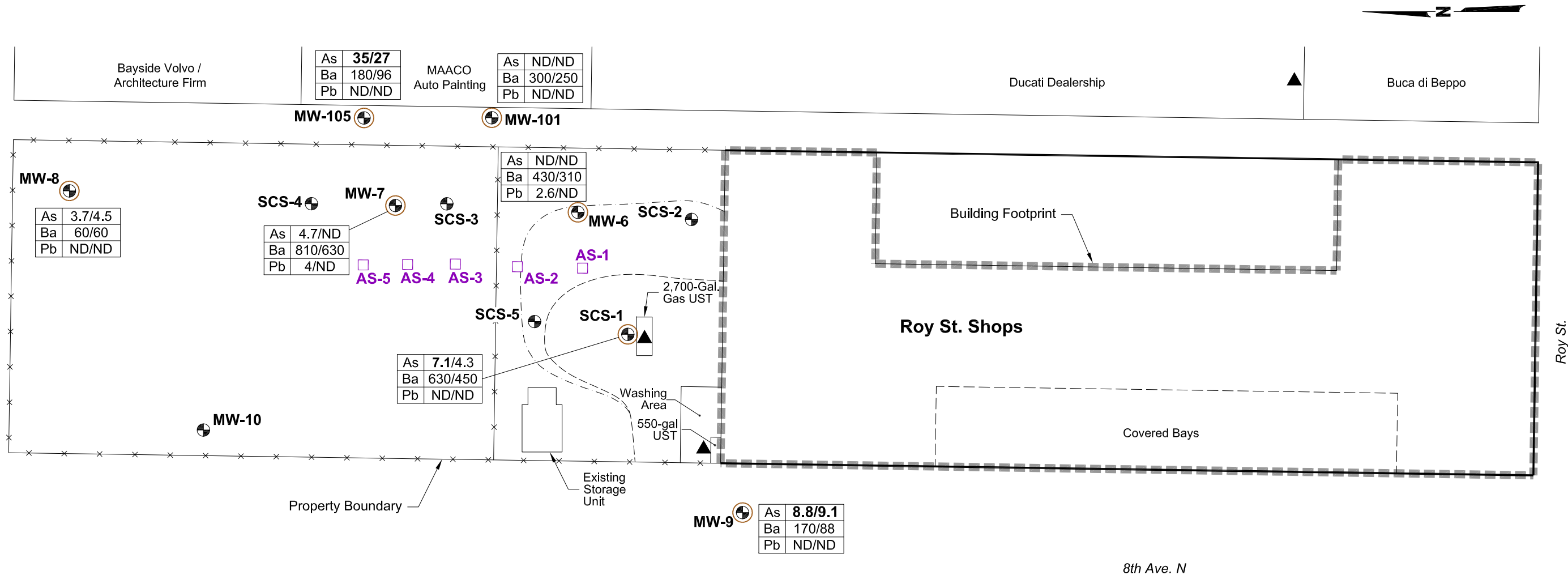
**VOC CONCENTRATIONS
IN GROUNDWATER**

June 2011 21-1-12305-031

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

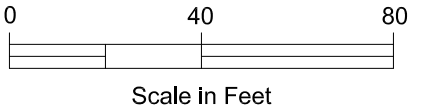
FIG. 4

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LEGEND

- MW-6** Monitoring Well Designation and Approximate Location
- UST Removed
- AS-1** Former Remediation System Vault Designation and Approximate Location
- Approximate Extent of PCS Excavation
- Approximate Extent of UST Excavation
- Fence
- Groundwater Sampling Locations
- As Arsenic
- Ba Barium
- Pb Lead
- MTCA Model Toxics Control Act
- 8.8** Detected Value (in bold text) Exceeds MTCA Method A Criterion
- 35/27 Total/Dissolved
- ND Not Detected



NOTES

- Boring locations adapted from Urban Redevelopment, Inc. 2002 explorations, SCS Engineers 1996 remediation as-built plans, and site reconnaissance.
- All concentration units are in $\mu\text{g/L}$.

Seattle City Light
8th & Roy St. Current Conditions
Seattle, Washington

**METALS CONCENTRATIONS
IN GROUNDWATER**

June 2011 21-1-12305-031

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Geotechnical and Environmental Consultants

FIG. 5

APPENDIX A
LABORATORY ANALYTICAL RESULTS

APPENDIX A

LABORATORY ANALYTICAL RESULTS

TABLE OF CONTENTS

REPORTS

OnSite Environmental Report No. 1103-238 (34 pages)
OnSite Environmental Report No. 1103-247 (47 pages)



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

April 1, 2011

Mark Bryant
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, WA 98103

Re: Analytical Data for Project 21-1-12305-031
Laboratory Reference No. 1103-238

Dear Mark:

Enclosed are the analytical results and associated quality control data for samples submitted on March 25, 2011.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read 'DB', with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

Case Narrative

Samples were collected on March 24, 2011 and received by the laboratory on March 25, 2011. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

NWTPH-Gx

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-6					
Laboratory ID:	03-238-01					
Gasoline	6800	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	<i>106</i>	<i>73-121</i>				
Client ID:	MW-7					
Laboratory ID:	03-238-02					
Gasoline	4900	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	<i>106</i>	<i>73-121</i>				
Client ID:	SCS-1					
Laboratory ID:	03-238-03					
Gasoline	670	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	<i>101</i>	<i>73-121</i>				

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**NWTPH-Gx
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0329W1					
Gasoline	ND	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	84	73-121				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	03-241-01							
	ORIG	DUP						
Gasoline	ND	ND	NA	NA	NA	NA	NA	30
<i>Surrogate:</i>								
<i>Fluorobenzene</i>				85	83	73-121		

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
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 Project: 21-1-12305-031

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-6					
Laboratory ID:	03-238-01					
Diesel Range Organics	ND	3.7	NWTPH-Dx	3-29-11	3-29-11	U1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	98	50-150				
Client ID:	MW-7					
Laboratory ID:	03-238-02					
Diesel Range Organics	ND	3.2	NWTPH-Dx	3-29-11	3-29-11	U1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	94	50-150				

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**NWTPH-Dx
 QUALITY CONTROL
 (with acid/silica gel clean-up)**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0329W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	3-29-11	3-29-11	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	99	50-150				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE						
Laboratory ID:	03-238-01					
	ORIG	DUP				
Diesel Range Organics	ND	ND			NA	NA
Lube Oil Range Organics	ND	ND			NA	NA
<i>Surrogate:</i>						
<i>o-Terphenyl</i>			98	85	50-150	

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 Page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-6					
Laboratory ID:	03-238-01					
CFC-12	ND	1.0	EPA 8260	3-30-11	3-30-11	
Chloromethane	ND	5.0	EPA 8260	3-30-11	3-30-11	
Vinyl Chloride	ND	1.0	EPA 8260	3-30-11	3-30-11	
Bromomethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Chloroethane	ND	5.0	EPA 8260	3-30-11	3-30-11	
CFC-11	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Acetone	ND	25	EPA 8260	3-30-11	3-30-11	
Methyl Iodide	ND	5.0	EPA 8260	3-30-11	3-30-11	
Carbon Disulfide	ND	1.0	EPA 8260	3-30-11	3-30-11	
Methylene Chloride	ND	5.0	EPA 8260	3-30-11	3-30-11	
Trans-1,2-Dichloroethene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Methyl t-Butyl Ether	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Vinyl Acetate	ND	10	EPA 8260	3-30-11	3-30-11	
2,2-Dichloropropane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Cis-1,2-Dichloroethene	ND	1.0	EPA 8260	3-30-11	3-30-11	
2-Butanone	ND	25	EPA 8260	3-30-11	3-30-11	
Bromochloromethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Chloroform	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,1,1-Trichloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Carbon Tetrachloride	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,1-Dichloropropene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Benzene	180	1.0	EPA 8260	3-30-11	3-30-11	
1,2-Dichloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Trichloroethene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2-Dichloropropane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Dibromomethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Dichlorobromomethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
2-Chloroethylvinylether	ND	5.0	EPA 8260	3-30-11	3-30-11	
Cis-1,3-Dichloropropene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Methyl Isobutyl Ketone	ND	10	EPA 8260	3-30-11	3-30-11	
Toluene	ND	5.0	EPA 8260	3-30-11	3-30-11	
Trans-1,3-Dichloropropene	ND	1.0	EPA 8260	3-30-11	3-30-11	

Date of Report: April 1, 2011
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 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-6					
Laboratory ID:	03-238-01					
1,1,2-Trichloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Tetrachloroethene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,3-Dichloropropane	ND	1.0	EPA 8260	3-30-11	3-30-11	
2-Hexanone	ND	10	EPA 8260	3-30-11	3-30-11	
Dibromochloromethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Ethylene dibromide	ND	1.0	EPA 8260	3-30-11	3-30-11	
Chlorobenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,1,1,2-Tetrachloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Ethylbenzene	120	1.0	EPA 8260	3-30-11	3-30-11	
m,p-Xylene	18	2.0	EPA 8260	3-30-11	3-30-11	
o-Xylene	2.1	1.0	EPA 8260	3-30-11	3-30-11	
Styrene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Bromoform	ND	5.0	EPA 8260	3-30-11	3-30-11	
Isopropylbenzene	75	1.0	EPA 8260	3-30-11	3-30-11	
Bromobenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,1,2,2-Tetrachloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2,3-Trichloropropane	ND	1.0	EPA 8260	3-30-11	3-30-11	
n-Propylbenzene	170	1.0	EPA 8260	3-30-11	3-30-11	
2-Chlorotoluene	ND	1.0	EPA 8260	3-30-11	3-30-11	
4-Chlorotoluene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,3,5-Trimethylbenzene	5.0	1.0	EPA 8260	3-30-11	3-30-11	
tert-Butylbenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2,4-Trimethylbenzene	12	1.0	EPA 8260	3-30-11	3-30-11	
sec-Butylbenzene	10	1.0	EPA 8260	3-30-11	3-30-11	
1,3-Dichlorobenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
p-Isopropyltoluene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,4-Dichlorobenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2-Dichlorobenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
n-Butylbenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2-Dibromo-3-chloropropane	ND	5.0	EPA 8260	3-30-11	3-30-11	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Hexachlorobutadiene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Naphthalene	310	50	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	1.0	EPA 8260	3-30-11	3-30-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>83</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>88</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>84</i>	<i>65-104</i>				

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VOLATILES by EPA 8260B
 Page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-7					
Laboratory ID:	03-238-02					
CFC-12	ND	0.40	EPA 8260	3-30-11	3-30-11	
Chloromethane	ND	2.0	EPA 8260	3-30-11	3-30-11	
Vinyl Chloride	ND	0.40	EPA 8260	3-30-11	3-30-11	
Bromomethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Chloroethane	ND	2.0	EPA 8260	3-30-11	3-30-11	
CFC-11	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethene	ND	0.40	EPA 8260	3-30-11	3-30-11	
Acetone	ND	10	EPA 8260	3-30-11	3-30-11	
Methyl Iodide	ND	2.0	EPA 8260	3-30-11	3-30-11	
Carbon Disulfide	ND	0.40	EPA 8260	3-30-11	3-30-11	
Methylene Chloride	ND	2.0	EPA 8260	3-30-11	3-30-11	
Trans-1,2-Dichloroethene	ND	0.40	EPA 8260	3-30-11	3-30-11	
Methyl t-Butyl Ether	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Vinyl Acetate	ND	4.0	EPA 8260	3-30-11	3-30-11	
2,2-Dichloropropane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Cis-1,2-Dichloroethene	ND	0.40	EPA 8260	3-30-11	3-30-11	
2-Butanone	ND	10	EPA 8260	3-30-11	3-30-11	
Bromochloromethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Chloroform	1.3	0.40	EPA 8260	3-30-11	3-30-11	
1,1,1-Trichloroethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Carbon Tetrachloride	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,1-Dichloropropene	ND	0.40	EPA 8260	3-30-11	3-30-11	
Benzene	20	0.40	EPA 8260	3-30-11	3-30-11	
1,2-Dichloroethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Trichloroethene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,2-Dichloropropane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Dibromomethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Dichlorobromomethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
2-Chloroethylvinylether	ND	2.0	EPA 8260	3-30-11	3-30-11	
Cis-1,3-Dichloropropene	ND	0.40	EPA 8260	3-30-11	3-30-11	
Methyl Isobutyl Ketone	ND	4.0	EPA 8260	3-30-11	3-30-11	
Toluene	ND	2.0	EPA 8260	3-30-11	3-30-11	
Trans-1,3-Dichloropropene	ND	0.40	EPA 8260	3-30-11	3-30-11	

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VOLATILES by EPA 8260B
 Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-7					
Laboratory ID:	03-238-02					
1,1,2-Trichloroethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Tetrachloroethene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,3-Dichloropropane	ND	0.40	EPA 8260	3-30-11	3-30-11	
2-Hexanone	ND	4.0	EPA 8260	3-30-11	3-30-11	
Dibromochloromethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Ethylene dibromide	ND	0.40	EPA 8260	3-30-11	3-30-11	
Chlorobenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,1,1,2-Tetrachloroethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
Ethylbenzene	22	0.40	EPA 8260	3-30-11	3-30-11	
m,p-Xylene	8.1	0.80	EPA 8260	3-30-11	3-30-11	
o-Xylene	1.2	0.40	EPA 8260	3-30-11	3-30-11	
Styrene	ND	0.40	EPA 8260	3-30-11	3-30-11	
Bromoform	ND	2.0	EPA 8260	3-30-11	3-30-11	
Isopropylbenzene	43	0.40	EPA 8260	3-30-11	3-30-11	
Bromobenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,1,2,2-Tetrachloroethane	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,2,3-Trichloropropane	ND	0.40	EPA 8260	3-30-11	3-30-11	
n-Propylbenzene	96	2.0	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	0.40	EPA 8260	3-30-11	3-30-11	
4-Chlorotoluene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,3,5-Trimethylbenzene	1.0	0.40	EPA 8260	3-30-11	3-30-11	
tert-Butylbenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,2,4-Trimethylbenzene	1.4	0.40	EPA 8260	3-30-11	3-30-11	
sec-Butylbenzene	6.8	0.40	EPA 8260	3-30-11	3-30-11	
1,3-Dichlorobenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
p-Isopropyltoluene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,4-Dichlorobenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
1,2-Dichlorobenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
n-Butylbenzene	19	0.40	EPA 8260	3-30-11	3-30-11	
1,2-Dibromo-3-chloropropane	ND	2.0	EPA 8260	3-30-11	3-30-11	
1,2,4-Trichlorobenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
Hexachlorobutadiene	ND	0.40	EPA 8260	3-30-11	3-30-11	
Naphthalene	7.0	2.0	EPA 8260	3-30-11	3-30-11	
1,2,3-Trichlorobenzene	ND	0.40	EPA 8260	3-30-11	3-30-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>88</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>92</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>89</i>	<i>65-104</i>				

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 Page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SCS-1					
Laboratory ID:	03-238-03					
CFC-12	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chloromethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Vinyl Chloride	ND	0.20	EPA 8260	3-30-11	3-30-11	
Bromomethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
CFC-11	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Acetone	5.0	5.0	EPA 8260	3-30-11	3-30-11	
Methyl Iodide	ND	1.0	EPA 8260	3-30-11	3-30-11	
Carbon Disulfide	ND	0.20	EPA 8260	3-30-11	3-30-11	
Methylene Chloride	ND	1.0	EPA 8260	3-30-11	3-30-11	
Trans-1,2-Dichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Methyl t-Butyl Ether	3.2	0.20	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Vinyl Acetate	ND	2.0	EPA 8260	3-30-11	3-30-11	
2,2-Dichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Cis-1,2-Dichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
2-Butanone	ND	5.0	EPA 8260	3-30-11	3-30-11	
Bromochloromethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chloroform	0.83	0.20	EPA 8260	3-30-11	3-30-11	
1,1,1-Trichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Carbon Tetrachloride	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1-Dichloropropene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Benzene	1.2	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Trichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Dibromomethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Dichlorobromomethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
2-Chloroethylvinylether	ND	1.0	EPA 8260	3-30-11	3-30-11	
Cis-1,3-Dichloropropene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260	3-30-11	3-30-11	
Toluene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Trans-1,3-Dichloropropene	ND	0.20	EPA 8260	3-30-11	3-30-11	

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	SCS-1					
Laboratory ID:	03-238-03					
1,1,2-Trichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Tetrachloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,3-Dichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
2-Hexanone	ND	2.0	EPA 8260	3-30-11	3-30-11	
Dibromochloromethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Ethylene dibromide	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Ethylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
m,p-Xylene	2.3	0.40	EPA 8260	3-30-11	3-30-11	
o-Xylene	0.70	0.20	EPA 8260	3-30-11	3-30-11	
Styrene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Bromoform	ND	1.0	EPA 8260	3-30-11	3-30-11	
Isopropylbenzene	5.8	0.20	EPA 8260	3-30-11	3-30-11	
Bromobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2,3-Trichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
n-Propylbenzene	5.9	0.20	EPA 8260	3-30-11	3-30-11	
2-Chlorotoluene	ND	0.20	EPA 8260	3-30-11	3-30-11	
4-Chlorotoluene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
tert-Butylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
sec-Butylbenzene	0.77	0.20	EPA 8260	3-30-11	3-30-11	
1,3-Dichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
p-Isopropyltoluene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,4-Dichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
n-Butylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Hexachlorobutadiene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Naphthalene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>83</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>88</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>82</i>	<i>65-104</i>				

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL

Page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0330W1					
CFC-12	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chloromethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
Vinyl Chloride	ND	0.20	EPA 8260	3-30-11	3-30-11	
Bromomethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chloroethane	ND	1.0	EPA 8260	3-30-11	3-30-11	
CFC-11	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Acetone	ND	5.0	EPA 8260	3-30-11	3-30-11	
Methyl Iodide	ND	1.0	EPA 8260	3-30-11	3-30-11	
Carbon Disulfide	ND	0.20	EPA 8260	3-30-11	3-30-11	
Methylene Chloride	ND	1.0	EPA 8260	3-30-11	3-30-11	
Trans-1,2-Dichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Methyl t-Butyl Ether	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1-Dichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Vinyl Acetate	ND	2.0	EPA 8260	3-30-11	3-30-11	
2,2-Dichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Cis-1,2-Dichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
2-Butanone	ND	5.0	EPA 8260	3-30-11	3-30-11	
Bromochloromethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chloroform	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1,1-Trichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Carbon Tetrachloride	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1-Dichloropropene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Benzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Trichloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Dibromomethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Dichlorobromomethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
2-Chloroethylvinylether	ND	1.0	EPA 8260	3-30-11	3-30-11	
Cis-1,3-Dichloropropene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260	3-30-11	3-30-11	
Toluene	ND	1.0	EPA 8260	3-30-11	3-30-11	
Trans-1,3-Dichloropropene	ND	0.20	EPA 8260	3-30-11	3-30-11	

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
 Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0330W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Tetrachloroethene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,3-Dichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
2-Hexanone	ND	2.0	EPA 8260	3-30-11	3-30-11	
Dibromochloromethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Ethylene dibromide	ND	0.20	EPA 8260	3-30-11	3-30-11	
Chlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
Ethylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
m,p-Xylene	ND	0.40	EPA 8260	3-30-11	3-30-11	
o-Xylene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Styrene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Bromoform	ND	1.0	EPA 8260	3-30-11	3-30-11	
Isopropylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Bromobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2,3-Trichloropropane	ND	0.20	EPA 8260	3-30-11	3-30-11	
n-Propylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
2-Chlorotoluene	ND	0.20	EPA 8260	3-30-11	3-30-11	
4-Chlorotoluene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
tert-Butylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
sec-Butylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,3-Dichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
p-Isopropyltoluene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,4-Dichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
n-Butylbenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Hexachlorobutadiene	ND	0.20	EPA 8260	3-30-11	3-30-11	
Naphthalene	ND	1.0	EPA 8260	3-30-11	3-30-11	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260	3-30-11	3-30-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>80</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>85</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>82</i>	<i>65-104</i>				

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL

Page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0331W1					
CFC-12	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Acetone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	1.0	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	2.0	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroform	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Benzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	1.0	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Toluene	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
 Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:		MB0331W1				
1,1,2-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	ND	0.40	EPA 8260	3-31-11	3-31-11	
o-Xylene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Styrene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	1.0	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Naphthalene	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>82</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>86</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>84</i>	<i>65-104</i>				

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
SB/SBD QUALITY CONTROL

Matrix: Water
 Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery	RPD	RPD	Flags
					Recovery	Limits	RPD	Limit		
SPIKE BLANKS										
Laboratory ID:	SB0330W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	9.84	9.48	10.0	10.0	98	95	70-130	4	11	
Benzene	9.58	9.32	10.0	10.0	96	93	79-123	3	8	
Trichloroethene	9.67	9.30	10.0	10.0	97	93	82-113	4	9	
Toluene	9.75	9.43	10.0	10.0	98	94	84-113	3	8	
Chlorobenzene	10.2	9.88	10.0	10.0	102	99	89-111	3	8	
<i>Surrogate:</i>										
<i>Dibromofluoromethane</i>					81	80	68-107			
<i>Toluene-d8</i>					85	85	73-102			
<i>Benzene, 1-bromo-4-fluoro-</i>					81	83	65-104			

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

**VOLATILES by EPA 8260B
 SB/SBD QUALITY CONTROL**

Matrix: Water
 Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery	RPD	RPD	Flags
					Recovery	Limits	RPD	Limit		
SPIKE BLANKS										
Laboratory ID:	SB0331W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	9.66	9.84	10.0	10.0	97	98	70-130	2	11	
Benzene	9.52	9.76	10.0	10.0	95	98	79-123	2	8	
Trichloroethene	9.65	9.67	10.0	10.0	97	97	82-113	0	9	
Toluene	9.69	9.85	10.0	10.0	97	99	84-113	2	8	
Chlorobenzene	9.94	10.2	10.0	10.0	99	102	89-111	3	8	
<i>Surrogate:</i>										
					84	85	68-107			
					90	89	73-102			
					85	86	65-104			

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8/7470A**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-238-01					
Client ID:	MW-6					
Arsenic	ND	3.3	200.8	3-29-11	3-29-11	
Barium	430	28	200.8	3-29-11	3-29-11	
Cadmium	ND	4.4	200.8	3-29-11	3-29-11	
Chromium	ND	11	200.8	3-29-11	3-29-11	
Lead	2.6	1.1	200.8	3-29-11	3-29-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-29-11	3-29-11	
Silver	ND	11	200.8	3-29-11	3-29-11	

Lab ID:	03-238-02					
Client ID:	MW-7					
Arsenic	4.7	3.3	200.8	3-29-11	3-29-11	
Barium	810	28	200.8	3-29-11	3-29-11	
Cadmium	ND	4.4	200.8	3-29-11	3-29-11	
Chromium	ND	11	200.8	3-29-11	3-29-11	
Lead	4.0	1.1	200.8	3-29-11	3-29-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-29-11	3-29-11	
Silver	ND	11	200.8	3-29-11	3-29-11	

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL**

Date Extracted: 3-29-11
Date Analyzed: 3-29-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0329W2

Analyte	Method	Result	PQL
Arsenic	200.8	ND	3.3
Barium	200.8	ND	28
Cadmium	200.8	ND	4.4
Chromium	200.8	ND	11
Lead	200.8	ND	1.1
Selenium	200.8	ND	5.6
Silver	200.8	ND	11

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**TOTAL METALS
EPA 7470A
METHOD BLANK QUALITY CONTROL**

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: MB0330W1

Analyte	Method	Result	PQL
Mercury	7470A	ND	0.50

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8
 DUPLICATE QUALITY CONTROL**

Date Extracted: 3-29-11

Date Analyzed: 3-29-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-229-04

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	17.1	16.6	3	3.3	
Barium	ND	ND	NA	28	
Cadmium	ND	ND	NA	4.4	
Chromium	ND	ND	NA	11	
Lead	2.93	2.83	3	1.1	
Selenium	ND	ND	NA	5.6	
Silver	ND	ND	NA	11	

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**TOTAL METALS
EPA 7470A
DUPLICATE QUALITY CONTROL**

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	ND	ND	NA	0.50	

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8
 MS/MSD QUALITY CONTROL**

Date Extracted: 3-29-11

Date Analyzed: 3-29-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-229-04

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	131	104	132	104	0	
Barium	110	127	115	127	115	0	
Cadmium	110	110	100	113	103	3	
Chromium	110	106	96	107	97	1	
Lead	110	119	105	121	107	2	
Selenium	110	123	112	125	113	2	
Silver	110	107	97	110	100	3	

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**TOTAL METALS
EPA 7470A
MS/MSD QUALITY CONTROL**

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	12.5	11.4	92	11.5	92	1	

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date	Date	Flags
				Prepared	Analyzed	
Lab ID:	03-238-01					
Client ID:	MW-6					
Arsenic	ND	3.0	200.8	3-25-11	3-29-11	
Barium	310	25	200.8	3-25-11	3-29-11	
Cadmium	ND	4.0	200.8	3-25-11	3-29-11	
Chromium	ND	10	200.8	3-25-11	3-29-11	
Lead	ND	1.0	200.8	3-25-11	3-29-11	
Mercury	ND	0.50	7470A	3-25-11	3-30-11	
Selenium	ND	5.0	200.8	3-25-11	3-29-11	
Silver	ND	10	200.8	3-25-11	3-29-11	

Lab ID:	03-238-02					
Client ID:	MW-7					
Arsenic	ND	3.0	200.8	3-25-11	3-29-11	
Barium	630	25	200.8	3-25-11	3-29-11	
Cadmium	ND	4.0	200.8	3-25-11	3-29-11	
Chromium	ND	10	200.8	3-25-11	3-29-11	
Lead	ND	1.0	200.8	3-25-11	3-29-11	
Mercury	ND	0.50	7470A	3-25-11	3-30-11	
Selenium	ND	5.0	200.8	3-25-11	3-29-11	
Silver	ND	10	200.8	3-25-11	3-29-11	

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL**

Date Filtered: 3-25-11
Date Analyzed: 3-29-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325F1

Analyte	Method	Result	PQL
Arsenic	200.8	ND	3.0
Barium	200.8	ND	25
Cadmium	200.8	ND	4.0
Chromium	200.8	ND	10
Lead	200.8	ND	1.0
Selenium	200.8	ND	5.0
Silver	200.8	ND	10

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 7470A
METHOD BLANK QUALITY CONTROL**

Date Filtered: 3-25-11
Date Analyzed: 3-30-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325F1

Analyte	Method	Result	PQL
Mercury	7470A	ND	0.50

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

**DISSOLVED METALS
 EPA 200.8
 DUPLICATE QUALITY CONTROL**

Date Filtered: 3-24-11
 Date Analyzed: 3-29-11

 Matrix: Water
 Units: ug/L (ppb)

 Lab ID: 03-220-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	21.5	22.0	2	3.0	
Barium	32.2	32.6	1	25	
Cadmium	ND	ND	NA	4.0	
Chromium	ND	ND	NA	10	
Lead	ND	ND	NA	1.0	
Selenium	ND	ND	NA	5.0	
Silver	ND	ND	NA	10	

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 7470A
DUPLICATE QUALITY CONTROL**

Date Filtered: 3-24-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	ND	ND	NA	0.50	

Date of Report: April 1, 2011
 Samples Submitted: March 25, 2011
 Laboratory Reference: 1103-238
 Project: 21-1-12305-031

**DISSOLVED METALS
 EPA 200.8
 MS/MSD QUALITY CONTROL**

Date Filtered: 3-24-11

Date Analyzed: 3-29-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-220-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	236	107	233	106	1	
Barium	200	231	99	228	98	1	
Cadmium	200	206	103	204	102	1	
Chromium	200	187	94	190	95	2	
Lead	200	209	104	204	102	2	
Selenium	200	222	111	224	112	1	
Silver	200	197	99	200	100	1	

Date of Report: April 1, 2011
Samples Submitted: March 25, 2011
Laboratory Reference: 1103-238
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 7470A
MS/MSD QUALITY CONTROL**

Date Filtered: 3-24-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	12.5	11.5	92	11.3	90	1	



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- Y - Sample extract treated with an acid/silica gel cleanup procedure.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



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Chain of Custody

Turnaround Request
(in working days)
(Check One)

Same Day 1 Day

2 Days 3 Days

Standard (7 Days)
(TPH analysis 5 Days)

(other)

Laboratory Number:

Total and dissolved*
←

Page 1 of 1
03-238

Company: **Shannon + Wilson**
Project Number: **21-1-12305-031**
Project Name: **521 8th + Ray St. Property**
Project Manager: **Mark Bryant**
Sampled by: **Michael Reynolds**

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	Laboratory Number:											% Moisture					
1	MW-6	3/24/11	1220	water	10	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664		
2	MW-7	3/24/11	1600	water	10														X			
3	SCS-1	3/24/11	1340	water	6		X			X												
Comments/Special Instructions																						

Signature	Company	Date	Time	Laboratory Number:											% Moisture							
	Shannon + Wilson	3/24/11	1815																			
	OSW	3/25/11	1157																			

* Lab Filter

Relinquished
Received
Relinquished
Received
Relinquished
Received
Reviewed/Date

Reviewed/Date

Chromatograms with final report



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

April 5, 2011

Mark Bryant
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, WA 98103

Re: Analytical Data for Project 21-1-12305-031
Laboratory Reference No. 1103-247

Dear Mark:

Enclosed are the analytical results and associated quality control data for samples submitted on March 26, 2011.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal flourish extending to the right.

David Baumeister
Project Manager

Enclosures

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

Case Narrative

Samples were collected on March 25, 2011 and received by the laboratory on March 26, 2011. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

NWTPH-Gx

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-8					
Laboratory ID:	03-247-01					
Gasoline	ND	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	81	73-121				
Client ID:	MW-105					
Laboratory ID:	03-247-02					
Gasoline	4200	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	86	73-121				
Client ID:	MW-101					
Laboratory ID:	03-247-03					
Gasoline	7500	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	82	73-121				
Client ID:	MW-9					
Laboratory ID:	03-247-04					
Gasoline	ND	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	82	73-121				
Client ID:	Dup-1					
Laboratory ID:	03-247-05					
Gasoline	7500	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	85	73-121				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**NWTPH-Gx
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0329W4					
Gasoline	ND	100	NWTPH-Gx	3-29-11	3-29-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Fluorobenzene</i>	95	73-121				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	03-239-01							
	ORIG	DUP						
Gasoline	ND	ND	NA	NA	NA	NA	NA	30
<i>Surrogate:</i>								
<i>Fluorobenzene</i>				83	82	73-121		

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

NWTPH-Dx
(with acid/silica gel clean-up)

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-8					
Laboratory ID:	03-247-01					
Diesel Range Organics	ND	0.26	NWTPH-Dx	3-31-11	3-31-11	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	111	50-150				
Client ID:	MW-105					
Laboratory ID:	03-247-02					
Diesel Range Organics	ND	1.7	NWTPH-Dx	3-31-11	3-31-11	U1
Lube Oil Range Organics	ND	0.44	NWTPH-Dx	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	106	50-150				
Client ID:	MW-101					
Laboratory ID:	03-247-03					
Diesel Range Organics	ND	4.5	NWTPH-Dx	3-31-11	3-31-11	U1
Lube Oil Range Organics	ND	0.42	NWTPH-Dx	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	105	50-150				
Client ID:	MW-9					
Laboratory ID:	03-247-04					
Diesel Range Organics	ND	0.26	NWTPH-Dx	3-31-11	3-31-11	
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	98	50-150				
Client ID:	DUP-1					
Laboratory ID:	03-247-05					
Diesel Range Organics	ND	4.7	NWTPH-Dx	3-31-11	3-31-11	U1
Lube Oil Range Organics	ND	0.41	NWTPH-Dx	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	104	50-150				
Client ID:	SCS-1					
Laboratory ID:	03-247-06					
Diesel Range Organics	ND	0.37	NWTPH-Dx	3-31-11	3-31-11	U1,M1
Lube Oil Range Organics	ND	0.45	NWTPH-Dx	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	106	50-150				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**NWTPH-Dx
 QUALITY CONTROL
 (with acid/silica gel clean-up)**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0331W1					
Diesel Range Organics	ND	0.25	NWTPH-Dx	3-31-11	3-31-11	
Lube Oil Range Organics	ND	0.40	NWTPH-Dx	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	98	50-150				

Analyte	Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE						
Laboratory ID:	03-247-01					
	ORIG	DUP				
Diesel Range Organics	ND	ND		NA	NA	
Lube Oil Range Organics	ND	ND		NA	NA	
<i>Surrogate:</i>						
<i>o-Terphenyl</i>			111 110	50-150		

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-8					
Laboratory ID:	03-247-01					
CFC-12	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Acetone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	1.0	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	2.0	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroform	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Benzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	1.0	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Toluene	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-8					
Laboratory ID:	03-247-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	ND	0.40	EPA 8260	3-31-11	3-31-11	
o-Xylene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Styrene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	1.0	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Naphthalene	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>81</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>86</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>82</i>	<i>65-104</i>				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-105					
Laboratory ID:	03-247-02					
CFC-12	ND	4.0	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	20	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	ND	4.0	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	20	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	4.0	EPA 8260	3-31-11	3-31-11	
Acetone	ND	100	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	20	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	4.0	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	ND	20	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	4.0	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	40	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	4.0	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	100	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Chloroform	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	4.0	EPA 8260	3-31-11	3-31-11	
Benzene	460	4.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	20	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	4.0	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	40	EPA 8260	3-31-11	3-31-11	
Toluene	ND	20	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	4.0	EPA 8260	3-31-11	3-31-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-105					
Laboratory ID:	03-247-02					
1,1,2-Trichloroethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	4.0	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	40	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	4.0	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	230	4.0	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	73	8.0	EPA 8260	3-31-11	3-31-11	
o-Xylene	5.2	4.0	EPA 8260	3-31-11	3-31-11	
Styrene	ND	4.0	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	20	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	67	4.0	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	4.0	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	120	4.0	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	4.0	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	16	4.0	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	5.3	4.0	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	20	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	4.0	EPA 8260	3-31-11	3-31-11	
Naphthalene	ND	20	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	4.0	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>82</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>86</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>85</i>	<i>65-104</i>				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-101					
Laboratory ID:	03-247-03					
CFC-12	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	10	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	ND	2.0	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	10	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Acetone	ND	50	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	10	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	2.0	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	ND	10	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	20	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	50	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chloroform	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Benzene	19	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	10	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	20	EPA 8260	3-31-11	3-31-11	
Toluene	ND	10	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	2.0	EPA 8260	3-31-11	3-31-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-101					
Laboratory ID:	03-247-03					
1,1,2-Trichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	20	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	88	2.0	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	5.5	4.0	EPA 8260	3-31-11	3-31-11	
o-Xylene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Styrene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	10	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	73	2.0	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	220	2.0	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	2.0	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	2.7	2.0	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	18	2.0	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	10	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Naphthalene	61	10	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>83</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>86</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>86</i>	<i>65-104</i>				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-9					
Laboratory ID:	03-247-04					
CFC-12	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	0.42	0.20	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Acetone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	1.0	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	2.0	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroform	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Benzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	1.0	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Toluene	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	MW-9					
Laboratory ID:	03-247-04					
1,1,2-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	ND	0.40	EPA 8260	3-31-11	3-31-11	
o-Xylene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Styrene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	1.0	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Naphthalene	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>84</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>85</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>84</i>	<i>65-104</i>				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	DUP-1					
Laboratory ID:	03-247-05					
CFC-12	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	10	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	ND	2.0	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	10	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Acetone	ND	50	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	10	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	2.0	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	ND	10	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	20	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	50	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chloroform	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Benzene	18	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	10	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	20	EPA 8260	3-31-11	3-31-11	
Toluene	ND	10	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	2.0	EPA 8260	3-31-11	3-31-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	DUP-1					
Laboratory ID:	03-247-05					
1,1,2-Trichloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	20	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	2.0	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	88	2.0	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	5.4	4.0	EPA 8260	3-31-11	3-31-11	
o-Xylene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Styrene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	10	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	74	2.0	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	2.0	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	230	2.0	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	2.0	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	2.6	2.0	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	19	2.0	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	10	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	2.0	EPA 8260	3-31-11	3-31-11	
Naphthalene	63	10	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	2.0	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>86</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>91</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>91</i>	<i>65-104</i>				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Sample Blank					
Laboratory ID:	03-247-07					
CFC-12	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Acetone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	1.0	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	9.5	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	2.0	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroform	0.98	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Benzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	1.0	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Toluene	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Sample Blank					
Laboratory ID:	03-247-07					
1,1,2-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	ND	0.40	EPA 8260	3-31-11	3-31-11	
o-Xylene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Styrene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	1.0	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Naphthalene	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>82</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>84</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>81</i>	<i>65-104</i>				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0331W1					
CFC-12	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloromethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
Vinyl Chloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroethane	ND	1.0	EPA 8260	3-31-11	3-31-11	
CFC-11	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Acetone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Methyl Iodide	ND	1.0	EPA 8260	3-31-11	3-31-11	
Carbon Disulfide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methylene Chloride	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl t-Butyl Ether	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Vinyl Acetate	ND	2.0	EPA 8260	3-31-11	3-31-11	
2,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Cis-1,2-Dichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Butanone	ND	5.0	EPA 8260	3-31-11	3-31-11	
Bromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chloroform	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Carbon Tetrachloride	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Benzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Trichloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dibromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Dichlorobromomethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chloroethylvinylether	ND	1.0	EPA 8260	3-31-11	3-31-11	
Cis-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Toluene	ND	1.0	EPA 8260	3-31-11	3-31-11	
Trans-1,3-Dichloropropene	ND	0.20	EPA 8260	3-31-11	3-31-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
 page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:		MB0331W1				
1,1,2-Trichloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Tetrachloroethene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Hexanone	ND	2.0	EPA 8260	3-31-11	3-31-11	
Dibromochloromethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylene dibromide	ND	0.20	EPA 8260	3-31-11	3-31-11	
Chlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
Ethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
m,p-Xylene	ND	0.40	EPA 8260	3-31-11	3-31-11	
o-Xylene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Styrene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromoform	ND	1.0	EPA 8260	3-31-11	3-31-11	
Isopropylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Bromobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichloropropane	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Propylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
2-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
4-Chlorotoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
tert-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
sec-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,3-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
p-Isopropyltoluene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,4-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
n-Butylbenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Hexachlorobutadiene	ND	0.20	EPA 8260	3-31-11	3-31-11	
Naphthalene	ND	1.0	EPA 8260	3-31-11	3-31-11	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260	3-31-11	3-31-11	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>82</i>	<i>68-107</i>				
<i>Toluene-d8</i>	<i>86</i>	<i>73-102</i>				
<i>Benzene, 1-bromo-4-fluoro-</i>	<i>84</i>	<i>65-104</i>				

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**VOLATILES by EPA 8260B
 SB/SBD QUALITY CONTROL**

Matrix: Water
 Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery	RPD	RPD	Flags
					Recovery	Limits	RPD	Limit		
SPIKE BLANKS										
Laboratory ID:	SB0331W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	9.66	9.84	10.0	10.0	97	98	70-130	2	11	
Benzene	9.52	9.76	10.0	10.0	95	98	79-123	2	8	
Trichloroethene	9.65	9.67	10.0	10.0	97	97	82-113	0	9	
Toluene	9.69	9.85	10.0	10.0	97	99	84-113	2	8	
Chlorobenzene	9.94	10.2	10.0	10.0	99	102	89-111	3	8	
<i>Surrogate:</i>										
<i>Dibromofluoromethane</i>					84	85	68-107			
<i>Toluene-d8</i>					90	89	73-102			
<i>Benzene, 1-bromo-4-fluoro-</i>					85	86	65-104			

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8/7470A**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-01					
Client ID:	MW-8					
Arsenic	3.7	3.3	200.8	3-30-11	3-30-11	
Barium	60	28	200.8	3-30-11	3-30-11	
Cadmium	ND	4.4	200.8	3-30-11	3-30-11	
Chromium	ND	11	200.8	3-30-11	3-30-11	
Lead	ND	1.1	200.8	3-30-11	3-31-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-30-11	3-30-11	
Silver	ND	11	200.8	3-30-11	3-30-11	

Lab ID:	03-247-02					
Client ID:	MW-105					
Arsenic	35	3.3	200.8	3-30-11	3-30-11	
Barium	180	28	200.8	3-30-11	3-30-11	
Cadmium	ND	4.4	200.8	3-30-11	3-30-11	
Chromium	ND	11	200.8	3-30-11	3-30-11	
Lead	ND	1.1	200.8	3-30-11	3-31-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-30-11	3-30-11	
Silver	ND	11	200.8	3-30-11	3-30-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8/7470A**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-03					
Client ID:	MW-101					
Arsenic	ND	3.3	200.8	3-30-11	3-30-11	
Barium	300	28	200.8	3-30-11	3-30-11	
Cadmium	ND	4.4	200.8	3-30-11	3-30-11	
Chromium	ND	11	200.8	3-30-11	3-30-11	
Lead	ND	1.1	200.8	3-30-11	3-31-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-30-11	3-30-11	
Silver	ND	11	200.8	3-30-11	3-30-11	

Lab ID:	03-247-04					
Client ID:	MW-9					
Arsenic	8.8	3.3	200.8	3-30-11	3-30-11	
Barium	170	28	200.8	3-30-11	3-30-11	
Cadmium	ND	4.4	200.8	3-30-11	3-30-11	
Chromium	ND	11	200.8	3-30-11	3-30-11	
Lead	ND	1.1	200.8	3-30-11	3-31-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-30-11	3-30-11	
Silver	ND	11	200.8	3-30-11	3-30-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8/7470A**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	03-247-05					
Client ID:	DUP-1					
Arsenic	ND	3.3	200.8	3-30-11	3-30-11	
Barium	300	28	200.8	3-30-11	3-30-11	
Cadmium	ND	4.4	200.8	3-30-11	3-30-11	
Chromium	ND	11	200.8	3-30-11	3-30-11	
Lead	ND	1.1	200.8	3-30-11	3-31-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-30-11	3-30-11	
Silver	ND	11	200.8	3-30-11	3-30-11	

Lab ID:	03-247-06					
Client ID:	SCS-1					
Arsenic	7.1	3.3	200.8	3-30-11	3-30-11	
Barium	630	28	200.8	3-30-11	3-30-11	
Cadmium	ND	4.4	200.8	3-30-11	3-30-11	
Chromium	ND	11	200.8	3-30-11	3-30-11	
Lead	3.1	1.1	200.8	3-30-11	3-31-11	
Mercury	ND	0.50	7470A	3-30-11	3-30-11	
Selenium	ND	5.6	200.8	3-30-11	3-30-11	
Silver	ND	11	200.8	3-30-11	3-30-11	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**TOTAL METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL**

Date Extracted: 3-30-11
Date Analyzed: 3-30&31-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0330W3

Analyte	Method	Result	PQL
Arsenic	200.8	ND	3.3
Barium	200.8	ND	28
Cadmium	200.8	ND	4.4
Chromium	200.8	ND	11
Lead	200.8	ND	1.1
Selenium	200.8	ND	5.6
Silver	200.8	ND	11

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

TOTAL ARSENIC
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: MB0330W3

Analyte	Method	Result	PQL
Arsenic	200.8	ND	3.3

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**TOTAL MERCURY
EPA 7470A
METHOD BLANK QUALITY CONTROL**

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	12.5	11.4	92	11.5	92	1	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8
 DUPLICATE QUALITY CONTROL**

Date Extracted: 3-30-11
 Date Analyzed: 3-30&31-11

Matrix: Water
 Units: ug/L (ppb)

Lab ID: 03-260-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	ND	ND	NA	3.3	
Barium	ND	ND	NA	28	
Cadmium	ND	ND	NA	4.4	
Chromium	ND	ND	NA	11	
Lead	ND	ND	NA	1.1	
Selenium	ND	ND	NA	5.6	
Silver	ND	ND	NA	11	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**TOTAL ARSENIC
EPA 200.8
DUPLICATE QUALITY CONTROL**

Date Extracted: 3-30-11
Date Analyzed: 3-30&31-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-260-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	ND	ND	NA	3.3	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**TOTAL MERCURY
EPA 7470A
DUPLICATE QUALITY CONTROL**

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	ND	ND	NA	0.50	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**TOTAL METALS
 EPA 200.8
 MS/MSD QUALITY CONTROL**

Date Extracted: 3-30-11
 Date Analyzed: 3-30&31-11

Matrix: Water
 Units: ug/L (ppb)

Lab ID: 03-260-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	109	99	110	100	1	
Barium	110	117	106	118	107	1	
Cadmium	110	109	99	113	102	4	
Chromium	110	120	109	120	109	0	
Lead	110	108	98	110	100	2	
Selenium	110	106	96	105	96	1	
Silver	110	103	93	105	95	2	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

TOTAL ARSENIC
EPA 200.8
MS/MSD QUALITY CONTROL

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-260-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	110	107	97	107	98	0	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**TOTAL MERCURY
EPA 7470A
MS/MSD QUALITY CONTROL**

Date Extracted: 3-30-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	ND	ND	NA	0.50	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date	Date	Flags
				Prepared	Analyzed	
Lab ID:	03-247-01					
Client ID:	MW-8					
Arsenic	4.5	3.0	200.8	3-26-11	3-29-11	
Barium	60	25	200.8	3-26-11	3-29-11	
Cadmium	ND	4.0	200.8	3-26-11	3-29-11	
Chromium	ND	10	200.8	3-26-11	3-29-11	
Lead	ND	1.0	200.8	3-26-11	3-29-11	
Mercury	ND	0.50	7470A	3-26-11	3-30-11	
Selenium	ND	5.0	200.8	3-26-11	3-29-11	
Silver	ND	10	200.8	3-26-11	3-29-11	

Lab ID:	03-247-02					
Client ID:	MW-105					
Arsenic	27	3.0	200.8	3-26-11	3-29-11	
Barium	96	25	200.8	3-26-11	3-29-11	
Cadmium	ND	4.0	200.8	3-26-11	3-29-11	
Chromium	ND	10	200.8	3-26-11	3-29-11	
Lead	ND	1.0	200.8	3-26-11	3-29-11	
Mercury	ND	0.50	7470A	3-26-11	3-30-11	
Selenium	ND	5.0	200.8	3-26-11	3-29-11	
Silver	ND	10	200.8	3-26-11	3-29-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date	Date	Flags
				Prepared	Analyzed	
Lab ID:	03-247-03					
Client ID:	MW-101					
Arsenic	ND	3.0	200.8	3-26-11	3-29-11	
Barium	250	25	200.8	3-26-11	3-29-11	
Cadmium	ND	4.0	200.8	3-26-11	3-29-11	
Chromium	ND	10	200.8	3-26-11	3-29-11	
Lead	ND	1.0	200.8	3-26-11	3-29-11	
Mercury	ND	0.50	7470A	3-26-11	3-30-11	
Selenium	ND	5.0	200.8	3-26-11	3-29-11	
Silver	ND	10	200.8	3-26-11	3-29-11	

Lab ID:	03-247-04					
Client ID:	MW-9					
Arsenic	9.1	3.0	200.8	3-26-11	3-29-11	
Barium	88	25	200.8	3-26-11	3-29-11	
Cadmium	ND	4.0	200.8	3-26-11	3-29-11	
Chromium	ND	10	200.8	3-26-11	3-29-11	
Lead	ND	1.0	200.8	3-26-11	3-29-11	
Mercury	ND	0.50	7470A	3-26-11	3-30-11	
Selenium	ND	5.0	200.8	3-26-11	3-29-11	
Silver	ND	10	200.8	3-26-11	3-29-11	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date	Date	Flags
				Prepared	Analyzed	
Lab ID:	03-247-05					
Client ID:	DUP-1					
Arsenic	ND	3.0	200.8	3-26-11	3-29-11	
Barium	230	25	200.8	3-26-11	3-29-11	
Cadmium	ND	4.0	200.8	3-26-11	3-29-11	
Chromium	ND	10	200.8	3-26-11	3-29-11	
Lead	ND	1.0	200.8	3-26-11	3-29-11	
Mercury	ND	0.50	7470A	3-26-11	3-30-11	
Selenium	ND	5.0	200.8	3-26-11	3-29-11	
Silver	ND	10	200.8	3-26-11	3-29-11	

Lab ID:	03-247-06					
Client ID:	SCS-1					
Arsenic	4.3	3.0	200.8	3-26-11	3-31-11	
Barium	450	25	200.8	3-26-11	3-29-11	
Cadmium	ND	4.0	200.8	3-26-11	3-29-11	
Chromium	ND	10	200.8	3-26-11	3-29-11	
Lead	ND	1.0	200.8	3-26-11	3-29-11	
Mercury	ND	0.50	7470A	3-26-11	3-30-11	
Selenium	ND	5.0	200.8	3-26-11	3-29-11	
Silver	ND	10	200.8	3-26-11	3-29-11	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL**

Date Filtered: 3-26-11
Date Analyzed: 3-29-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325F1

Analyte	Method	Result	PQL
Arsenic	200.8	ND	3.0
Barium	200.8	ND	25
Cadmium	200.8	ND	4.0
Chromium	200.8	ND	10
Lead	200.8	ND	1.0
Selenium	200.8	ND	5.0
Silver	200.8	ND	10

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL**

Date Filtered: 3-26-11
Date Analyzed: 3-29-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325F1

Analyte	Method	Result	PQL
Arsenic	200.8	ND	3.0

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 7470A
METHOD BLANK QUALITY CONTROL**

Date Filtered: 3-26-11
Date Analyzed: 3-30-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0325F1

Analyte	Method	Result	PQL
Mercury	7470A	ND	0.50

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**DISSOLVED METALS
 EPA 200.8
 DUPLICATE QUALITY CONTROL**

Date Filtered: 3-24-11
 Date Analyzed: 3-29-11

 Matrix: Water
 Units: ug/L (ppb)

 Lab ID: 03-220-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	21.5	22.0	2	3.0	
Barium	32.2	32.6	1	25	
Cadmium	ND	ND	NA	4.0	
Chromium	ND	ND	NA	10	
Lead	ND	ND	NA	1.0	
Selenium	ND	ND	NA	5.0	
Silver	ND	ND	NA	10	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL**

Date Filtered: 3-24-11
Date Analyzed: 3-29-11

Matrix: Water
Units: ug/L (ppb)

Lab ID: 03-220-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	22.7	22.9	1	3.0	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 7470A
DUPLICATE QUALITY CONTROL**

Date Filtered: 3-24-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	ND	ND	NA	0.50	

Date of Report: April 5, 2011
 Samples Submitted: March 26, 2011
 Laboratory Reference: 1103-247
 Project: 21-1-12305-031

**DISSOLVED METALS
 EPA 200.8
 MS/MSD QUALITY CONTROL**

Date Filtered: 3-24-11

Date Analyzed: 3-29-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-220-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	236	107	233	106	1	
Barium	200	231	99	228	98	1	
Cadmium	200	206	103	204	102	1	
Chromium	200	187	94	190	95	2	
Lead	200	209	104	204	102	2	
Selenium	200	222	111	224	112	1	
Silver	200	197	99	200	100	1	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL**

Date Filtered: 3-24-11

Date Analyzed: 3-29-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-220-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	236	107	235	106	1	

Date of Report: April 5, 2011
Samples Submitted: March 26, 2011
Laboratory Reference: 1103-247
Project: 21-1-12305-031

**DISSOLVED METALS
EPA 7470A
MS/MSD QUALITY CONTROL**

Date Filtered: 3-24-11

Date Analyzed: 3-30-11

Matrix: Water

Units: ug/L (ppb)

Lab ID: 03-231-18

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	12.5	11.5	92	11.3	90	1	



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- Y - Sample extract treated with an acid/silica gel cleanup procedure.
- Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



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Chain of Custody

Turnaround Request
(in working days)

(Check One)

Same Day 1 Day

2 Days 3 Days

Standard (7 Days)
(TPH analysis 5 Days)

(other)

Laboratory Number:

03-247

Company: *Shannon & Wilson*
Project Number: *21-1-12305-051*
Project Name: *SCL 8th & Roy Freeparking*
Project Manager: *Mark Burgess*
Sampled by: *Michael Reynolds*

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx PHX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one) <i>Total and Dissolved*</i>	TCLP Metals	HEM (oil and grease) 1664	% Moisture	
1	MW-8	3/25/11	0850	water	10		X	X	X	X									X			
2	MW-105		1020		10		X	X	X	X									X			
3	MW-101		1135		10		X	X	X	X									X			
4	MW-9		1445		10		X	X	X	X									X			
5	Dup-1		0800		10		X	X	X	X									X			
6	SCS-1		1325		4			X														
7	Sample Blank		1000		3					X												

Signature:

Company: *Shannon Thibault*

Date: *3/26/11*

Time: *1119*

Comments/Special Instructions: ** Lab Filter*

Received/Date

Relinquished

Received

Relinquished

Received

Relinquished

Received/Date

Reviewed/Date

Chromatograms with final report

APPENDIX B

**IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT**



Date: June 8, 2011
To: Ms. Jennifer Kindred
City of Seattle, Seattle City Light

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland

APPENDIX C
Chemical Analytical Data Laboratory Reports



3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers, Inc. - Redmond
Grace Philpy
8410 154th Ave. NE
Redmond, WA 98052

RE: SLU Marriott
Lab ID: 1409077

September 24, 2014

Attention Grace Philpy:

Fremont Analytical, Inc. received 75 sample(s) on 9/8/2014 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Dissolved Mercury by EPA Method 245.1
Dissolved Metals by EPA Method 200.8
Gasoline by NWTPH-Gx
Hexavalent Chromium by EPA Method 7196
Mercury by EPA Method 7470
Mercury by EPA Method 7471
Metals (SW6020) with TCLP Extraction (EPA 1311)
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Polychlorinated Biphenyls (PCB) by EPA 8082
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President



CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1409077

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1409077-001	DP-1-2.5	09/06/2014 9:24 AM	09/08/2014 12:00 PM
1409077-002	DP-1-5.0	09/06/2014 9:30 AM	09/08/2014 12:00 PM
1409077-003	DP-1-7.5	09/06/2014 9:45 AM	09/08/2014 12:00 PM
1409077-004	DP-1-10.0	09/06/2014 9:52 AM	09/08/2014 12:00 PM
1409077-005	DP-1-12.5	09/06/2014 10:03 AM	09/08/2014 12:00 PM
1409077-006	DP-1-15.0	09/06/2014 10:10 AM	09/08/2014 12:00 PM
1409077-007	DP-2-2.5	09/06/2014 11:25 AM	09/08/2014 12:00 PM
1409077-008	DP-2-5.0	09/06/2014 11:31 AM	09/08/2014 12:00 PM
1409077-009	DP-2-7.5	09/06/2014 11:45 AM	09/08/2014 12:00 PM
1409077-010	DP-2-10.0	09/06/2014 11:50 AM	09/08/2014 12:00 PM
1409077-011	DP-2-12.5	09/06/2014 12:05 PM	09/08/2014 12:00 PM
1409077-012	DP-2-15.0	09/06/2014 12:10 PM	09/08/2014 12:00 PM
1409077-013	DP-3-2.5	09/06/2014 10:25 AM	09/08/2014 12:00 PM
1409077-014	DP-3-5.0	09/06/2014 10:31 AM	09/08/2014 12:00 PM
1409077-015	DP-3-7.5	09/06/2014 10:43 AM	09/08/2014 12:00 PM
1409077-016	DP-3-10.0	09/06/2014 10:52 AM	09/08/2014 12:00 PM
1409077-017	DP-3-12.5	09/06/2014 11:00 AM	09/08/2014 12:00 PM
1409077-018	DP-3-15.0	09/06/2014 11:06 AM	09/08/2014 12:00 PM
1409077-019	DP-4-2.5	09/06/2014 9:46 AM	09/08/2014 12:00 PM
1409077-020	DP-4-5.0	09/06/2014 9:50 AM	09/08/2014 12:00 PM
1409077-021	DP-4-7.5	09/06/2014 10:05 AM	09/08/2014 12:00 PM
1409077-022	DP-4-10	09/06/2014 10:13 AM	09/08/2014 12:00 PM
1409077-023	DP-4-12.5	09/06/2014 10:25 AM	09/08/2014 12:00 PM
1409077-024	DP-4-15.0	09/06/2014 10:31 AM	09/08/2014 12:00 PM
1409077-025	DP-4-17.5	09/06/2014 10:45 AM	09/08/2014 12:00 PM
1409077-026	DP-4-20.0	09/06/2014 10:54 AM	09/08/2014 12:00 PM
1409077-027	DP-5-2.5	09/06/2014 11:21 AM	09/08/2014 12:00 PM
1409077-028	DP-5-5.0	09/06/2014 11:30 AM	09/08/2014 12:00 PM
1409077-029	DP-5-7.5	09/06/2014 11:41 AM	09/08/2014 12:00 PM
1409077-030	DP-6-2.5	09/06/2014 8:47 AM	09/08/2014 12:00 PM
1409077-031	DP-6-5.0	09/06/2014 8:52 AM	09/08/2014 12:00 PM
1409077-032	DP-6-7.5	09/06/2014 9:00 AM	09/08/2014 12:00 PM
1409077-033	DP-6-10.0	09/06/2014 9:04 AM	09/08/2014 12:00 PM
1409077-034	DP-6-12.5	09/06/2014 9:07 AM	09/08/2014 12:00 PM
1409077-035	DP-6-15.0	09/06/2014 9:10 AM	09/08/2014 12:00 PM
1409077-036	DP-7-2.5	09/06/2014 2:22 PM	09/08/2014 12:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1409077

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1409077-037	DP-7-7.5	09/06/2014 2:29 PM	09/08/2014 12:00 PM
1409077-038	DP-7-13.0	09/06/2014 2:30 PM	09/08/2014 12:00 PM
1409077-039	DP-8-2.5	09/06/2014 12:23 PM	09/08/2014 12:00 PM
1409077-040	DP-5-10.0	09/06/2014 11:49 AM	09/08/2014 12:00 PM
1409077-041	DP-5-12.5	09/06/2014 12:02 PM	09/08/2014 12:00 PM
1409077-042	DP-5-15.0	09/06/2014 12:08 PM	09/08/2014 12:00 PM
1409077-043	DP-9-2.5	09/06/2014 2:00 PM	09/08/2014 12:00 PM
1409077-044	DP-9-5.0	09/06/2014 2:52 PM	09/08/2014 12:00 PM
1409077-045	DP-9-7.5	09/06/2014 2:22 PM	09/08/2014 12:00 PM
1409077-046	DP-9-12.5	09/06/2014 2:30 PM	09/08/2014 12:00 PM
1409077-047	DP-9-17.5	09/06/2014 2:39 PM	09/08/2014 12:00 PM
1409077-048	DP-9-20.0	09/06/2014 2:50 PM	09/08/2014 12:00 PM
1409077-049	DP-8-35.0	09/06/2014 1:30 PM	09/08/2014 12:00 PM
1409077-050	MW-2-140906	09/06/2014 9:40 AM	09/08/2014 12:00 PM
1409077-051	MW-3-140906	09/06/2014 11:10 AM	09/08/2014 12:00 PM
1409077-052	MW-1-140906	09/06/2014 1:30 PM	09/08/2014 12:00 PM
1409077-053	DP-8-5.0	09/06/2014 12:25 PM	09/08/2014 12:00 PM
1409077-054	DP-8-7.5	09/06/2014 12:40 PM	09/08/2014 12:00 PM
1409077-055	DP-8-10.0	09/06/2014 12:43 PM	09/08/2014 12:00 PM
1409077-056	DP-8-12.5	09/06/2014 12:50 PM	09/08/2014 12:00 PM
1409077-057	DP-8-15.0	09/06/2014 12:55 PM	09/08/2014 12:00 PM
1409077-058	DP-8-20.0	09/06/2014 1:05 PM	09/08/2014 12:00 PM
1409077-059	DP-8-25.0	09/06/2014 1:20 PM	09/08/2014 12:00 PM
1409077-060	DP-10-2.5	09/06/2014 1:46 PM	09/08/2014 12:00 PM
1409077-061	DP-10-10.0	09/06/2014 1:53 PM	09/08/2014 12:00 PM
1409077-062	DP-11-2.5	09/06/2014 12:36 PM	09/08/2014 12:00 PM
1409077-063	DP-11-5.0	09/06/2014 12:42 PM	09/08/2014 12:00 PM
1409077-064	DP-11-7.5	09/06/2014 12:59 PM	09/08/2014 12:00 PM
1409077-065	DP-11-9.5	09/06/2014 1:02 PM	09/08/2014 12:00 PM
1409077-066	DP-11-12.5	09/06/2014 1:14 PM	09/08/2014 12:00 PM
1409077-067	DP-11-15.0	09/06/2014 1:27 PM	09/08/2014 12:00 PM
1409077-068	DP-12-2.5	09/06/2014 8:10 AM	09/08/2014 12:00 PM
1409077-069	DP-12-5.0	09/06/2014 8:13 AM	09/08/2014 12:00 PM
1409077-070	DP-12-7.5	09/06/2014 8:21 AM	09/08/2014 12:00 PM
1409077-071	DP-12-10.0	09/06/2014 8:27 AM	09/08/2014 12:00 PM
1409077-072	DP-12-12.5	09/06/2014 8:30 AM	09/08/2014 12:00 PM
1409077-073	DP-12-15.0	09/06/2014 8:31 AM	09/08/2014 12:00 PM
1409077-074	Trip Blank	09/04/2014 11:15 AM	09/08/2014 12:00 PM
1409077-075	Trip Blank	09/04/2014 11:23 AM	09/08/2014 12:00 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers, Inc. - Redmond**Project:** SLU Marriott

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1409077-001
Client Sample ID: DP-1-2.5

Collection Date: 9/6/2014 9:24:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670 Analyst: EC

Diesel (Fuel Oil)	ND	19.7		mg/Kg-dry	1	9/10/2014 10:03:00 AM
Heavy Oil	ND	49.3		mg/Kg-dry	1	9/10/2014 10:03:00 AM
Surr: 2-Fluorobiphenyl	102	50-150		%REC	1	9/10/2014 10:03:00 AM
Surr: o-Terphenyl	94.6	50-150		%REC	1	9/10/2014 10:03:00 AM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667 Analyst: NG

Naphthalene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
2-Methylnaphthalene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
1-Methylnaphthalene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Acenaphthylene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Acenaphthene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Fluorene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Phenanthrene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Anthracene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Fluoranthene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Pyrene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Benz(a)anthracene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Chrysene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Benzo(b)fluoranthene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Benzo(k)fluoranthene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Benzo(a)pyrene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Indeno(1,2,3-cd)pyrene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Dibenz(a,h)anthracene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Benzo(g,h,i)perylene	ND	54.8		µg/Kg-dry	1	9/12/2014 2:34:00 AM
Surr: 2-Fluorobiphenyl	92.2	42.7-132		%REC	1	9/12/2014 2:34:00 AM
Surr: Terphenyl-d14 (surr)	121	48.8-157		%REC	1	9/12/2014 2:34:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693 Analyst: EM

Gasoline	ND	4.70		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Surr: Toluene-d8	102	65-135		%REC	1	9/10/2014 7:04:00 AM
Surr: 4-Bromofluorobenzene	91.2	65-135		%REC	1	9/10/2014 7:04:00 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:24:00 AM

Project: SLU Marriott

Lab ID: 1409077-001

Matrix: Soil

Client Sample ID: DP-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0564		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Chloromethane	ND	0.0564		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Vinyl chloride	ND	0.00188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Bromomethane	ND	0.0846		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0470		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Chloroethane	ND	0.0564		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,1-Dichloroethene	ND	0.0470		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Methylene chloride	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
trans-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0470		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,1-Dichloroethane	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
2,2-Dichloropropane	ND	0.0470		mg/Kg-dry	1	9/10/2014 7:04:00 AM
cis-1,2-Dichloroethene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Chloroform	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,1-Dichloropropene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Carbon tetrachloride	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2-Dichloroethane (EDC)	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Benzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Trichloroethene (TCE)	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2-Dichloropropane	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Bromodichloromethane	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Dibromomethane	ND	0.0376		mg/Kg-dry	1	9/10/2014 7:04:00 AM
cis-1,3-Dichloropropene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Toluene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
trans-1,3-Dichloropropylene	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,1,2-Trichloroethane	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,3-Dichloropropane	ND	0.0470		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Tetrachloroethene (PCE)	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Dibromochloromethane	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2-Dibromoethane (EDB)	ND	0.00470		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Chlorobenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Ethylbenzene	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
m,p-Xylene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:24:00 AM

Project: SLU Marriott

Lab ID: 1409077-001

Matrix: Soil

Client Sample ID: DP-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Styrene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Isopropylbenzene	ND	0.0752		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Bromoform	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
n-Propylbenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Bromobenzene	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,3,5-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
2-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
4-Chlorotoluene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
tert-Butylbenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2,3-Trichloropropane	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2,4-Trichlorobenzene	ND	0.0470		mg/Kg-dry	1	9/10/2014 7:04:00 AM
sec-Butylbenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
4-Isopropyltoluene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,3-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,4-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
n-Butylbenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2-Dichlorobenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2,4-Trimethylbenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Hexachlorobutadiene	ND	0.0940		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Naphthalene	ND	0.0282		mg/Kg-dry	1	9/10/2014 7:04:00 AM
1,2,3-Trichlorobenzene	ND	0.0188		mg/Kg-dry	1	9/10/2014 7:04:00 AM
Surr: Dibromofluoromethane	96.2	63.7-129		%REC	1	9/10/2014 7:04:00 AM
Surr: Toluene-d8	104	61.4-128		%REC	1	9/10/2014 7:04:00 AM
Surr: 1-Bromo-4-fluorobenzene	92.8	63.1-141		%REC	1	9/10/2014 7:04:00 AM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.270		mg/Kg-dry	1	9/9/2014 4:54:24 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	5.77	0.0815		mg/Kg-dry	1	9/9/2014 5:42:25 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:24:00 AM

Project: SLU Marriott

Lab ID: 1409077-001

Matrix: Soil

Client Sample ID: DP-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	116	0.407		mg/Kg-dry	1	9/9/2014 5:42:25 PM
Cadmium	0.178	0.163		mg/Kg-dry	1	9/9/2014 5:42:25 PM
Chromium	36.2	0.0815	[RA]	mg/Kg-dry	1	9/10/2014 2:37:15 PM
Lead	25.0	0.163		mg/Kg-dry	1	9/9/2014 5:42:25 PM
Selenium	ND	0.407		mg/Kg-dry	1	9/9/2014 5:42:25 PM
Silver	0.422	0.0815		mg/Kg-dry	1	9/9/2014 5:42:25 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	11.1			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:30:00 AM

Project: SLU Marriott

Lab ID: 1409077-002

Matrix: Soil

Client Sample ID: DP-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>						
					Batch ID: 8670	Analyst: EC
Diesel (Fuel Oil)	ND	20.8		mg/Kg-dry	1	9/10/2014 11:06:00 AM
Heavy Oil	ND	51.9		mg/Kg-dry	1	9/10/2014 11:06:00 AM
Surr: 2-Fluorobiphenyl	95.7	50-150		%REC	1	9/10/2014 11:06:00 AM
Surr: o-Terphenyl	85.7	50-150		%REC	1	9/10/2014 11:06:00 AM

<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>						
					Batch ID: 8667	Analyst: NG
Naphthalene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
2-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
1-Methylnaphthalene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Acenaphthylene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Acenaphthene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Fluorene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Phenanthrene	264	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Anthracene	61.4	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Fluoranthene	237	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Pyrene	279	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Benz(a)anthracene	113	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Chrysene	59.7	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Benzo(b)fluoranthene	148	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Benzo(k)fluoranthene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Benzo(a)pyrene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Dibenz(a,h)anthracene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Benzo(g,h,i)perylene	ND	55.3		µg/Kg-dry	1	9/12/2014 2:57:00 AM
Surr: 2-Fluorobiphenyl	92.7	42.7-132		%REC	1	9/12/2014 2:57:00 AM
Surr: Terphenyl-d14 (surr)	113	48.8-157		%REC	1	9/12/2014 2:57:00 AM

<u>Gasoline by NWTPH-Gx</u>						
					Batch ID: R16693	Analyst: EM
Gasoline	ND	3.79		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Surr: Toluene-d8	103	65-135		%REC	1	9/10/2014 8:03:00 AM
Surr: 4-Bromofluorobenzene	90.3	65-135		%REC	1	9/10/2014 8:03:00 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1409077-002
Client Sample ID: DP-1-5.0

Collection Date: 9/6/2014 9:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0455		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Chloromethane	ND	0.0455		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Vinyl chloride	ND	0.00152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Bromomethane	ND	0.0682		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0379		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Chloroethane	ND	0.0455		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,1-Dichloroethene	ND	0.0379		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Methylene chloride	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
trans-1,2-Dichloroethene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0379		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,1-Dichloroethane	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
2,2-Dichloropropane	ND	0.0379		mg/Kg-dry	1	9/10/2014 8:03:00 AM
cis-1,2-Dichloroethene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Chloroform	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,1-Dichloropropene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Carbon tetrachloride	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2-Dichloroethane (EDC)	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Benzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Trichloroethene (TCE)	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2-Dichloropropane	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Bromodichloromethane	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Dibromomethane	ND	0.0303		mg/Kg-dry	1	9/10/2014 8:03:00 AM
cis-1,3-Dichloropropene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Toluene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
trans-1,3-Dichloropropylene	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,1,2-Trichloroethane	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,3-Dichloropropane	ND	0.0379		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Tetrachloroethene (PCE)	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Dibromochloromethane	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2-Dibromoethane (EDB)	ND	0.00379		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Chlorobenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Ethylbenzene	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
m,p-Xylene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit
 D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:30:00 AM

Project: SLU Marriott

Lab ID: 1409077-002

Matrix: Soil

Client Sample ID: DP-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Styrene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Isopropylbenzene	ND	0.0606		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Bromoform	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
n-Propylbenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Bromobenzene	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,3,5-Trimethylbenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
2-Chlorotoluene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
4-Chlorotoluene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
tert-Butylbenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2,3-Trichloropropane	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2,4-Trichlorobenzene	ND	0.0379		mg/Kg-dry	1	9/10/2014 8:03:00 AM
sec-Butylbenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
4-Isopropyltoluene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,3-Dichlorobenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,4-Dichlorobenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
n-Butylbenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2-Dichlorobenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2,4-Trimethylbenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Hexachlorobutadiene	ND	0.0758		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Naphthalene	ND	0.0227		mg/Kg-dry	1	9/10/2014 8:03:00 AM
1,2,3-Trichlorobenzene	ND	0.0152		mg/Kg-dry	1	9/10/2014 8:03:00 AM
Surr: Dibromofluoromethane	94.2	63.7-129		%REC	1	9/10/2014 8:03:00 AM
Surr: Toluene-d8	104	61.4-128		%REC	1	9/10/2014 8:03:00 AM
Surr: 1-Bromo-4-fluorobenzene	92.0	63.1-141		%REC	1	9/10/2014 8:03:00 AM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.260		mg/Kg-dry	1	9/9/2014 4:56:00 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	4.29	0.0853		mg/Kg-dry	1	9/9/2014 5:45:50 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:30:00 AM

Project: SLU Marriott

Lab ID: 1409077-002

Matrix: Soil

Client Sample ID: DP-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	80.6	0.426		mg/Kg-dry	1	9/9/2014 5:45:50 PM
Cadmium	ND	0.171		mg/Kg-dry	1	9/9/2014 5:45:50 PM
Chromium	37.6	0.0853	[RA]	mg/Kg-dry	1	9/10/2014 2:40:40 PM
Lead	12.9	0.171		mg/Kg-dry	1	9/9/2014 5:45:50 PM
Selenium	ND	0.426		mg/Kg-dry	1	9/9/2014 5:45:50 PM
Silver	0.259	0.0853		mg/Kg-dry	1	9/9/2014 5:45:50 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	12.5			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:25:00 AM

Project: SLU Marriott

Lab ID: 1409077-007

Matrix: Soil

Client Sample ID: DP-2-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 8670		Analyst: EC	
Diesel (Fuel Oil)	ND	22.6		mg/Kg-dry	1	9/10/2014 11:38:00 AM
Heavy Oil	383	56.5		mg/Kg-dry	1	9/10/2014 11:38:00 AM
Surr: 2-Fluorobiphenyl	96.8	50-150		%REC	1	9/10/2014 11:38:00 AM
Surr: o-Terphenyl	92.0	50-150		%REC	1	9/10/2014 11:38:00 AM
<u>Gasoline by NWTPH-Gx</u>			Batch ID: R16693		Analyst: EM	
Gasoline	ND	3.35		mg/Kg-dry	1	9/10/2014 10:01:00 AM
Surr: Toluene-d8	103	65-135		%REC	1	9/10/2014 10:01:00 AM
Surr: 4-Bromofluorobenzene	95.5	65-135		%REC	1	9/10/2014 10:01:00 AM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R16685		Analyst: SL	
Percent Moisture	16.6			wt%	1	9/10/2014 10:35:08 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1409077-010
Client Sample ID: DP-2-10.0

Collection Date: 9/6/2014 11:50:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670 Analyst: EC

Diesel (Fuel Oil)	ND	27.9		mg/Kg-dry	1	9/10/2014 12:09:00 PM
Heavy Oil	ND	69.7		mg/Kg-dry	1	9/10/2014 12:09:00 PM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	9/10/2014 12:09:00 PM
Surr: o-Terphenyl	82.6	50-150		%REC	1	9/10/2014 12:09:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667 Analyst: NG

Naphthalene	14,700	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
2-Methylnaphthalene	20,900	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
1-Methylnaphthalene	12,000	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Acenaphthylene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Acenaphthene	90.8	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Fluorene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Phenanthrene	99.4	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Anthracene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Fluoranthene	150	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Pyrene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Benz(a)anthracene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Chrysene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Benzo(b)fluoranthene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Benzo(k)fluoranthene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Benzo(a)pyrene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Indeno(1,2,3-cd)pyrene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Dibenz(a,h)anthracene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Benzo(g,h,i)perylene	ND	76.5		µg/Kg-dry	1	9/12/2014 3:19:00 AM
Surr: 2-Fluorobiphenyl	104	42.7-132		%REC	1	9/12/2014 3:19:00 AM
Surr: Terphenyl-d14 (surr)	126	48.8-157		%REC	1	9/12/2014 3:19:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693 Analyst: EM

Gasoline	729	70.9	D	mg/Kg-dry	10	9/11/2014 10:52:00 PM
Surr: Toluene-d8	94.3	65-135		%REC	1	9/10/2014 10:30:00 AM
Surr: 4-Bromofluorobenzene	109	65-135		%REC	1	9/10/2014 10:30:00 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:50:00 AM

Project: SLU Marriott

Lab ID: 1409077-010

Matrix: Soil

Client Sample ID: DP-2-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0851		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Chloromethane	ND	0.0851		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Vinyl chloride	ND	0.00284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Bromomethane	ND	0.128		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0709		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Chloroethane	ND	0.0851		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,1-Dichloroethene	ND	0.0709		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Methylene chloride	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
trans-1,2-Dichloroethene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0709		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,1-Dichloroethane	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
2,2-Dichloropropane	ND	0.0709		mg/Kg-dry	1	9/10/2014 10:30:00 AM
cis-1,2-Dichloroethene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Chloroform	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,1-Dichloropropene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Carbon tetrachloride	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2-Dichloroethane (EDC)	ND	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Benzene	2.13	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Trichloroethene (TCE)	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2-Dichloropropane	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Bromodichloromethane	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Dibromomethane	ND	0.0567		mg/Kg-dry	1	9/10/2014 10:30:00 AM
cis-1,3-Dichloropropene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Toluene	2.28	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
trans-1,3-Dichloropropylene	ND	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,1,2-Trichloroethane	ND	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,3-Dichloropropane	ND	0.0709		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Tetrachloroethene (PCE)	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Dibromochloromethane	ND	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2-Dibromoethane (EDB)	ND	0.00709		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Chlorobenzene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Ethylbenzene	5.92	0.426	D	mg/Kg-dry	10	9/11/2014 10:52:00 PM
m,p-Xylene	4.65	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:50:00 AM

Project: SLU Marriott

Lab ID: 1409077-010

Matrix: Soil

Client Sample ID: DP-2-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	0.805	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Styrene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Isopropylbenzene	2.34	0.113		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Bromoform	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
n-Propylbenzene	10.5	0.284	D	mg/Kg-dry	10	9/11/2014 10:52:00 PM
Bromobenzene	ND	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,3,5-Trimethylbenzene	0.296	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
2-Chlorotoluene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
4-Chlorotoluene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
tert-Butylbenzene	0.0836	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2,3-Trichloropropane	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2,4-Trichlorobenzene	ND	0.0709		mg/Kg-dry	1	9/10/2014 10:30:00 AM
sec-Butylbenzene	1.59	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
4-Isopropyltoluene	0.124	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,3-Dichlorobenzene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,4-Dichlorobenzene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
n-Butylbenzene	6.21	0.284	D	mg/Kg-dry	10	9/11/2014 10:52:00 PM
1,2-Dichlorobenzene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2,4-Trimethylbenzene	2.06	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Hexachlorobutadiene	ND	0.142		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Naphthalene	3.17	0.0426		mg/Kg-dry	1	9/10/2014 10:30:00 AM
1,2,3-Trichlorobenzene	ND	0.0284		mg/Kg-dry	1	9/10/2014 10:30:00 AM
Surr: Dibromofluoromethane	98.6	63.7-129		%REC	1	9/10/2014 10:30:00 AM
Surr: Toluene-d8	93.4	61.4-128		%REC	1	9/10/2014 10:30:00 AM
Surr: 1-Bromo-4-fluorobenzene	111	63.1-141		%REC	1	9/10/2014 10:30:00 AM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.373		mg/Kg-dry	1	9/9/2014 4:57:37 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	10.1	0.114		mg/Kg-dry	1	9/9/2014 5:49:15 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit
 D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:50:00 AM

Project: SLU Marriott

Lab ID: 1409077-010

Matrix: Soil

Client Sample ID: DP-2-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	2,140	0.571		mg/Kg-dry	1	9/9/2014 5:49:15 PM
Cadmium	0.522	0.228		mg/Kg-dry	1	9/9/2014 5:49:15 PM
Chromium	28.8	0.114	[RA]	mg/Kg-dry	1	9/10/2014 2:44:05 PM
Lead	367	0.228		mg/Kg-dry	1	9/9/2014 5:49:15 PM
Selenium	ND	0.571		mg/Kg-dry	1	9/9/2014 5:49:15 PM
Silver	0.483	0.114		mg/Kg-dry	1	9/9/2014 5:49:15 PM

Metals (SW6020) with TCLP Extraction (EPA 1311)

Batch ID: 8796

Analyst: TN

Lead	15.8	0.200		mg/L	1	9/22/2014 11:30:53 AM
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Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	35.6			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-011

Matrix: Soil

Client Sample ID: DP-2-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 8670		Analyst: EC	
Diesel (Fuel Oil)	ND	23.5		mg/Kg-dry	1	9/10/2014 12:41:00 PM
Heavy Oil	ND	58.8		mg/Kg-dry	1	9/10/2014 12:41:00 PM
Surr: 2-Fluorobiphenyl	90.5	50-150		%REC	1	9/10/2014 12:41:00 PM
Surr: o-Terphenyl	76.7	50-150		%REC	1	9/10/2014 12:41:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 8667		Analyst: NG	
Naphthalene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
2-Methylnaphthalene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
1-Methylnaphthalene	149	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Acenaphthylene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Acenaphthene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Fluorene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Phenanthrene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Anthracene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Fluoranthene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Pyrene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Benz(a)anthracene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Chrysene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Benzo(b)fluoranthene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Benzo(k)fluoranthene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Benzo(a)pyrene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Indeno(1,2,3-cd)pyrene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Dibenz(a,h)anthracene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Benzo(g,h,i)perylene	ND	65.7		µg/Kg-dry	1	9/12/2014 3:42:00 AM
Surr: 2-Fluorobiphenyl	87.5	42.7-132		%REC	1	9/12/2014 3:42:00 AM
Surr: Terphenyl-d14 (surr)	117	48.8-157		%REC	1	9/12/2014 3:42:00 AM
<u>Gasoline by NWTPH-Gx</u>			Batch ID: R16693		Analyst: EM	
Gasoline	57.4	4.38		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Surr: Toluene-d8	97.6	65-135		%REC	1	9/10/2014 11:00:00 AM
Surr: 4-Bromofluorobenzene	96.9	65-135		%REC	1	9/10/2014 11:00:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-011

Matrix: Soil

Client Sample ID: DP-2-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260					Batch ID: 8663	Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0525		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Chloromethane	ND	0.0525		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Vinyl chloride	ND	0.00175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Bromomethane	ND	0.0788		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0438		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Chloroethane	ND	0.0525		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,1-Dichloroethene	ND	0.0438		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Methylene chloride	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
trans-1,2-Dichloroethene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0438		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,1-Dichloroethane	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
2,2-Dichloropropane	ND	0.0438		mg/Kg-dry	1	9/10/2014 11:00:00 AM
cis-1,2-Dichloroethene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Chloroform	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,1-Dichloropropene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Carbon tetrachloride	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2-Dichloroethane (EDC)	ND	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Benzene	0.0286	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Trichloroethene (TCE)	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2-Dichloropropane	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Bromodichloromethane	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Dibromomethane	ND	0.0350		mg/Kg-dry	1	9/10/2014 11:00:00 AM
cis-1,3-Dichloropropene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Toluene	0.0213	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
trans-1,3-Dichloropropylene	ND	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,1,2-Trichloroethane	ND	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,3-Dichloropropane	ND	0.0438		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Tetrachloroethene (PCE)	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Dibromochloromethane	ND	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2-Dibromoethane (EDB)	ND	0.00438		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Chlorobenzene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Ethylbenzene	0.0760	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
m,p-Xylene	0.117	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-011

Matrix: Soil

Client Sample ID: DP-2-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Styrene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Isopropylbenzene	0.483	0.0701		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Bromoform	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
n-Propylbenzene	1.61	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Bromobenzene	ND	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,3,5-Trimethylbenzene	0.0384	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
2-Chlorotoluene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
4-Chlorotoluene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
tert-Butylbenzene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2,3-Trichloropropane	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2,4-Trichlorobenzene	ND	0.0438		mg/Kg-dry	1	9/10/2014 11:00:00 AM
sec-Butylbenzene	0.127	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
4-Isopropyltoluene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,3-Dichlorobenzene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,4-Dichlorobenzene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
n-Butylbenzene	0.301	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2-Dichlorobenzene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2,4-Trimethylbenzene	0.0436	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Hexachlorobutadiene	ND	0.0876		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Naphthalene	0.107	0.0263		mg/Kg-dry	1	9/10/2014 11:00:00 AM
1,2,3-Trichlorobenzene	ND	0.0175		mg/Kg-dry	1	9/10/2014 11:00:00 AM
Surr: Dibromofluoromethane	88.8	63.7-129		%REC	1	9/10/2014 11:00:00 AM
Surr: Toluene-d8	96.5	61.4-128		%REC	1	9/10/2014 11:00:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.7	63.1-141		%REC	1	9/10/2014 11:00:00 AM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.308		mg/Kg-dry	1	9/9/2014 4:59:13 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	5.57	0.101		mg/Kg-dry	1	9/9/2014 5:52:41 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-011

Matrix: Soil

Client Sample ID: DP-2-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	141	0.507		mg/Kg-dry	1	9/9/2014 5:52:41 PM
Cadmium	0.731	0.203		mg/Kg-dry	1	9/9/2014 5:52:41 PM
Chromium	72.5	0.101	[RA]	mg/Kg-dry	1	9/10/2014 2:47:31 PM
Lead	8.31	0.203		mg/Kg-dry	1	9/9/2014 5:52:41 PM
Selenium	ND	0.507		mg/Kg-dry	1	9/9/2014 5:52:41 PM
Silver	0.134	0.101		mg/Kg-dry	1	9/9/2014 5:52:41 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	24.7			wt%	1	9/10/2014 10:35:08 AM
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Hexavalent Chromium by EPA Method 7196

Batch ID: 8795

Analyst: MW

Chromium, Hexavalent	ND	0.648		mg/Kg-dry	1	9/21/2014 10:18:25 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:10:00 PM

Project: SLU Marriott

Lab ID: 1409077-012

Matrix: Soil

Client Sample ID: DP-2-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: 8838

Analyst: EM

Gasoline	34.9	4.37	H	mg/Kg-dry	1	9/24/2014 2:43:00 PM
Surr: Toluene-d8	101	65-135	H	%REC	1	9/24/2014 2:43:00 PM
Surr: 4-Bromofluorobenzene	95.2	65-135	H	%REC	1	9/24/2014 2:43:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R16932

Analyst: SL

Percent Moisture	22.5			wt%	1	9/23/2014 3:54:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:25:00 AM

Project: SLU Marriott

Lab ID: 1409077-013

Matrix: Soil

Client Sample ID: DP-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polychlorinated Biphenyls (PCB) by EPA 8082

Batch ID: 8688

Analyst: NG

Aroclor 1016	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1221	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1232	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1242	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1248	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1254	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1260	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1262	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Aroclor 1268	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Total PCBs	ND	0.109		mg/Kg-dry	1	9/11/2014 7:31:00 PM
Surr: Decachlorobiphenyl	79.4	50.2-159		%REC	1	9/11/2014 7:31:00 PM
Surr: Tetrachloro-m-xylene	78.0	60.3-134		%REC	1	9/11/2014 7:31:00 PM

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	19.5		mg/Kg-dry	1	9/10/2014 1:12:00 PM
Heavy Oil	ND	48.9		mg/Kg-dry	1	9/10/2014 1:12:00 PM
Surr: 2-Fluorobiphenyl	88.2	50-150		%REC	1	9/10/2014 1:12:00 PM
Surr: o-Terphenyl	81.3	50-150		%REC	1	9/10/2014 1:12:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
2-Methylnaphthalene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
1-Methylnaphthalene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Acenaphthylene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Acenaphthene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Fluorene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Phenanthrene	1,890	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Anthracene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Fluoranthene	3,280	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Pyrene	3,540	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Benz(a)anthracene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Chrysene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Benzo(b)fluoranthene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:25:00 AM

Project: SLU Marriott

Lab ID: 1409077-013

Matrix: Soil

Client Sample ID: DP-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Benzo(k)fluoranthene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Benzo(a)pyrene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Indeno(1,2,3-cd)pyrene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Dibenz(a,h)anthracene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Benzo(g,h,i)perylene	ND	1,120	D	µg/Kg-dry	20	9/12/2014 4:05:00 AM
Surr: 2-Fluorobiphenyl	58.2	42.7-132	D	%REC	20	9/12/2014 4:05:00 AM
Surr: Terphenyl-d14 (surr)	62.2	48.8-157	D	%REC	20	9/12/2014 4:05:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693

Analyst: EM

Gasoline	ND	5.80		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Surr: Toluene-d8	101	65-135		%REC	1	9/10/2014 11:29:00 AM
Surr: 4-Bromofluorobenzene	93.3	65-135		%REC	1	9/10/2014 11:29:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0696		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Chloromethane	ND	0.0696		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Vinyl chloride	ND	0.00232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Bromomethane	ND	0.104		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0580		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Chloroethane	ND	0.0696		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,1-Dichloroethene	ND	0.0580		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Methylene chloride	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
trans-1,2-Dichloroethene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0580		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,1-Dichloroethane	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
2,2-Dichloropropane	ND	0.0580		mg/Kg-dry	1	9/10/2014 11:29:00 AM
cis-1,2-Dichloroethene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Chloroform	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,1-Dichloropropene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Carbon tetrachloride	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2-Dichloroethane (EDC)	ND	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Benzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:25:00 AM

Project: SLU Marriott

Lab ID: 1409077-013

Matrix: Soil

Client Sample ID: DP-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Trichloroethene (TCE)	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2-Dichloropropane	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Bromodichloromethane	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Dibromomethane	ND	0.0464		mg/Kg-dry	1	9/10/2014 11:29:00 AM
cis-1,3-Dichloropropene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Toluene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
trans-1,3-Dichloropropylene	ND	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,1,2-Trichloroethane	ND	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,3-Dichloropropane	ND	0.0580		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Tetrachloroethene (PCE)	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Dibromochloromethane	ND	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2-Dibromoethane (EDB)	ND	0.00580		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Chlorobenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Ethylbenzene	0.0407	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
m,p-Xylene	0.0765	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
o-Xylene	0.0572	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Styrene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Isopropylbenzene	ND	0.0928		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Bromoform	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
n-Propylbenzene	0.0617	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Bromobenzene	ND	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,3,5-Trimethylbenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
2-Chlorotoluene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
4-Chlorotoluene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
tert-Butylbenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2,3-Trichloropropane	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2,4-Trichlorobenzene	ND	0.0580		mg/Kg-dry	1	9/10/2014 11:29:00 AM
sec-Butylbenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
4-Isopropyltoluene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,3-Dichlorobenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,4-Dichlorobenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
n-Butylbenzene	0.0513	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2-Dichlorobenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:25:00 AM

Project: SLU Marriott

Lab ID: 1409077-013

Matrix: Soil

Client Sample ID: DP-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

1,2-Dibromo-3-chloropropane	ND	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2,4-Trimethylbenzene	0.0540	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Hexachlorobutadiene	ND	0.116		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Naphthalene	0.0796	0.0348		mg/Kg-dry	1	9/10/2014 11:29:00 AM
1,2,3-Trichlorobenzene	ND	0.0232		mg/Kg-dry	1	9/10/2014 11:29:00 AM
Surr: Dibromofluoromethane	86.3	63.7-129		%REC	1	9/10/2014 11:29:00 AM
Surr: Toluene-d8	95.6	61.4-128		%REC	1	9/10/2014 11:29:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.0	63.1-141		%REC	1	9/10/2014 11:29:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.265		mg/Kg-dry	1	9/10/2014 3:35:13 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	4.50	0.0841		mg/Kg-dry	1	9/9/2014 5:56:06 PM
Barium	124	0.421		mg/Kg-dry	1	9/9/2014 5:56:06 PM
Cadmium	0.228	0.168		mg/Kg-dry	1	9/9/2014 5:56:06 PM
Chromium	24.4	0.0841	[RA]	mg/Kg-dry	1	9/10/2014 2:50:56 PM
Lead	121	0.168		mg/Kg-dry	1	9/9/2014 5:56:06 PM
Selenium	ND	0.421		mg/Kg-dry	1	9/9/2014 5:56:06 PM
Silver	0.106	0.0841		mg/Kg-dry	1	9/9/2014 5:56:06 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	12.6			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:43:00 AM

Project: SLU Marriott

Lab ID: 1409077-015

Matrix: Soil

Client Sample ID: DP-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 8670		Analyst: EC	
Diesel (Fuel Oil)	ND	21.0		mg/Kg-dry	1	9/10/2014 1:44:00 PM
Heavy Oil	ND	52.4		mg/Kg-dry	1	9/10/2014 1:44:00 PM
Surr: 2-Fluorobiphenyl	93.6	50-150		%REC	1	9/10/2014 1:44:00 PM
Surr: o-Terphenyl	78.8	50-150		%REC	1	9/10/2014 1:44:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 8667		Analyst: NG	
Naphthalene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
2-Methylnaphthalene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
1-Methylnaphthalene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Acenaphthylene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Acenaphthene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Fluorene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Phenanthrene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Anthracene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Fluoranthene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Pyrene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Benz(a)anthracene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Chrysene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Benzo(b)fluoranthene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Benzo(k)fluoranthene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Benzo(a)pyrene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Dibenz(a,h)anthracene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Benzo(g,h,i)perylene	ND	55.2		µg/Kg-dry	1	9/12/2014 5:12:00 AM
Surr: 2-Fluorobiphenyl	96.9	42.7-132		%REC	1	9/12/2014 5:12:00 AM
Surr: Terphenyl-d14 (surr)	112	48.8-157		%REC	1	9/12/2014 5:12:00 AM
<u>Gasoline by NWTPH-Gx</u>			Batch ID: R16693		Analyst: EM	
Gasoline	ND	4.62		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Surr: Toluene-d8	102	65-135		%REC	1	9/10/2014 11:58:00 AM
Surr: 4-Bromofluorobenzene	92.6	65-135		%REC	1	9/10/2014 11:58:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:43:00 AM

Project: SLU Marriott

Lab ID: 1409077-015

Matrix: Soil

Client Sample ID: DP-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0554		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Chloromethane	ND	0.0554		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Vinyl chloride	ND	0.00185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Bromomethane	ND	0.0831		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0462		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Chloroethane	ND	0.0554		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,1-Dichloroethene	ND	0.0462		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Methylene chloride	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
trans-1,2-Dichloroethene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0462		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,1-Dichloroethane	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
2,2-Dichloropropane	ND	0.0462		mg/Kg-dry	1	9/10/2014 11:58:00 AM
cis-1,2-Dichloroethene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Chloroform	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,1-Dichloropropene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Carbon tetrachloride	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2-Dichloroethane (EDC)	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Benzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Trichloroethene (TCE)	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2-Dichloropropane	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Bromodichloromethane	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Dibromomethane	ND	0.0369		mg/Kg-dry	1	9/10/2014 11:58:00 AM
cis-1,3-Dichloropropene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Toluene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
trans-1,3-Dichloropropylene	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,1,2-Trichloroethane	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,3-Dichloropropane	ND	0.0462		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Tetrachloroethene (PCE)	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Dibromochloromethane	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2-Dibromoethane (EDB)	ND	0.00462		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Chlorobenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Ethylbenzene	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
m,p-Xylene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:43:00 AM

Project: SLU Marriott

Lab ID: 1409077-015

Matrix: Soil

Client Sample ID: DP-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Styrene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Isopropylbenzene	ND	0.0739		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Bromoform	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
n-Propylbenzene	0.0391	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Bromobenzene	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,3,5-Trimethylbenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
2-Chlorotoluene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
4-Chlorotoluene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
tert-Butylbenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2,3-Trichloropropane	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2,4-Trichlorobenzene	ND	0.0462		mg/Kg-dry	1	9/10/2014 11:58:00 AM
sec-Butylbenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
4-Isopropyltoluene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,3-Dichlorobenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,4-Dichlorobenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
n-Butylbenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2-Dichlorobenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2,4-Trimethylbenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Hexachlorobutadiene	ND	0.0924		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Naphthalene	ND	0.0277		mg/Kg-dry	1	9/10/2014 11:58:00 AM
1,2,3-Trichlorobenzene	ND	0.0185		mg/Kg-dry	1	9/10/2014 11:58:00 AM
Surr: Dibromofluoromethane	90.7	63.7-129		%REC	1	9/10/2014 11:58:00 AM
Surr: Toluene-d8	95.1	61.4-128		%REC	1	9/10/2014 11:58:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.1	63.1-141		%REC	1	9/10/2014 11:58:00 AM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.264		mg/Kg-dry	1	9/9/2014 5:02:28 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	2.05	0.0822		mg/Kg-dry	1	9/9/2014 5:59:31 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:43:00 AM

Project: SLU Marriott

Lab ID: 1409077-015

Matrix: Soil

Client Sample ID: DP-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	53.9	0.411		mg/Kg-dry	1	9/9/2014 5:59:31 PM
Cadmium	ND	0.164		mg/Kg-dry	1	9/9/2014 5:59:31 PM
Chromium	28.6	0.0822	[RA]	mg/Kg-dry	1	9/10/2014 2:54:21 PM
Lead	2.40	0.164		mg/Kg-dry	1	9/9/2014 5:59:31 PM
Selenium	ND	0.411		mg/Kg-dry	1	9/9/2014 5:59:31 PM
Silver	ND	0.0822		mg/Kg-dry	1	9/9/2014 5:59:31 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	10.6			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:50:00 AM

Project: SLU Marriott

Lab ID: 1409077-020

Matrix: Soil

Client Sample ID: DP-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	19.1		mg/Kg-dry	1	9/10/2014 2:16:00 PM
Heavy Oil	ND	47.7		mg/Kg-dry	1	9/10/2014 2:16:00 PM
Surr: 2-Fluorobiphenyl	93.5	50-150		%REC	1	9/10/2014 2:16:00 PM
Surr: o-Terphenyl	81.9	50-150		%REC	1	9/10/2014 2:16:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
2-Methylnaphthalene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
1-Methylnaphthalene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Acenaphthylene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Acenaphthene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Fluorene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Phenanthrene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Anthracene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Fluoranthene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Pyrene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Benz(a)anthracene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Chrysene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Benzo(b)fluoranthene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Benzo(k)fluoranthene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Benzo(a)pyrene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Indeno(1,2,3-cd)pyrene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Dibenz(a,h)anthracene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Benzo(g,h,i)perylene	ND	53.7		µg/Kg-dry	1	9/12/2014 5:35:00 AM
Surr: 2-Fluorobiphenyl	94.0	42.7-132		%REC	1	9/12/2014 5:35:00 AM
Surr: Terphenyl-d14 (surr)	110	48.8-157		%REC	1	9/12/2014 5:35:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693

Analyst: EM

Gasoline	ND	2.97		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Surr: Toluene-d8	90.9	65-135		%REC	1	9/10/2014 12:28:00 PM
Surr: 4-Bromofluorobenzene	95.2	65-135		%REC	1	9/10/2014 12:28:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:50:00 AM

Project: SLU Marriott

Lab ID: 1409077-020

Matrix: Soil

Client Sample ID: DP-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0356		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Chloromethane	ND	0.0356		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Vinyl chloride	ND	0.00119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Bromomethane	ND	0.0535		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0297		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Chloroethane	ND	0.0356		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,1-Dichloroethene	ND	0.0297		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Methylene chloride	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
trans-1,2-Dichloroethene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0297		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,1-Dichloroethane	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
2,2-Dichloropropane	ND	0.0297		mg/Kg-dry	1	9/10/2014 12:28:00 PM
cis-1,2-Dichloroethene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Chloroform	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,1-Dichloropropene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Carbon tetrachloride	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2-Dichloroethane (EDC)	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Benzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Trichloroethene (TCE)	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2-Dichloropropane	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Bromodichloromethane	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Dibromomethane	ND	0.0238		mg/Kg-dry	1	9/10/2014 12:28:00 PM
cis-1,3-Dichloropropene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Toluene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
trans-1,3-Dichloropropylene	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,1,2-Trichloroethane	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,3-Dichloropropane	ND	0.0297		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Tetrachloroethene (PCE)	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Dibromochloromethane	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2-Dibromoethane (EDB)	ND	0.00297		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Chlorobenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Ethylbenzene	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
m,p-Xylene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:50:00 AM

Project: SLU Marriott

Lab ID: 1409077-020

Matrix: Soil

Client Sample ID: DP-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Styrene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Isopropylbenzene	ND	0.0475		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Bromoform	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
n-Propylbenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Bromobenzene	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,3,5-Trimethylbenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
2-Chlorotoluene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
4-Chlorotoluene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
tert-Butylbenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2,3-Trichloropropane	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2,4-Trichlorobenzene	ND	0.0297		mg/Kg-dry	1	9/10/2014 12:28:00 PM
sec-Butylbenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
4-Isopropyltoluene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,3-Dichlorobenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,4-Dichlorobenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
n-Butylbenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2-Dichlorobenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2,4-Trimethylbenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Hexachlorobutadiene	ND	0.0594		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Naphthalene	ND	0.0178		mg/Kg-dry	1	9/10/2014 12:28:00 PM
1,2,3-Trichlorobenzene	ND	0.0119		mg/Kg-dry	1	9/10/2014 12:28:00 PM
Surr: Dibromofluoromethane	88.8	63.7-129		%REC	1	9/10/2014 12:28:00 PM
Surr: Toluene-d8	90.9	61.4-128		%REC	1	9/10/2014 12:28:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.2	63.1-141		%REC	1	9/10/2014 12:28:00 PM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.265		mg/Kg-dry	1	9/9/2014 5:05:16 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	2.01	0.0861		mg/Kg-dry	1	9/9/2014 6:02:57 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1409077-020
Client Sample ID: DP-4-5.0

Collection Date: 9/6/2014 9:50:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020					Batch ID: 8664	Analyst: TN
Barium	54.1	0.431		mg/Kg-dry	1	9/9/2014 6:02:57 PM
Cadmium	ND	0.172		mg/Kg-dry	1	9/9/2014 6:02:57 PM
Chromium	32.4	0.0861	[RA]	mg/Kg-dry	1	9/10/2014 2:57:47 PM
Lead	1.85	0.172		mg/Kg-dry	1	9/9/2014 6:02:57 PM
Selenium	ND	0.431		mg/Kg-dry	1	9/9/2014 6:02:57 PM
Silver	ND	0.0861		mg/Kg-dry	1	9/9/2014 6:02:57 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685 Analyst: SL

Percent Moisture	9.30			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit
 D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:31:00 AM

Project: SLU Marriott

Lab ID: 1409077-024

Matrix: Soil

Client Sample ID: DP-4-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	9/10/2014 3:51:00 PM
Heavy Oil	ND	56.2		mg/Kg-dry	1	9/10/2014 3:51:00 PM
Surr: 2-Fluorobiphenyl	92.9	50-150		%REC	1	9/10/2014 3:51:00 PM
Surr: o-Terphenyl	90.2	50-150		%REC	1	9/10/2014 3:51:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
2-Methylnaphthalene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
1-Methylnaphthalene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Acenaphthylene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Acenaphthene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Fluorene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Phenanthrene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Anthracene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Fluoranthene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Pyrene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Benz(a)anthracene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Chrysene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Benzo(b)fluoranthene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Benzo(k)fluoranthene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Benzo(a)pyrene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Indeno(1,2,3-cd)pyrene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Dibenz(a,h)anthracene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Benzo(g,h,i)perylene	ND	56.3		µg/Kg-dry	1	9/12/2014 5:58:00 AM
Surr: 2-Fluorobiphenyl	82.4	42.7-132		%REC	1	9/12/2014 5:58:00 AM
Surr: Terphenyl-d14 (surr)	103	48.8-157		%REC	1	9/12/2014 5:58:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693

Analyst: EM

Gasoline	ND	4.87		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	9/10/2014 12:57:00 PM
Surr: 4-Bromofluorobenzene	94.0	65-135		%REC	1	9/10/2014 12:57:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:31:00 AM

Project: SLU Marriott

Lab ID: 1409077-024

Matrix: Soil

Client Sample ID: DP-4-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0585		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Chloromethane	ND	0.0585		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Vinyl chloride	ND	0.00195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Bromomethane	ND	0.0877		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0487		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Chloroethane	ND	0.0585		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,1-Dichloroethene	ND	0.0487		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Methylene chloride	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
trans-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0487		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,1-Dichloroethane	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
2,2-Dichloropropane	ND	0.0487		mg/Kg-dry	1	9/10/2014 12:57:00 PM
cis-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Chloroform	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,1-Dichloropropene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Carbon tetrachloride	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2-Dichloroethane (EDC)	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Benzene	0.0243	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Trichloroethene (TCE)	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2-Dichloropropane	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Bromodichloromethane	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Dibromomethane	ND	0.0390		mg/Kg-dry	1	9/10/2014 12:57:00 PM
cis-1,3-Dichloropropene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Toluene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
trans-1,3-Dichloropropylene	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,1,2-Trichloroethane	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,3-Dichloropropane	ND	0.0487		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Tetrachloroethene (PCE)	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Dibromochloromethane	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2-Dibromoethane (EDB)	ND	0.00487		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Chlorobenzene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Ethylbenzene	0.0363	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
m,p-Xylene	0.0958	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:31:00 AM

Project: SLU Marriott

Lab ID: 1409077-024

Matrix: Soil

Client Sample ID: DP-4-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Styrene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Isopropylbenzene	0.0978	0.0780		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Bromoform	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
n-Propylbenzene	0.132	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Bromobenzene	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,3,5-Trimethylbenzene	0.0360	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
2-Chlorotoluene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
4-Chlorotoluene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
tert-Butylbenzene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2,3-Trichloropropane	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2,4-Trichlorobenzene	ND	0.0487		mg/Kg-dry	1	9/10/2014 12:57:00 PM
sec-Butylbenzene	0.0490	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
4-Isopropyltoluene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,3-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,4-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
n-Butylbenzene	0.0385	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2,4-Trimethylbenzene	0.0412	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Hexachlorobutadiene	ND	0.0975		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Naphthalene	ND	0.0292		mg/Kg-dry	1	9/10/2014 12:57:00 PM
1,2,3-Trichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/10/2014 12:57:00 PM
Surr: Dibromofluoromethane	97.1	63.7-129		%REC	1	9/10/2014 12:57:00 PM
Surr: Toluene-d8	112	61.4-128		%REC	1	9/10/2014 12:57:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.5	63.1-141		%REC	1	9/10/2014 12:57:00 PM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.251		mg/Kg-dry	1	9/9/2014 5:06:53 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	2.12	0.0856		mg/Kg-dry	1	9/9/2014 6:06:22 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 10:31:00 AM

Project: SLU Marriott

Lab ID: 1409077-024

Matrix: Soil

Client Sample ID: DP-4-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	63.5	0.428		mg/Kg-dry	1	9/9/2014 6:06:22 PM
Cadmium	ND	0.171		mg/Kg-dry	1	9/9/2014 6:06:22 PM
Chromium	36.8	0.0856	[RA]	mg/Kg-dry	1	9/10/2014 3:01:12 PM
Lead	2.47	0.171		mg/Kg-dry	1	9/9/2014 6:06:22 PM
Selenium	ND	0.428		mg/Kg-dry	1	9/9/2014 6:06:22 PM
Silver	ND	0.0856		mg/Kg-dry	1	9/9/2014 6:06:22 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	14.1			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:41:00 AM

Project: SLU Marriott

Lab ID: 1409077-029

Matrix: Soil

Client Sample ID: DP-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	21.0		mg/Kg-dry	1	9/10/2014 4:23:00 PM
Heavy Oil	ND	52.4		mg/Kg-dry	1	9/10/2014 4:23:00 PM
Surr: 2-Fluorobiphenyl	94.5	50-150		%REC	1	9/10/2014 4:23:00 PM
Surr: o-Terphenyl	87.2	50-150		%REC	1	9/10/2014 4:23:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
2-Methylnaphthalene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
1-Methylnaphthalene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Acenaphthylene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Acenaphthene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Fluorene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Phenanthrene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Anthracene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Fluoranthene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Pyrene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Benz(a)anthracene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Chrysene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Benzo(b)fluoranthene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Benzo(k)fluoranthene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Benzo(a)pyrene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Dibenz(a,h)anthracene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Benzo(g,h,i)perylene	ND	55.8		µg/Kg-dry	1	9/12/2014 6:20:00 AM
Surr: 2-Fluorobiphenyl	79.5	42.7-132		%REC	1	9/12/2014 6:20:00 AM
Surr: Terphenyl-d14 (surr)	101	48.8-157		%REC	1	9/12/2014 6:20:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693

Analyst: EM

Gasoline	ND	6.09		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Surr: Toluene-d8	99.5	65-135		%REC	1	9/10/2014 1:27:00 PM
Surr: 4-Bromofluorobenzene	90.0	65-135		%REC	1	9/10/2014 1:27:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:41:00 AM

Project: SLU Marriott

Lab ID: 1409077-029

Matrix: Soil

Client Sample ID: DP-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0730		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Chloromethane	ND	0.0730		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Vinyl chloride	ND	0.00243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Bromomethane	ND	0.110		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0609		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Chloroethane	ND	0.0730		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,1-Dichloroethene	ND	0.0609		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Methylene chloride	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
trans-1,2-Dichloroethene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0609		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,1-Dichloroethane	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
2,2-Dichloropropane	ND	0.0609		mg/Kg-dry	1	9/10/2014 1:27:00 PM
cis-1,2-Dichloroethene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Chloroform	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,1-Dichloropropene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Carbon tetrachloride	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2-Dichloroethane (EDC)	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Benzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Trichloroethene (TCE)	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2-Dichloropropane	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Bromodichloromethane	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Dibromomethane	ND	0.0487		mg/Kg-dry	1	9/10/2014 1:27:00 PM
cis-1,3-Dichloropropene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Toluene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
trans-1,3-Dichloropropylene	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,1,2-Trichloroethane	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,3-Dichloropropane	ND	0.0609		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Tetrachloroethene (PCE)	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Dibromochloromethane	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2-Dibromoethane (EDB)	ND	0.00609		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Chlorobenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Ethylbenzene	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
m,p-Xylene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:41:00 AM

Project: SLU Marriott

Lab ID: 1409077-029

Matrix: Soil

Client Sample ID: DP-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Styrene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Isopropylbenzene	ND	0.0974		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Bromoform	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
n-Propylbenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Bromobenzene	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,3,5-Trimethylbenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
2-Chlorotoluene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
4-Chlorotoluene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
tert-Butylbenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2,3-Trichloropropane	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2,4-Trichlorobenzene	ND	0.0609		mg/Kg-dry	1	9/10/2014 1:27:00 PM
sec-Butylbenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
4-Isopropyltoluene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,3-Dichlorobenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,4-Dichlorobenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
n-Butylbenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2-Dichlorobenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2,4-Trimethylbenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Hexachlorobutadiene	ND	0.122		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Naphthalene	ND	0.0365		mg/Kg-dry	1	9/10/2014 1:27:00 PM
1,2,3-Trichlorobenzene	ND	0.0243		mg/Kg-dry	1	9/10/2014 1:27:00 PM
Surr: Dibromofluoromethane	90.2	63.7-129		%REC	1	9/10/2014 1:27:00 PM
Surr: Toluene-d8	100	61.4-128		%REC	1	9/10/2014 1:27:00 PM
Surr: 1-Bromo-4-fluorobenzene	91.6	63.1-141		%REC	1	9/10/2014 1:27:00 PM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.251		mg/Kg-dry	1	9/9/2014 5:12:56 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	3.29	0.0860		mg/Kg-dry	1	9/9/2014 6:16:43 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:41:00 AM

Project: SLU Marriott

Lab ID: 1409077-029

Matrix: Soil

Client Sample ID: DP-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	71.3	0.430		mg/Kg-dry	1	9/9/2014 6:16:43 PM
Cadmium	ND	0.172		mg/Kg-dry	1	9/9/2014 6:16:43 PM
Chromium	41.6	0.0860	[RA]	mg/Kg-dry	1	9/10/2014 3:04:37 PM
Lead	3.23	0.172		mg/Kg-dry	1	9/9/2014 6:16:43 PM
Selenium	ND	0.430		mg/Kg-dry	1	9/9/2014 6:16:43 PM
Silver	ND	0.0860		mg/Kg-dry	1	9/9/2014 6:16:43 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	11.2			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:47:00 AM

Project: SLU Marriott

Lab ID: 1409077-030

Matrix: Soil

Client Sample ID: DP-6-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	19.4		mg/Kg-dry	1	9/10/2014 5:27:00 PM
Heavy Oil	ND	48.4		mg/Kg-dry	1	9/10/2014 5:27:00 PM
Surr: 2-Fluorobiphenyl	95.8	50-150		%REC	1	9/10/2014 5:27:00 PM
Surr: o-Terphenyl	85.2	50-150		%REC	1	9/10/2014 5:27:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
2-Methylnaphthalene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
1-Methylnaphthalene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Acenaphthylene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Acenaphthene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Fluorene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Phenanthrene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Anthracene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Fluoranthene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Pyrene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Benz(a)anthracene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Chrysene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Benzo(b)fluoranthene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Benzo(k)fluoranthene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Benzo(a)pyrene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Indeno(1,2,3-cd)pyrene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Dibenz(a,h)anthracene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Benzo(g,h,i)perylene	ND	54.8		µg/Kg-dry	1	9/12/2014 6:43:00 AM
Surr: 2-Fluorobiphenyl	73.4	42.7-132		%REC	1	9/12/2014 6:43:00 AM
Surr: Terphenyl-d14 (surr)	115	48.8-157		%REC	1	9/12/2014 6:43:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693

Analyst: EM

Gasoline	ND	4.64		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	9/10/2014 2:26:00 PM
Surr: 4-Bromofluorobenzene	88.9	65-135		%REC	1	9/10/2014 2:26:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:47:00 AM

Project: SLU Marriott

Lab ID: 1409077-030

Matrix: Soil

Client Sample ID: DP-6-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0557		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Chloromethane	ND	0.0557		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Vinyl chloride	ND	0.00186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Bromomethane	ND	0.0836		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0464		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Chloroethane	ND	0.0557		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,1-Dichloroethene	ND	0.0464		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Methylene chloride	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
trans-1,2-Dichloroethene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0464		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,1-Dichloroethane	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
2,2-Dichloropropane	ND	0.0464		mg/Kg-dry	1	9/10/2014 2:26:00 PM
cis-1,2-Dichloroethene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Chloroform	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,1-Dichloropropene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Carbon tetrachloride	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2-Dichloroethane (EDC)	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Benzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Trichloroethene (TCE)	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2-Dichloropropane	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Bromodichloromethane	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Dibromomethane	ND	0.0372		mg/Kg-dry	1	9/10/2014 2:26:00 PM
cis-1,3-Dichloropropene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Toluene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
trans-1,3-Dichloropropylene	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,1,2-Trichloroethane	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,3-Dichloropropane	ND	0.0464		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Tetrachloroethene (PCE)	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Dibromochloromethane	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2-Dibromoethane (EDB)	ND	0.00464		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Chlorobenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Ethylbenzene	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
m,p-Xylene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:47:00 AM

Project: SLU Marriott

Lab ID: 1409077-030

Matrix: Soil

Client Sample ID: DP-6-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Styrene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Isopropylbenzene	ND	0.0743		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Bromoform	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
n-Propylbenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Bromobenzene	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,3,5-Trimethylbenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
2-Chlorotoluene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
4-Chlorotoluene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
tert-Butylbenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2,3-Trichloropropane	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2,4-Trichlorobenzene	ND	0.0464		mg/Kg-dry	1	9/10/2014 2:26:00 PM
sec-Butylbenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
4-Isopropyltoluene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,3-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,4-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
n-Butylbenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2-Dichlorobenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2,4-Trimethylbenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Hexachlorobutadiene	ND	0.0929		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Naphthalene	ND	0.0279		mg/Kg-dry	1	9/10/2014 2:26:00 PM
1,2,3-Trichlorobenzene	ND	0.0186		mg/Kg-dry	1	9/10/2014 2:26:00 PM
Surr: Dibromofluoromethane	90.9	63.7-129		%REC	1	9/10/2014 2:26:00 PM
Surr: Toluene-d8	101	61.4-128		%REC	1	9/10/2014 2:26:00 PM
Surr: 1-Bromo-4-fluorobenzene	90.2	63.1-141		%REC	1	9/10/2014 2:26:00 PM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.244		mg/Kg-dry	1	9/9/2014 5:15:00 PM
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Arsenic	3.17	0.0872		mg/Kg-dry	1	9/9/2014 6:20:08 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:47:00 AM

Project: SLU Marriott

Lab ID: 1409077-030

Matrix: Soil

Client Sample ID: DP-6-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8664

Analyst: TN

Barium	50.5	0.436		mg/Kg-dry	1	9/9/2014 6:20:08 PM
Cadmium	ND	0.174		mg/Kg-dry	1	9/9/2014 6:20:08 PM
Chromium	33.1	0.0872	[RA]	mg/Kg-dry	1	9/10/2014 3:08:02 PM
Lead	31.5	0.174		mg/Kg-dry	1	9/9/2014 6:20:08 PM
Selenium	ND	0.436		mg/Kg-dry	1	9/9/2014 6:20:08 PM
Silver	ND	0.0872		mg/Kg-dry	1	9/9/2014 6:20:08 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	11.8			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:04:00 AM

Project: SLU Marriott

Lab ID: 1409077-033

Matrix: Soil

Client Sample ID: DP-6-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	9/10/2014 5:59:00 PM
Heavy Oil	ND	51.4		mg/Kg-dry	1	9/10/2014 5:59:00 PM
Surr: 2-Fluorobiphenyl	92.8	50-150		%REC	1	9/10/2014 5:59:00 PM
Surr: o-Terphenyl	78.2	50-150		%REC	1	9/10/2014 5:59:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
2-Methylnaphthalene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
1-Methylnaphthalene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Acenaphthylene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Acenaphthene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Fluorene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Phenanthrene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Anthracene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Fluoranthene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Pyrene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Benz(a)anthracene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Chrysene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Benzo(b)fluoranthene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Benzo(k)fluoranthene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Benzo(a)pyrene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Indeno(1,2,3-cd)pyrene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Dibenz(a,h)anthracene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Benzo(g,h,i)perylene	ND	54.9		µg/Kg-dry	1	9/12/2014 7:05:00 AM
Surr: 2-Fluorobiphenyl	62.4	42.7-132		%REC	1	9/12/2014 7:05:00 AM
Surr: Terphenyl-d14 (surr)	97.6	48.8-157		%REC	1	9/12/2014 7:05:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16693

Analyst: EM

Gasoline	ND	3.42		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	9/10/2014 2:56:00 PM
Surr: 4-Bromofluorobenzene	89.7	65-135		%REC	1	9/10/2014 2:56:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:04:00 AM

Project: SLU Marriott

Lab ID: 1409077-033

Matrix: Soil

Client Sample ID: DP-6-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0410		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Chloromethane	ND	0.0410		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Vinyl chloride	ND	0.00137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Bromomethane	ND	0.0615		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0342		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Chloroethane	ND	0.0410		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,1-Dichloroethene	ND	0.0342		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Methylene chloride	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
trans-1,2-Dichloroethene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0342		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,1-Dichloroethane	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
2,2-Dichloropropane	ND	0.0342		mg/Kg-dry	1	9/10/2014 2:56:00 PM
cis-1,2-Dichloroethene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Chloroform	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,1-Dichloropropene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Carbon tetrachloride	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2-Dichloroethane (EDC)	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Benzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Trichloroethene (TCE)	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2-Dichloropropane	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Bromodichloromethane	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Dibromomethane	ND	0.0273		mg/Kg-dry	1	9/10/2014 2:56:00 PM
cis-1,3-Dichloropropene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Toluene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
trans-1,3-Dichloropropylene	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,1,2-Trichloroethane	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,3-Dichloropropane	ND	0.0342		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Tetrachloroethene (PCE)	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Dibromochloromethane	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2-Dibromoethane (EDB)	ND	0.00342		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Chlorobenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Ethylbenzene	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
m,p-Xylene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:04:00 AM

Project: SLU Marriott

Lab ID: 1409077-033

Matrix: Soil

Client Sample ID: DP-6-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8663

Analyst: EM

o-Xylene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Styrene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Isopropylbenzene	ND	0.0547		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Bromoform	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
n-Propylbenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Bromobenzene	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,3,5-Trimethylbenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
2-Chlorotoluene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
4-Chlorotoluene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
tert-Butylbenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2,3-Trichloropropane	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2,4-Trichlorobenzene	ND	0.0342		mg/Kg-dry	1	9/10/2014 2:56:00 PM
sec-Butylbenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
4-Isopropyltoluene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,3-Dichlorobenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,4-Dichlorobenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
n-Butylbenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2-Dichlorobenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2,4-Trimethylbenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Hexachlorobutadiene	ND	0.0684		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Naphthalene	ND	0.0205		mg/Kg-dry	1	9/10/2014 2:56:00 PM
1,2,3-Trichlorobenzene	ND	0.0137		mg/Kg-dry	1	9/10/2014 2:56:00 PM
Surr: Dibromofluoromethane	92.3	63.7-129		%REC	1	9/10/2014 2:56:00 PM
Surr: Toluene-d8	102	61.4-128		%REC	1	9/10/2014 2:56:00 PM
Surr: 1-Bromo-4-fluorobenzene	91.1	63.1-141		%REC	1	9/10/2014 2:56:00 PM

Mercury by EPA Method 7471

Batch ID: 8665

Analyst: TN

Mercury	ND	0.266		mg/Kg-dry	1	9/9/2014 5:16:37 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	1.67	0.0855		mg/Kg-dry	1	9/10/2014 4:05:10 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:04:00 AM

Project: SLU Marriott

Lab ID: 1409077-033

Matrix: Soil

Client Sample ID: DP-6-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Barium	46.5	0.428		mg/Kg-dry	1	9/10/2014 4:05:10 PM
Cadmium	ND	0.171		mg/Kg-dry	1	9/10/2014 4:05:10 PM
Chromium	24.9	0.0855		mg/Kg-dry	1	9/10/2014 4:05:10 PM
Lead	1.81	0.171		mg/Kg-dry	1	9/10/2014 4:05:10 PM
Selenium	0.997	0.428		mg/Kg-dry	1	9/10/2014 4:05:10 PM
Silver	ND	0.0855		mg/Kg-dry	1	9/10/2014 4:05:10 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	11.4			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:29:00 PM

Project: SLU Marriott

Lab ID: 1409077-037

Matrix: Soil

Client Sample ID: DP-7-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polychlorinated Biphenyls (PCB) by EPA 8082

Batch ID: 8688

Analyst: NG

Aroclor 1016	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1221	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1232	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1242	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1248	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1254	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1260	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1262	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Aroclor 1268	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Total PCBs	ND	0.152		mg/Kg-dry	1	9/11/2014 8:10:00 PM
Surr: Decachlorobiphenyl	80.2	50.2-159		%REC	1	9/11/2014 8:10:00 PM
Surr: Tetrachloro-m-xylene	86.6	60.3-134		%REC	1	9/11/2014 8:10:00 PM

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	468	29.8		mg/Kg-dry	1	9/10/2014 6:31:00 PM
Heavy Oil	ND	74.4		mg/Kg-dry	1	9/10/2014 6:31:00 PM
Surr: 2-Fluorobiphenyl	102	50-150		%REC	1	9/10/2014 6:31:00 PM
Surr: o-Terphenyl	87.0	50-150		%REC	1	9/10/2014 6:31:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	312	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
2-Methylnaphthalene	666	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
1-Methylnaphthalene	1,580	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Acenaphthylene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Acenaphthene	489	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Fluorene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Phenanthrene	846	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Anthracene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Fluoranthene	583	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Pyrene	583	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Benz(a)anthracene	354	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Chrysene	188	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Benzo(b)fluoranthene	407	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:29:00 PM

Project: SLU Marriott

Lab ID: 1409077-037

Matrix: Soil

Client Sample ID: DP-7-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Benzo(k)fluoranthene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Benzo(a)pyrene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Indeno(1,2,3-cd)pyrene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Dibenz(a,h)anthracene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Benzo(g,h,i)perylene	ND	78.8		µg/Kg-dry	1	9/12/2014 7:28:00 AM
Surr: 2-Fluorobiphenyl	64.5	42.7-132		%REC	1	9/12/2014 7:28:00 AM
Surr: Terphenyl-d14 (surr)	153	48.8-157		%REC	1	9/12/2014 7:28:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	175	8.32		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Surr: Toluene-d8	98.0	65-135		%REC	1	9/11/2014 4:40:00 AM
Surr: 4-Bromofluorobenzene	97.1	65-135		%REC	1	9/11/2014 4:40:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0998		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Chloromethane	ND	0.0998		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Vinyl chloride	ND	0.00333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Bromomethane	ND	0.150		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0832		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Chloroethane	ND	0.0998		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,1-Dichloroethene	ND	0.0832		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Methylene chloride	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
trans-1,2-Dichloroethene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0832		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,1-Dichloroethane	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
2,2-Dichloropropane	ND	0.0832		mg/Kg-dry	1	9/11/2014 4:40:00 AM
cis-1,2-Dichloroethene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Chloroform	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,1-Dichloropropene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Carbon tetrachloride	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2-Dichloroethane (EDC)	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Benzene	0.346	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:29:00 PM

Project: SLU Marriott

Lab ID: 1409077-037

Matrix: Soil

Client Sample ID: DP-7-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Trichloroethene (TCE)	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2-Dichloropropane	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Bromodichloromethane	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Dibromomethane	ND	0.0665		mg/Kg-dry	1	9/11/2014 4:40:00 AM
cis-1,3-Dichloropropene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Toluene	0.225	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
trans-1,3-Dichloropropylene	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,1,2-Trichloroethane	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,3-Dichloropropane	ND	0.0832		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Tetrachloroethene (PCE)	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Dibromochloromethane	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2-Dibromoethane (EDB)	ND	0.00832		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Chlorobenzene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Ethylbenzene	0.170	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
m,p-Xylene	0.545	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
o-Xylene	0.124	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Styrene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Isopropylbenzene	0.730	0.133		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Bromoform	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
n-Propylbenzene	0.926	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Bromobenzene	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,3,5-Trimethylbenzene	0.0973	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
2-Chlorotoluene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
4-Chlorotoluene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
tert-Butylbenzene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2,3-Trichloropropane	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2,4-Trichlorobenzene	ND	0.0832		mg/Kg-dry	1	9/11/2014 4:40:00 AM
sec-Butylbenzene	0.392	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
4-Isopropyltoluene	0.0669	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,3-Dichlorobenzene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,4-Dichlorobenzene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
n-Butylbenzene	0.607	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2-Dichlorobenzene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:29:00 PM

Project: SLU Marriott

Lab ID: 1409077-037

Matrix: Soil

Client Sample ID: DP-7-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

1,2-Dibromo-3-chloropropane	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2,4-Trimethylbenzene	0.131	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Hexachlorobutadiene	ND	0.166		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Naphthalene	ND	0.0499		mg/Kg-dry	1	9/11/2014 4:40:00 AM
1,2,3-Trichlorobenzene	ND	0.0333		mg/Kg-dry	1	9/11/2014 4:40:00 AM
Surr: Dibromofluoromethane	98.4	63.7-129		%REC	1	9/11/2014 4:40:00 AM
Surr: Toluene-d8	109	61.4-128		%REC	1	9/11/2014 4:40:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	9/11/2014 4:40:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	0.592	0.340		mg/Kg-dry	1	9/10/2014 3:41:43 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	10.3	0.127		mg/Kg-dry	1	9/10/2014 4:25:43 PM
Barium	1,210	0.636		mg/Kg-dry	1	9/10/2014 4:25:43 PM
Cadmium	2.75	0.254		mg/Kg-dry	1	9/10/2014 4:25:43 PM
Chromium	18.9	0.127		mg/Kg-dry	1	9/10/2014 4:25:43 PM
Lead	355	0.254		mg/Kg-dry	1	9/10/2014 4:25:43 PM
Selenium	4.45	0.636		mg/Kg-dry	1	9/10/2014 4:25:43 PM
Silver	0.542	0.127		mg/Kg-dry	1	9/10/2014 4:25:43 PM

Metals (SW6020) with TCLP Extraction (EPA 1311)

Batch ID: 8796

Analyst: TN

Lead	0.996	0.200		mg/L	1	9/22/2014 11:34:19 AM
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Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	37.6			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-038

Matrix: Soil

Client Sample ID: DP-7-13.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	844	22.4		mg/Kg-dry	1	9/10/2014 7:03:00 PM
Heavy Oil	ND	56.0		mg/Kg-dry	1	9/10/2014 7:03:00 PM
Surr: 2-Fluorobiphenyl	88.8	50-150		%REC	1	9/10/2014 7:03:00 PM
Surr: o-Terphenyl	85.6	50-150		%REC	1	9/10/2014 7:03:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	907	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
2-Methylnaphthalene	6,840	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
1-Methylnaphthalene	9,120	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Acenaphthylene	ND	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Acenaphthene	1,000	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Fluorene	1,560	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Phenanthrene	3,950	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Anthracene	ND	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Fluoranthene	780	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Pyrene	964	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Benz(a)anthracene	400	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Chrysene	ND	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Benzo(b)fluoranthene	385	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Benzo(k)fluoranthene	ND	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Benzo(a)pyrene	352	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Dibenz(a,h)anthracene	ND	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Benzo(g,h,i)perylene	ND	55.2		µg/Kg-dry	1	9/12/2014 7:51:00 AM
Surr: 2-Fluorobiphenyl	65.0	42.7-132		%REC	1	9/12/2014 7:51:00 AM
Surr: Terphenyl-d14 (surr)	150	48.8-157		%REC	1	9/12/2014 7:51:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	412	65.6	D	mg/Kg-dry	10	9/11/2014 11:21:00 PM
Surr: Toluene-d8	99.4	65-135		%REC	1	9/11/2014 5:39:00 AM
Surr: 4-Bromofluorobenzene	95.4	65-135		%REC	1	9/11/2014 5:39:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-038

Matrix: Soil

Client Sample ID: DP-7-13.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0787		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Chloromethane	ND	0.0787		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Vinyl chloride	ND	0.00262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Bromomethane	ND	0.118		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0656		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Chloroethane	ND	0.0787		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,1-Dichloroethene	ND	0.0656		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Methylene chloride	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
trans-1,2-Dichloroethene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0656		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,1-Dichloroethane	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
2,2-Dichloropropane	ND	0.0656		mg/Kg-dry	1	9/11/2014 5:39:00 AM
cis-1,2-Dichloroethene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Chloroform	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,1-Dichloropropene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Carbon tetrachloride	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2-Dichloroethane (EDC)	ND	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Benzene	1.28	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Trichloroethene (TCE)	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2-Dichloropropane	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Bromodichloromethane	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Dibromomethane	ND	0.0525		mg/Kg-dry	1	9/11/2014 5:39:00 AM
cis-1,3-Dichloropropene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Toluene	0.320	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
trans-1,3-Dichloropropylene	ND	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,1,2-Trichloroethane	ND	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,3-Dichloropropane	ND	0.0656		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Tetrachloroethene (PCE)	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Dibromochloromethane	ND	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2-Dibromoethane (EDB)	ND	0.00656		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Chlorobenzene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Ethylbenzene	0.348	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
m,p-Xylene	0.775	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-038

Matrix: Soil

Client Sample ID: DP-7-13.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.160	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Styrene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Isopropylbenzene	0.651	0.105		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Bromoform	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
n-Propylbenzene	0.790	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Bromobenzene	ND	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,3,5-Trimethylbenzene	0.214	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
2-Chlorotoluene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
4-Chlorotoluene	0.0799	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
tert-Butylbenzene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2,3-Trichloropropane	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2,4-Trichlorobenzene	ND	0.0656		mg/Kg-dry	1	9/11/2014 5:39:00 AM
sec-Butylbenzene	0.293	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
4-Isopropyltoluene	0.375	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,3-Dichlorobenzene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,4-Dichlorobenzene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
n-Butylbenzene	0.432	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2-Dichlorobenzene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2,4-Trimethylbenzene	0.172	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Hexachlorobutadiene	ND	0.131		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Naphthalene	0.411	0.0394		mg/Kg-dry	1	9/11/2014 5:39:00 AM
1,2,3-Trichlorobenzene	ND	0.0262		mg/Kg-dry	1	9/11/2014 5:39:00 AM
Surr: Dibromofluoromethane	94.6	63.7-129		%REC	1	9/11/2014 5:39:00 AM
Surr: Toluene-d8	114	61.4-128		%REC	1	9/11/2014 5:39:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.9	63.1-141		%REC	1	9/11/2014 5:39:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.279		mg/Kg-dry	1	9/10/2014 3:43:18 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	3.43	0.0878		mg/Kg-dry	1	9/10/2014 4:29:08 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-038

Matrix: Soil

Client Sample ID: DP-7-13.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Barium	100	0.439		mg/Kg-dry	1	9/10/2014 4:29:08 PM
Cadmium	ND	0.176		mg/Kg-dry	1	9/10/2014 4:29:08 PM
Chromium	31.7	0.0878		mg/Kg-dry	1	9/10/2014 4:29:08 PM
Lead	18.7	0.176		mg/Kg-dry	1	9/10/2014 4:29:08 PM
Selenium	1.06	0.439		mg/Kg-dry	1	9/10/2014 4:29:08 PM
Silver	ND	0.0878		mg/Kg-dry	1	9/10/2014 4:29:08 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	13.7			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:08:00 PM

Project: SLU Marriott

Lab ID: 1409077-042

Matrix: Soil

Client Sample ID: DP-5-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	9/10/2014 7:34:00 PM
Heavy Oil	ND	55.6		mg/Kg-dry	1	9/10/2014 7:34:00 PM
Surr: 2-Fluorobiphenyl	89.7	50-150		%REC	1	9/10/2014 7:34:00 PM
Surr: o-Terphenyl	75.5	50-150		%REC	1	9/10/2014 7:34:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8667

Analyst: NG

Naphthalene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
2-Methylnaphthalene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
1-Methylnaphthalene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Acenaphthylene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Acenaphthene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Fluorene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Phenanthrene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Anthracene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Fluoranthene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Pyrene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Benz(a)anthracene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Chrysene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Benzo(b)fluoranthene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Benzo(k)fluoranthene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Benzo(a)pyrene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Indeno(1,2,3-cd)pyrene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Dibenz(a,h)anthracene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Benzo(g,h,i)perylene	ND	56.5		µg/Kg-dry	1	9/12/2014 8:13:00 AM
Surr: 2-Fluorobiphenyl	78.2	42.7-132		%REC	1	9/12/2014 8:13:00 AM
Surr: Terphenyl-d14 (surr)	119	48.8-157		%REC	1	9/12/2014 8:13:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	4.89		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Surr: Toluene-d8	98.7	65-135		%REC	1	9/11/2014 7:37:00 AM
Surr: 4-Bromofluorobenzene	90.7	65-135		%REC	1	9/11/2014 7:37:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:08:00 PM

Project: SLU Marriott

Lab ID: 1409077-042

Matrix: Soil

Client Sample ID: DP-5-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0586		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Chloromethane	ND	0.0586		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Vinyl chloride	ND	0.00195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Bromomethane	ND	0.0880		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0489		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Chloroethane	ND	0.0586		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,1-Dichloroethene	ND	0.0489		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Methylene chloride	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
trans-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0489		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,1-Dichloroethane	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
2,2-Dichloropropane	ND	0.0489		mg/Kg-dry	1	9/11/2014 7:37:00 AM
cis-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Chloroform	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,1-Dichloropropene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Carbon tetrachloride	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2-Dichloroethane (EDC)	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Benzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Trichloroethene (TCE)	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2-Dichloropropane	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Bromodichloromethane	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Dibromomethane	ND	0.0391		mg/Kg-dry	1	9/11/2014 7:37:00 AM
cis-1,3-Dichloropropene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Toluene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
trans-1,3-Dichloropropylene	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,1,2-Trichloroethane	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,3-Dichloropropane	ND	0.0489		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Tetrachloroethene (PCE)	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Dibromochloromethane	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2-Dibromoethane (EDB)	ND	0.00489		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Chlorobenzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Ethylbenzene	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
m,p-Xylene	0.0639	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:08:00 PM

Project: SLU Marriott

Lab ID: 1409077-042

Matrix: Soil

Client Sample ID: DP-5-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.0374	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Styrene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Isopropylbenzene	ND	0.0782		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Bromoform	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
n-Propylbenzene	0.0374	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Bromobenzene	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,3,5-Trimethylbenzene	0.0339	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
2-Chlorotoluene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
4-Chlorotoluene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
tert-Butylbenzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2,3-Trichloropropane	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2,4-Trichlorobenzene	ND	0.0489		mg/Kg-dry	1	9/11/2014 7:37:00 AM
sec-Butylbenzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
4-Isopropyltoluene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,3-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,4-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
n-Butylbenzene	0.0375	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2,4-Trimethylbenzene	0.0433	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Hexachlorobutadiene	ND	0.0977		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Naphthalene	0.0621	0.0293		mg/Kg-dry	1	9/11/2014 7:37:00 AM
1,2,3-Trichlorobenzene	ND	0.0195		mg/Kg-dry	1	9/11/2014 7:37:00 AM
Surr: Dibromofluoromethane	92.3	63.7-129		%REC	1	9/11/2014 7:37:00 AM
Surr: Toluene-d8	109	61.4-128		%REC	1	9/11/2014 7:37:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.5	63.1-141		%REC	1	9/11/2014 7:37:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.282		mg/Kg-dry	1	9/10/2014 3:44:54 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	3.68	0.0902		mg/Kg-dry	1	9/10/2014 4:32:34 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:08:00 PM

Project: SLU Marriott

Lab ID: 1409077-042

Matrix: Soil

Client Sample ID: DP-5-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Barium	96.2	0.451		mg/Kg-dry	1	9/10/2014 4:32:34 PM
Cadmium	ND	0.180		mg/Kg-dry	1	9/10/2014 4:32:34 PM
Chromium	31.0	0.0902		mg/Kg-dry	1	9/10/2014 4:32:34 PM
Lead	21.7	0.180		mg/Kg-dry	1	9/10/2014 4:32:34 PM
Selenium	1.15	0.451		mg/Kg-dry	1	9/10/2014 4:32:34 PM
Silver	ND	0.0902		mg/Kg-dry	1	9/10/2014 4:32:34 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	14.7			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:52:00 PM

Project: SLU Marriott

Lab ID: 1409077-044

Matrix: Soil

Client Sample ID: DP-9-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	27.0		mg/Kg-dry	1	9/10/2014 8:06:00 PM
Heavy Oil	ND	67.5		mg/Kg-dry	1	9/10/2014 8:06:00 PM
Surr: 2-Fluorobiphenyl	91.6	50-150		%REC	1	9/10/2014 8:06:00 PM
Surr: o-Terphenyl	75.3	50-150		%REC	1	9/10/2014 8:06:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: NG

Naphthalene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
2-Methylnaphthalene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
1-Methylnaphthalene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Acenaphthylene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Acenaphthene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Fluorene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Phenanthrene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Anthracene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Fluoranthene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Pyrene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Benz(a)anthracene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Chrysene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Benzo(b)fluoranthene	326	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Benzo(k)fluoranthene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Benzo(a)pyrene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Indeno(1,2,3-cd)pyrene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Dibenz(a,h)anthracene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Benzo(g,h,i)perylene	ND	68.0		µg/Kg-dry	1	9/12/2014 8:35:00 AM
Surr: 2-Fluorobiphenyl	103	42.7-132		%REC	1	9/12/2014 8:35:00 AM
Surr: Terphenyl-d14 (surr)	139	48.8-157		%REC	1	9/12/2014 8:35:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	152	9.38		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Surr: Toluene-d8	98.1	65-135		%REC	1	9/11/2014 12:02:00 PM
Surr: 4-Bromofluorobenzene	93.0	65-135		%REC	1	9/11/2014 12:02:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:52:00 PM

Project: SLU Marriott

Lab ID: 1409077-044

Matrix: Soil

Client Sample ID: DP-9-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.113		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Chloromethane	ND	0.113		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Vinyl chloride	ND	0.00375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Bromomethane	ND	0.169		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0938		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Chloroethane	ND	0.113		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,1-Dichloroethene	ND	0.0938		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Methylene chloride	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
trans-1,2-Dichloroethene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0938		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,1-Dichloroethane	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
2,2-Dichloropropane	ND	0.0938		mg/Kg-dry	1	9/11/2014 12:02:00 PM
cis-1,2-Dichloroethene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Chloroform	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,1-Dichloropropene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Carbon tetrachloride	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2-Dichloroethane (EDC)	ND	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Benzene	4.12	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Trichloroethene (TCE)	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2-Dichloropropane	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Bromodichloromethane	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Dibromomethane	ND	0.0750		mg/Kg-dry	1	9/11/2014 12:02:00 PM
cis-1,3-Dichloropropene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Toluene	0.676	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
trans-1,3-Dichloropropylene	ND	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,1,2-Trichloroethane	ND	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,3-Dichloropropane	ND	0.0938		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Tetrachloroethene (PCE)	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Dibromochloromethane	ND	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2-Dibromoethane (EDB)	ND	0.00938		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Chlorobenzene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Ethylbenzene	3.17	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
m,p-Xylene	6.85	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:52:00 PM

Project: SLU Marriott

Lab ID: 1409077-044

Matrix: Soil

Client Sample ID: DP-9-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	1.39	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Styrene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Isopropylbenzene	1.44	0.150		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Bromoform	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
n-Propylbenzene	1.21	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Bromobenzene	ND	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,3,5-Trimethylbenzene	1.06	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
2-Chlorotoluene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
4-Chlorotoluene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
tert-Butylbenzene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2,3-Trichloropropane	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2,4-Trichlorobenzene	ND	0.0938		mg/Kg-dry	1	9/11/2014 12:02:00 PM
sec-Butylbenzene	0.365	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
4-Isopropyltoluene	1.46	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,3-Dichlorobenzene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,4-Dichlorobenzene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
n-Butylbenzene	0.222	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2-Dichlorobenzene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2,4-Trimethylbenzene	0.987	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Hexachlorobutadiene	ND	0.188		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Naphthalene	0.330	0.0563		mg/Kg-dry	1	9/11/2014 12:02:00 PM
1,2,3-Trichlorobenzene	ND	0.0375		mg/Kg-dry	1	9/11/2014 12:02:00 PM
Surr: Dibromofluoromethane	90.6	63.7-129		%REC	1	9/11/2014 12:02:00 PM
Surr: Toluene-d8	110	61.4-128		%REC	1	9/11/2014 12:02:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.0	63.1-141		%REC	1	9/11/2014 12:02:00 PM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	5.51	3.13	D	mg/Kg-dry	10	9/10/2014 4:16:16 PM
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Mercury by EPA Method 7470

Batch ID: 8811

Analyst: MW

Mercury	ND	0.138		µg/L-dry	1	9/23/2014 4:43:29 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:52:00 PM

Project: SLU Marriott

Lab ID: 1409077-044

Matrix: Soil

Client Sample ID: DP-9-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	19.3	0.106		mg/Kg-dry	1	9/10/2014 4:42:54 PM
Barium	1,490	0.530		mg/Kg-dry	1	9/10/2014 4:42:54 PM
Cadmium	0.592	0.212		mg/Kg-dry	1	9/10/2014 4:42:54 PM
Chromium	26.1	0.106		mg/Kg-dry	1	9/10/2014 4:42:54 PM
Lead	244	0.212		mg/Kg-dry	1	9/10/2014 4:42:54 PM
Selenium	5.02	0.530		mg/Kg-dry	1	9/10/2014 4:42:54 PM
Silver	1.07	0.106		mg/Kg-dry	1	9/10/2014 4:42:54 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	27.4			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:50:00 PM

Project: SLU Marriott

Lab ID: 1409077-048

Matrix: Soil

Client Sample ID: DP-9-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	9/10/2014 8:38:00 PM
Heavy Oil	ND	51.7		mg/Kg-dry	1	9/10/2014 8:38:00 PM
Surr: 2-Fluorobiphenyl	87.2	50-150		%REC	1	9/10/2014 8:38:00 PM
Surr: o-Terphenyl	76.4	50-150		%REC	1	9/10/2014 8:38:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: NG

Naphthalene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
2-Methylnaphthalene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
1-Methylnaphthalene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Acenaphthylene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Acenaphthene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Fluorene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Phenanthrene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Anthracene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Fluoranthene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Pyrene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Benz(a)anthracene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Chrysene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Benzo(b)fluoranthene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Benzo(k)fluoranthene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Benzo(a)pyrene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Dibenz(a,h)anthracene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Benzo(g,h,i)perylene	ND	55.6		µg/Kg-dry	1	9/12/2014 9:20:00 AM
Surr: 2-Fluorobiphenyl	96.1	42.7-132		%REC	1	9/12/2014 9:20:00 AM
Surr: Terphenyl-d14 (surr)	127	48.8-157		%REC	1	9/12/2014 9:20:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	3.52		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Surr: Toluene-d8	99.8	65-135		%REC	1	9/11/2014 8:06:00 AM
Surr: 4-Bromofluorobenzene	92.6	65-135		%REC	1	9/11/2014 8:06:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:50:00 PM

Project: SLU Marriott

Lab ID: 1409077-048

Matrix: Soil

Client Sample ID: DP-9-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0422		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Chloromethane	ND	0.0422		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Vinyl chloride	ND	0.00141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Bromomethane	ND	0.0633		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0352		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Chloroethane	ND	0.0422		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,1-Dichloroethene	ND	0.0352		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Methylene chloride	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
trans-1,2-Dichloroethene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0352		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,1-Dichloroethane	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
2,2-Dichloropropane	ND	0.0352		mg/Kg-dry	1	9/11/2014 8:06:00 AM
cis-1,2-Dichloroethene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Chloroform	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,1-Dichloropropene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Carbon tetrachloride	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2-Dichloroethane (EDC)	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Benzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Trichloroethene (TCE)	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2-Dichloropropane	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Bromodichloromethane	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Dibromomethane	ND	0.0281		mg/Kg-dry	1	9/11/2014 8:06:00 AM
cis-1,3-Dichloropropene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Toluene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
trans-1,3-Dichloropropylene	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,1,2-Trichloroethane	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,3-Dichloropropane	ND	0.0352		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Tetrachloroethene (PCE)	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Dibromochloromethane	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2-Dibromoethane (EDB)	ND	0.00352		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Chlorobenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Ethylbenzene	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
m,p-Xylene	0.0698	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:50:00 PM

Project: SLU Marriott

Lab ID: 1409077-048

Matrix: Soil

Client Sample ID: DP-9-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.0307	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Styrene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Isopropylbenzene	ND	0.0563		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Bromoform	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
n-Propylbenzene	0.0299	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Bromobenzene	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,3,5-Trimethylbenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
2-Chlorotoluene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
4-Chlorotoluene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
tert-Butylbenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2,3-Trichloropropane	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2,4-Trichlorobenzene	ND	0.0352		mg/Kg-dry	1	9/11/2014 8:06:00 AM
sec-Butylbenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
4-Isopropyltoluene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,3-Dichlorobenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,4-Dichlorobenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
n-Butylbenzene	0.0256	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2-Dichlorobenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2,4-Trimethylbenzene	0.0289	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Hexachlorobutadiene	ND	0.0704		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Naphthalene	0.0459	0.0211		mg/Kg-dry	1	9/11/2014 8:06:00 AM
1,2,3-Trichlorobenzene	ND	0.0141		mg/Kg-dry	1	9/11/2014 8:06:00 AM
Surr: Dibromofluoromethane	90.6	63.7-129		%REC	1	9/11/2014 8:06:00 AM
Surr: Toluene-d8	107	61.4-128		%REC	1	9/11/2014 8:06:00 AM
Surr: 1-Bromo-4-fluorobenzene	96.6	63.1-141		%REC	1	9/11/2014 8:06:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.251		mg/Kg-dry	1	9/10/2014 4:02:31 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	2.51	0.0879		mg/Kg-dry	1	9/10/2014 4:46:20 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 2:50:00 PM

Project: SLU Marriott

Lab ID: 1409077-048

Matrix: Soil

Client Sample ID: DP-9-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Barium	50.0	0.440		mg/Kg-dry	1	9/10/2014 4:46:20 PM
Cadmium	ND	0.176		mg/Kg-dry	1	9/10/2014 4:46:20 PM
Chromium	25.9	0.0879		mg/Kg-dry	1	9/10/2014 4:46:20 PM
Lead	2.46	0.176		mg/Kg-dry	1	9/10/2014 4:46:20 PM
Selenium	1.26	0.440		mg/Kg-dry	1	9/10/2014 4:46:20 PM
Silver	ND	0.0879		mg/Kg-dry	1	9/10/2014 4:46:20 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	11.2			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-049

Matrix: Soil

Client Sample ID: DP-8-35.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	20.9		mg/Kg-dry	1	9/10/2014 9:10:00 PM
Heavy Oil	ND	52.2		mg/Kg-dry	1	9/10/2014 9:10:00 PM
Surr: 2-Fluorobiphenyl	88.8	50-150		%REC	1	9/10/2014 9:10:00 PM
Surr: o-Terphenyl	76.3	50-150		%REC	1	9/10/2014 9:10:00 PM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	3.32		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Surr: Toluene-d8	100	65-135		%REC	1	9/11/2014 8:36:00 AM
Surr: 4-Bromofluorobenzene	91.7	65-135		%REC	1	9/11/2014 8:36:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0399		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Chloromethane	ND	0.0399		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Vinyl chloride	ND	0.00133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Bromomethane	ND	0.0598		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0332		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Chloroethane	ND	0.0399		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,1-Dichloroethene	ND	0.0332		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Methylene chloride	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
trans-1,2-Dichloroethene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0332		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,1-Dichloroethane	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
2,2-Dichloropropane	ND	0.0332		mg/Kg-dry	1	9/11/2014 8:36:00 AM
cis-1,2-Dichloroethene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Chloroform	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,1-Dichloropropene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Carbon tetrachloride	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2-Dichloroethane (EDC)	ND	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Benzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Trichloroethene (TCE)	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2-Dichloropropane	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Bromodichloromethane	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-049

Matrix: Soil

Client Sample ID: DP-8-35.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dibromomethane	ND	0.0266		mg/Kg-dry	1	9/11/2014 8:36:00 AM
cis-1,3-Dichloropropene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Toluene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
trans-1,3-Dichloropropylene	ND	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,1,2-Trichloroethane	ND	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,3-Dichloropropane	ND	0.0332		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Tetrachloroethene (PCE)	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Dibromochloromethane	ND	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2-Dibromoethane (EDB)	ND	0.00332		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Chlorobenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Ethylbenzene	0.0215	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
m,p-Xylene	0.0774	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
o-Xylene	0.0273	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Styrene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Isopropylbenzene	ND	0.0531		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Bromoform	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
n-Propylbenzene	0.0279	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Bromobenzene	ND	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,3,5-Trimethylbenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
2-Chlorotoluene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
4-Chlorotoluene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
tert-Butylbenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2,3-Trichloropropane	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2,4-Trichlorobenzene	ND	0.0332		mg/Kg-dry	1	9/11/2014 8:36:00 AM
sec-Butylbenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
4-Isopropyltoluene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,3-Dichlorobenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,4-Dichlorobenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
n-Butylbenzene	0.0241	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2-Dichlorobenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2,4-Trimethylbenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Hexachlorobutadiene	ND	0.0664		mg/Kg-dry	1	9/11/2014 8:36:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-049

Matrix: Soil

Client Sample ID: DP-8-35.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Naphthalene	0.0516	0.0199		mg/Kg-dry	1	9/11/2014 8:36:00 AM
1,2,3-Trichlorobenzene	ND	0.0133		mg/Kg-dry	1	9/11/2014 8:36:00 AM
Surr: Dibromofluoromethane	92.1	63.7-129		%REC	1	9/11/2014 8:36:00 AM
Surr: Toluene-d8	108	61.4-128		%REC	1	9/11/2014 8:36:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.7	63.1-141		%REC	1	9/11/2014 8:36:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	14.2			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:40:00 AM

Project: SLU Marriott

Lab ID: 1409077-050

Matrix: Water

Client Sample ID: MW-2-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8679

Analyst: EC

Diesel (Fuel Oil)	ND	50.0		µg/L	1	9/11/2014 3:25:00 PM
Heavy Oil	ND	100		µg/L	1	9/11/2014 3:25:00 PM
Surr: 2-Fluorobiphenyl	79.3	50-150		%REC	1	9/11/2014 3:25:00 PM
Surr: o-Terphenyl	76.1	50-150		%REC	1	9/11/2014 3:25:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8680

Analyst: NG

Naphthalene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
2-Methylnaphthalene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
1-Methylnaphthalene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Acenaphthylene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Acenaphthene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Fluorene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Phenanthrene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Anthracene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Fluoranthene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Pyrene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Benz(a)anthracene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Chrysene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Benzo(a)pyrene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	9/11/2014 11:55:00 PM
Surr: 2-Fluorobiphenyl	87.5	23.9-122		%REC	1	9/11/2014 11:55:00 PM
Surr: Terphenyl-d14	125	33.4-135		%REC	1	9/11/2014 11:55:00 PM

Gasoline by NWTPH-Gx

Batch ID: R16682

Analyst: EM

Gasoline	ND	50.0		µg/L	1	9/9/2014 11:26:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	9/9/2014 11:26:00 PM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	9/9/2014 11:26:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:40:00 AM

Project: SLU Marriott

Lab ID: 1409077-050

Matrix: Water

Client Sample ID: MW-2-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16668

Analyst: BC

Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Chloromethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Vinyl chloride	1.34	0.200		µg/L	1	9/9/2014 11:26:00 PM
Bromomethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Chloroethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Methylene chloride	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	9/9/2014 11:26:00 PM
cis-1,2-Dichloroethene	4.44	1.00		µg/L	1	9/11/2014 1:53:00 AM
Chloroform	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Benzene	14.1	1.00		µg/L	1	9/11/2014 1:53:00 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	9/9/2014 11:26:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Dibromomethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Toluene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2-Dibromoethane (EDB)	ND	0.0600		µg/L	1	9/9/2014 11:26:00 PM
Chlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Ethylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
m,p-Xylene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:40:00 AM

Project: SLU Marriott

Lab ID: 1409077-050

Matrix: Water

Client Sample ID: MW-2-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16668

Analyst: BC

o-Xylene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Styrene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Bromoform	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Bromobenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	9/9/2014 11:26:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	9/9/2014 11:26:00 PM
Naphthalene	ND	1.00		µg/L	1	9/9/2014 11:26:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	9/9/2014 11:26:00 PM
Surr: Dibromofluoromethane	94.3	61.7-130		%REC	1	9/9/2014 11:26:00 PM
Surr: Toluene-d8	93.7	40.1-139		%REC	1	9/9/2014 11:26:00 PM
Surr: 1-Bromo-4-fluorobenzene	93.2	68.2-127		%REC	1	9/9/2014 11:26:00 PM

Dissolved Mercury by EPA Method 245.1

Batch ID: 8690

Analyst: TN

Mercury	ND	0.100		µg/L	1	9/11/2014 4:50:43 PM
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Dissolved Metals by EPA Method 200.8

Batch ID: 8658

Analyst: TN

Arsenic	3.98	1.00		µg/L	1	9/9/2014 1:21:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 9:40:00 AM

Project: SLU Marriott

Lab ID: 1409077-050

Matrix: Water

Client Sample ID: MW-2-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Metals by EPA Method 200.8

Batch ID: 8658

Analyst: TN

Barium	251	0.500		µg/L	1	9/9/2014 1:21:00 PM
Cadmium	ND	0.200		µg/L	1	9/9/2014 1:21:00 PM
Chromium	0.666	0.500		µg/L	1	9/9/2014 1:21:00 PM
Lead	ND	1.00		µg/L	1	9/9/2014 1:21:00 PM
Selenium	ND	1.00		µg/L	1	9/9/2014 1:21:00 PM
Silver	ND	0.200		µg/L	1	9/9/2014 1:21:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:10:00 AM

Project: SLU Marriott

Lab ID: 1409077-051

Matrix: Water

Client Sample ID: MW-3-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 8679	Analyst: EC
Diesel (Fuel Oil)	ND	50.0		µg/L	1	9/11/2014 4:28:00 PM
Heavy Oil	ND	100		µg/L	1	9/11/2014 4:28:00 PM
Surr: 2-Fluorobiphenyl	84.6	50-150		%REC	1	9/11/2014 4:28:00 PM
Surr: o-Terphenyl	78.2	50-150		%REC	1	9/11/2014 4:28:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 8680	Analyst: NG
Naphthalene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
2-Methylnaphthalene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
1-Methylnaphthalene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Acenaphthylene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Acenaphthene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Fluorene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Phenanthrene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Anthracene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Fluoranthene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Pyrene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Benz(a)anthracene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Chrysene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Benzo(a)pyrene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	9/12/2014 12:41:00 AM
Surr: 2-Fluorobiphenyl	91.0	23.9-122		%REC	1	9/12/2014 12:41:00 AM
Surr: Terphenyl-d14	115	33.4-135		%REC	1	9/12/2014 12:41:00 AM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: R16682	Analyst: EM
Gasoline	ND	50.0		µg/L	1	9/9/2014 11:53:00 PM
Surr: Toluene-d8	100	65-135		%REC	1	9/9/2014 11:53:00 PM
Surr: 4-Bromofluorobenzene	102	65-135		%REC	1	9/9/2014 11:53:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:10:00 AM

Project: SLU Marriott

Lab ID: 1409077-051

Matrix: Water

Client Sample ID: MW-3-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16668

Analyst: BC

Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Chloromethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Vinyl chloride	3.14	0.200		µg/L	1	9/9/2014 11:53:00 PM
Bromomethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Chloroethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Methylene chloride	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,1-Dichloroethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
2,2-Dichloropropane	ND	2.00		µg/L	1	9/9/2014 11:53:00 PM
cis-1,2-Dichloroethene	9.03	1.00		µg/L	1	9/11/2014 1:25:00 AM
Chloroform	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,1-Dichloropropene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Carbon tetrachloride	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2-Dichloroethane (EDC)	4.34	1.00		µg/L	1	9/11/2014 1:25:00 AM
Benzene	1.69	1.00		µg/L	1	9/11/2014 1:25:00 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	9/9/2014 11:53:00 PM
1,2-Dichloropropane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Bromodichloromethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Dibromomethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Toluene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,3-Dichloropropane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Dibromochloromethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2-Dibromoethane (EDB)	ND	0.0600		µg/L	1	9/9/2014 11:53:00 PM
Chlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Ethylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
m,p-Xylene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:10:00 AM

Project: SLU Marriott

Lab ID: 1409077-051

Matrix: Water

Client Sample ID: MW-3-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16668 Analyst: BC

o-Xylene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Styrene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Isopropylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Bromoform	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
n-Propylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Bromobenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
2-Chlorotoluene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
4-Chlorotoluene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
tert-Butylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	9/9/2014 11:53:00 PM
sec-Butylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
4-Isopropyltoluene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
n-Butylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
Hexachlorobutadiene	ND	4.00		µg/L	1	9/9/2014 11:53:00 PM
Naphthalene	ND	1.00		µg/L	1	9/9/2014 11:53:00 PM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	9/9/2014 11:53:00 PM
Surr: Dibromofluoromethane	97.5	61.7-130		%REC	1	9/9/2014 11:53:00 PM
Surr: Toluene-d8	93.9	40.1-139		%REC	1	9/9/2014 11:53:00 PM
Surr: 1-Bromo-4-fluorobenzene	93.2	68.2-127		%REC	1	9/9/2014 11:53:00 PM

Dissolved Mercury by EPA Method 245.1

Batch ID: 8690 Analyst: TN

Mercury	ND	0.100		µg/L	1	9/11/2014 4:57:32 PM
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Dissolved Metals by EPA Method 200.8

Batch ID: 8658 Analyst: TN

Arsenic	7.60	1.00		µg/L	1	9/9/2014 1:34:42 PM
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Qualifiers: B Analyte detected in the associated Method Blank D Dilution was required
 E Value above quantitation range H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
 RL Reporting Limit S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 11:10:00 AM

Project: SLU Marriott

Lab ID: 1409077-051

Matrix: Water

Client Sample ID: MW-3-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Metals by EPA Method 200.8

Batch ID: 8658

Analyst: TN

Barium	124	0.500		µg/L	1	9/9/2014 1:34:42 PM
Cadmium	ND	0.200		µg/L	1	9/9/2014 1:34:42 PM
Chromium	ND	0.500		µg/L	1	9/9/2014 1:34:42 PM
Lead	ND	1.00		µg/L	1	9/9/2014 1:34:42 PM
Selenium	ND	1.00		µg/L	1	9/9/2014 1:34:42 PM
Silver	1.04	0.200		µg/L	1	9/9/2014 1:34:42 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-052

Matrix: Water

Client Sample ID: MW-1-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 8679	Analyst: EC
Diesel (Fuel Oil)	ND	50.0		µg/L	1	9/12/2014 10:35:00 AM
Heavy Oil	ND	100		µg/L	1	9/12/2014 10:35:00 AM
Surr: 2-Fluorobiphenyl	72.0	50-150		%REC	1	9/12/2014 10:35:00 AM
Surr: o-Terphenyl	65.9	50-150		%REC	1	9/12/2014 10:35:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 8680	Analyst: NG
Naphthalene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
2-Methylnaphthalene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
1-Methylnaphthalene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Acenaphthylene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Acenaphthene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Fluorene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Phenanthrene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Anthracene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Fluoranthene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Pyrene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Benz(a)anthracene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Chrysene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Benzo(b)fluoranthene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Benzo(k)fluoranthene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Benzo(a)pyrene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Indeno(1,2,3-cd)pyrene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Dibenz(a,h)anthracene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Benzo(g,h,i)perylene	ND	0.100		µg/L	1	9/12/2014 1:26:00 AM
Surr: 2-Fluorobiphenyl	83.9	23.9-122		%REC	1	9/12/2014 1:26:00 AM
Surr: Terphenyl-d14	108	33.4-135		%REC	1	9/12/2014 1:26:00 AM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: R16682	Analyst: EM
Gasoline	ND	50.0		µg/L	1	9/10/2014 12:22:00 AM
Surr: Toluene-d8	99.1	65-135		%REC	1	9/10/2014 12:22:00 AM
Surr: 4-Bromofluorobenzene	107	65-135		%REC	1	9/10/2014 12:22:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-052

Matrix: Water

Client Sample ID: MW-1-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16668

Analyst: BC

Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Chloromethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Vinyl chloride	ND	0.200		µg/L	1	9/10/2014 12:22:00 AM
Bromomethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Chloroethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Methylene chloride	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	9/10/2014 12:22:00 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Chloroform	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Carbon tetrachloride	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Benzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	9/10/2014 12:22:00 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Bromodichloromethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Dibromomethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Toluene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Dibromochloromethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2-Dibromoethane (EDB)	ND	0.0600		µg/L	1	9/10/2014 12:22:00 AM
Chlorobenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Ethylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
m,p-Xylene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-052

Matrix: Water

Client Sample ID: MW-1-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: R16668 Analyst: BC

o-Xylene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Styrene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Isopropylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Bromoform	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Bromobenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
2-Chlorotoluene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
4-Chlorotoluene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	9/10/2014 12:22:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
Hexachlorobutadiene	ND	4.00		µg/L	1	9/10/2014 12:22:00 AM
Naphthalene	ND	1.00		µg/L	1	9/10/2014 12:22:00 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	9/10/2014 12:22:00 AM
Surr: Dibromofluoromethane	100	61.7-130		%REC	1	9/10/2014 12:22:00 AM
Surr: Toluene-d8	95.3	40.1-139		%REC	1	9/10/2014 12:22:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.8	68.2-127		%REC	1	9/10/2014 12:22:00 AM

Dissolved Mercury by EPA Method 245.1

Batch ID: 8690 Analyst: TN

Mercury	ND	0.100		µg/L	1	9/11/2014 4:59:13 PM
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Dissolved Metals by EPA Method 200.8

Batch ID: 8658 Analyst: TN

Arsenic	ND	1.00		µg/L	1	9/9/2014 1:38:08 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:30:00 PM

Project: SLU Marriott

Lab ID: 1409077-052

Matrix: Water

Client Sample ID: MW-1-140906

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Dissolved Metals by EPA Method 200.8

Batch ID: 8658

Analyst: TN

Barium	200	0.500		µg/L	1	9/9/2014 1:38:08 PM
Cadmium	ND	0.200		µg/L	1	9/9/2014 1:38:08 PM
Chromium	ND	0.500		µg/L	1	9/9/2014 1:38:08 PM
Lead	ND	1.00		µg/L	1	9/9/2014 1:38:08 PM
Selenium	ND	1.00		µg/L	1	9/9/2014 1:38:08 PM
Silver	ND	0.200		µg/L	1	9/9/2014 1:38:08 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:40:00 PM

Project: SLU Marriott

Lab ID: 1409077-054

Matrix: Soil

Client Sample ID: DP-8-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8670

Analyst: EC

Diesel (Fuel Oil)	ND	31.9		mg/Kg-dry	1	9/11/2014 8:02:00 AM
Heavy Oil	1,550	79.6		mg/Kg-dry	1	9/11/2014 8:02:00 AM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	9/11/2014 8:02:00 AM
Surr: o-Terphenyl	99.0	50-150		%REC	1	9/11/2014 8:02:00 AM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: DB

Naphthalene	188,000	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
2-Methylnaphthalene	266,000	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
1-Methylnaphthalene	120,000	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Acenaphthylene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Acenaphthene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Fluorene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Phenanthrene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Anthracene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Fluoranthene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Pyrene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Benz(a)anthracene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Chrysene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Benzo(b)fluoranthene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Benzo(k)fluoranthene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Benzo(a)pyrene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Indeno(1,2,3-cd)pyrene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Dibenz(a,h)anthracene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Benzo(g,h,i)perylene	ND	8,360	D	µg/Kg-dry	100	9/16/2014 2:07:00 PM
Surr: 2-Fluorobiphenyl	73.2	42.7-132	D	%REC	100	9/16/2014 2:07:00 PM
Surr: Terphenyl-d14 (surr)	145	48.8-157	D	%REC	100	9/16/2014 2:07:00 PM

Gasoline by NWTPH-Gx

Batch ID: 8672

Analyst: EM

Gasoline	2,820	364	D	mg/Kg-dry	50	9/15/2014 10:47:00 AM
Surr: Toluene-d8	104	65-135		%REC	1	9/11/2014 11:03:00 AM
Surr: 4-Bromofluorobenzene	131	65-135		%REC	1	9/11/2014 11:03:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:40:00 PM

Project: SLU Marriott

Lab ID: 1409077-054

Matrix: Soil

Client Sample ID: DP-8-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0873		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Chloromethane	ND	0.0873		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Vinyl chloride	ND	0.00291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Bromomethane	ND	0.131		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0727		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Chloroethane	ND	0.0873		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,1-Dichloroethene	ND	0.0727		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Methylene chloride	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
trans-1,2-Dichloroethene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0727		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,1-Dichloroethane	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
2,2-Dichloropropane	ND	0.0727		mg/Kg-dry	1	9/11/2014 11:03:00 AM
cis-1,2-Dichloroethene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Chloroform	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,1-Dichloropropene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Carbon tetrachloride	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,2-Dichloroethane (EDC)	ND	0.0436		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Benzene	0.717	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Trichloroethene (TCE)	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,2-Dichloropropane	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Bromodichloromethane	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Dibromomethane	ND	0.0582		mg/Kg-dry	1	9/11/2014 11:03:00 AM
cis-1,3-Dichloropropene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Toluene	1.27	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
trans-1,3-Dichloropropylene	ND	0.0436		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,1,2-Trichloroethane	ND	0.0436		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,3-Dichloropropane	ND	0.0727		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Tetrachloroethene (PCE)	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Dibromochloromethane	ND	0.0436		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,2-Dibromoethane (EDB)	ND	0.00727		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Chlorobenzene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0436		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Ethylbenzene	27.7	2.18	D	mg/Kg-dry	50	9/15/2014 10:47:00 AM
m,p-Xylene	3.30	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:40:00 PM

Project: SLU Marriott

Lab ID: 1409077-054

Matrix: Soil

Client Sample ID: DP-8-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.836	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Styrene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Isopropylbenzene	10.0	5.82	D	mg/Kg-dry	50	9/15/2014 10:47:00 AM
Bromoform	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
n-Propylbenzene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Bromobenzene	ND	0.0436		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,3,5-Trimethylbenzene	0.332	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
2-Chlorotoluene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
4-Chlorotoluene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
tert-Butylbenzene	0.167	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,2,3-Trichloropropane	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,2,4-Trichlorobenzene	ND	0.0727		mg/Kg-dry	1	9/11/2014 11:03:00 AM
sec-Butylbenzene	6.46	1.45	D	mg/Kg-dry	50	9/15/2014 10:47:00 AM
4-Isopropyltoluene	2.29	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,3-Dichlorobenzene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,4-Dichlorobenzene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
n-Butylbenzene	22.2	1.45	D	mg/Kg-dry	50	9/15/2014 10:47:00 AM
1,2-Dichlorobenzene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0436		mg/Kg-dry	1	9/11/2014 11:03:00 AM
1,2,4-Trimethylbenzene	1.54	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Hexachlorobutadiene	ND	0.145		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Naphthalene	149	2.18	D	mg/Kg-dry	50	9/15/2014 10:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0291		mg/Kg-dry	1	9/11/2014 11:03:00 AM
Surr: Dibromofluoromethane	93.4	63.7-129		%REC	1	9/11/2014 11:03:00 AM
Surr: Toluene-d8	119	61.4-128		%REC	1	9/11/2014 11:03:00 AM
Surr: 1-Bromo-4-fluorobenzene	114	63.1-141		%REC	1	9/11/2014 11:03:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	5.45	4.15	D	mg/Kg-dry	10	9/10/2014 4:17:54 PM
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Mercury by EPA Method 7470

Batch ID: 8811

Analyst: MW

Mercury	ND	0.169		µg/L-dry	1	9/23/2014 4:50:19 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:40:00 PM

Project: SLU Marriott

Lab ID: 1409077-054

Matrix: Soil

Client Sample ID: DP-8-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	14.6	0.126		mg/Kg-dry	1	9/10/2014 4:49:45 PM
Barium	780	0.632		mg/Kg-dry	1	9/10/2014 4:49:45 PM
Cadmium	1.07	0.253		mg/Kg-dry	1	9/10/2014 4:49:45 PM
Chromium	21.7	0.126		mg/Kg-dry	1	9/10/2014 4:49:45 PM
Lead	1,080	0.253		mg/Kg-dry	1	9/10/2014 4:49:45 PM
Selenium	2.55	0.632		mg/Kg-dry	1	9/10/2014 4:49:45 PM
Silver	0.543	0.126		mg/Kg-dry	1	9/10/2014 4:49:45 PM

Metals (SW6020) with TCLP Extraction (EPA 1311)

Batch ID: 8796

Analyst: TN

Lead	ND	0.200		mg/L	1	9/22/2014 11:37:44 AM
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Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	41.0			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-058

Matrix: Soil

Client Sample ID: DP-8-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8671

Analyst: EC

Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	9/10/2014 1:32:00 PM
Heavy Oil	ND	56.4		mg/Kg-dry	1	9/10/2014 1:32:00 PM
Surr: 2-Fluorobiphenyl	77.4	50-150		%REC	1	9/10/2014 1:32:00 PM
Surr: o-Terphenyl	89.2	50-150		%REC	1	9/10/2014 1:32:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: NG

Naphthalene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
2-Methylnaphthalene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
1-Methylnaphthalene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Acenaphthylene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Acenaphthene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Fluorene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Phenanthrene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Anthracene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Fluoranthene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Pyrene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Benz(a)anthracene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Chrysene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Benzo(b)fluoranthene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Benzo(k)fluoranthene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Benzo(a)pyrene	174	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Indeno(1,2,3-cd)pyrene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Dibenz(a,h)anthracene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Benzo(g,h,i)perylene	ND	52.9		µg/Kg-dry	1	9/12/2014 10:28:00 AM
Surr: 2-Fluorobiphenyl	93.4	42.7-132		%REC	1	9/12/2014 10:28:00 AM
Surr: Terphenyl-d14 (surr)	120	48.8-157		%REC	1	9/12/2014 10:28:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	4.41		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Surr: Toluene-d8	102	65-135		%REC	1	9/11/2014 9:05:00 AM
Surr: 4-Bromofluorobenzene	92.4	65-135		%REC	1	9/11/2014 9:05:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-058

Matrix: Soil

Client Sample ID: DP-8-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0529		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Chloromethane	ND	0.0529		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Vinyl chloride	ND	0.00176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Bromomethane	ND	0.0794		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0441		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Chloroethane	ND	0.0529		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,1-Dichloroethene	ND	0.0441		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Methylene chloride	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
trans-1,2-Dichloroethene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0441		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,1-Dichloroethane	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
2,2-Dichloropropane	ND	0.0441		mg/Kg-dry	1	9/11/2014 9:05:00 AM
cis-1,2-Dichloroethene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Chloroform	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,1-Dichloropropene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Carbon tetrachloride	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2-Dichloroethane (EDC)	ND	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Benzene	0.312	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Trichloroethene (TCE)	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2-Dichloropropane	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Bromodichloromethane	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Dibromomethane	ND	0.0353		mg/Kg-dry	1	9/11/2014 9:05:00 AM
cis-1,3-Dichloropropene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Toluene	0.0183	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
trans-1,3-Dichloropropylene	ND	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,1,2-Trichloroethane	ND	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,3-Dichloropropane	ND	0.0441		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Tetrachloroethene (PCE)	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Dibromochloromethane	ND	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2-Dibromoethane (EDB)	ND	0.00441		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Chlorobenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Ethylbenzene	0.0325	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
m,p-Xylene	0.128	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-058

Matrix: Soil

Client Sample ID: DP-8-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.0347	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Styrene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Isopropylbenzene	0.0760	0.0706		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Bromoform	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
n-Propylbenzene	0.122	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Bromobenzene	ND	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,3,5-Trimethylbenzene	0.0315	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
2-Chlorotoluene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
4-Chlorotoluene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
tert-Butylbenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2,3-Trichloropropane	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2,4-Trichlorobenzene	ND	0.0441		mg/Kg-dry	1	9/11/2014 9:05:00 AM
sec-Butylbenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
4-Isopropyltoluene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,3-Dichlorobenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,4-Dichlorobenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
n-Butylbenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2-Dichlorobenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2,4-Trimethylbenzene	0.0380	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Hexachlorobutadiene	ND	0.0882		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Naphthalene	0.0617	0.0265		mg/Kg-dry	1	9/11/2014 9:05:00 AM
1,2,3-Trichlorobenzene	ND	0.0176		mg/Kg-dry	1	9/11/2014 9:05:00 AM
Surr: Dibromofluoromethane	93.0	63.7-129		%REC	1	9/11/2014 9:05:00 AM
Surr: Toluene-d8	110	61.4-128		%REC	1	9/11/2014 9:05:00 AM
Surr: 1-Bromo-4-fluorobenzene	96.4	63.1-141		%REC	1	9/11/2014 9:05:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.246		mg/Kg-dry	1	9/10/2014 4:06:36 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	1.65	0.0893		mg/Kg-dry	1	9/10/2014 4:53:10 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:05:00 PM

Project: SLU Marriott

Lab ID: 1409077-058

Matrix: Soil

Client Sample ID: DP-8-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Barium	40.6	0.447		mg/Kg-dry	1	9/10/2014 4:53:10 PM
Cadmium	ND	0.179		mg/Kg-dry	1	9/10/2014 4:53:10 PM
Chromium	21.5	0.0893		mg/Kg-dry	1	9/10/2014 4:53:10 PM
Lead	2.68	0.179		mg/Kg-dry	1	9/10/2014 4:53:10 PM
Selenium	0.749	0.447		mg/Kg-dry	1	9/10/2014 4:53:10 PM
Silver	ND	0.0893		mg/Kg-dry	1	9/10/2014 4:53:10 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	13.9			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:20:00 PM

Project: SLU Marriott

Lab ID: 1409077-059

Matrix: Soil

Client Sample ID: DP-8-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8824

Analyst: EM

Benzene	0.0864	0.0160	H	mg/Kg-dry	1	9/24/2014 9:16:00 AM
Surr: Dibromofluoromethane	101	63.7-129	H	%REC	1	9/24/2014 9:16:00 AM
Surr: Toluene-d8	100	64.3-131	H	%REC	1	9/24/2014 9:16:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.2	63.1-141	H	%REC	1	9/24/2014 9:16:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R16932

Analyst: SL

Percent Moisture	28.0			wt%	1	9/23/2014 3:54:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:53:00 PM

Project: SLU Marriott

Lab ID: 1409077-061

Matrix: Soil

Client Sample ID: DP-10-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8671

Analyst: EC

Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	9/10/2014 2:33:00 PM
Heavy Oil	ND	51.4		mg/Kg-dry	1	9/10/2014 2:33:00 PM
Surr: 2-Fluorobiphenyl	75.8	50-150		%REC	1	9/10/2014 2:33:00 PM
Surr: o-Terphenyl	88.4	50-150		%REC	1	9/10/2014 2:33:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: NG

Naphthalene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
2-Methylnaphthalene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
1-Methylnaphthalene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Acenaphthylene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Acenaphthene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Fluorene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Phenanthrene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Anthracene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Fluoranthene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Pyrene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Benz(a)anthracene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Chrysene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Benzo(b)fluoranthene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Benzo(k)fluoranthene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Benzo(a)pyrene	174	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Indeno(1,2,3-cd)pyrene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Dibenz(a,h)anthracene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Benzo(g,h,i)perylene	ND	53.5		µg/Kg-dry	1	9/12/2014 10:50:00 AM
Surr: 2-Fluorobiphenyl	97.3	42.7-132		%REC	1	9/12/2014 10:50:00 AM
Surr: Terphenyl-d14 (surr)	115	48.8-157		%REC	1	9/12/2014 10:50:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	4.17		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Surr: Toluene-d8	99.8	65-135		%REC	1	9/11/2014 9:35:00 AM
Surr: 4-Bromofluorobenzene	91.4	65-135		%REC	1	9/11/2014 9:35:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:53:00 PM

Project: SLU Marriott

Lab ID: 1409077-061

Matrix: Soil

Client Sample ID: DP-10-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0500		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Chloromethane	ND	0.0500		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Vinyl chloride	ND	0.00167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Bromomethane	ND	0.0750		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0417		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Chloroethane	ND	0.0500		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,1-Dichloroethene	ND	0.0417		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Methylene chloride	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
trans-1,2-Dichloroethene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0417		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,1-Dichloroethane	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
2,2-Dichloropropane	ND	0.0417		mg/Kg-dry	1	9/11/2014 9:35:00 AM
cis-1,2-Dichloroethene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Chloroform	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,1-Dichloropropene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Carbon tetrachloride	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2-Dichloroethane (EDC)	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Benzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Trichloroethene (TCE)	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2-Dichloropropane	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Bromodichloromethane	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Dibromomethane	ND	0.0333		mg/Kg-dry	1	9/11/2014 9:35:00 AM
cis-1,3-Dichloropropene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Toluene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
trans-1,3-Dichloropropylene	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,1,2-Trichloroethane	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,3-Dichloropropane	ND	0.0417		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Tetrachloroethene (PCE)	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Dibromochloromethane	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2-Dibromoethane (EDB)	ND	0.00417		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Chlorobenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Ethylbenzene	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
m,p-Xylene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:53:00 PM

Project: SLU Marriott

Lab ID: 1409077-061

Matrix: Soil

Client Sample ID: DP-10-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Styrene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Isopropylbenzene	ND	0.0667		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Bromoform	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
n-Propylbenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Bromobenzene	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,3,5-Trimethylbenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
2-Chlorotoluene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
4-Chlorotoluene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
tert-Butylbenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2,3-Trichloropropane	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2,4-Trichlorobenzene	ND	0.0417		mg/Kg-dry	1	9/11/2014 9:35:00 AM
sec-Butylbenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
4-Isopropyltoluene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,3-Dichlorobenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,4-Dichlorobenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
n-Butylbenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2-Dichlorobenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2,4-Trimethylbenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Hexachlorobutadiene	ND	0.0833		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Naphthalene	ND	0.0250		mg/Kg-dry	1	9/11/2014 9:35:00 AM
1,2,3-Trichlorobenzene	ND	0.0167		mg/Kg-dry	1	9/11/2014 9:35:00 AM
Surr: Dibromofluoromethane	90.6	63.7-129		%REC	1	9/11/2014 9:35:00 AM
Surr: Toluene-d8	105	61.4-128		%REC	1	9/11/2014 9:35:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.4	63.1-141		%REC	1	9/11/2014 9:35:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.253		mg/Kg-dry	1	9/10/2014 4:08:14 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	1.96	0.0857		mg/Kg-dry	1	9/10/2014 4:56:36 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:53:00 PM

Project: SLU Marriott

Lab ID: 1409077-061

Matrix: Soil

Client Sample ID: DP-10-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Barium	53.2	0.428		mg/Kg-dry	1	9/10/2014 4:56:36 PM
Cadmium	ND	0.171		mg/Kg-dry	1	9/10/2014 4:56:36 PM
Chromium	28.4	0.0857		mg/Kg-dry	1	9/10/2014 4:56:36 PM
Lead	2.29	0.171		mg/Kg-dry	1	9/10/2014 4:56:36 PM
Selenium	1.13	0.428		mg/Kg-dry	1	9/10/2014 4:56:36 PM
Silver	ND	0.0857		mg/Kg-dry	1	9/10/2014 4:56:36 PM

Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	10.2			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:36:00 PM

Project: SLU Marriott

Lab ID: 1409077-062

Matrix: Soil

Client Sample ID: DP-11-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8671

Analyst: EC

Diesel (Fuel Oil)	15,800	22.5		mg/Kg-dry	1	9/10/2014 3:04:00 PM
Heavy Oil	2,230	56.1		mg/Kg-dry	1	9/10/2014 3:04:00 PM
Surr: 2-Fluorobiphenyl	134	50-150		%REC	1	9/10/2014 3:04:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	9/10/2014 3:04:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: DB

Naphthalene	953	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
2-Methylnaphthalene	24,500	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
1-Methylnaphthalene	18,600	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Acenaphthylene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Acenaphthene	1,290	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Fluorene	2,100	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Phenanthrene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Anthracene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Fluoranthene	792	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Pyrene	1,170	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Benz(a)anthracene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Chrysene	394	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Benzo(b)fluoranthene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Benzo(k)fluoranthene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Benzo(a)pyrene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Indeno(1,2,3-cd)pyrene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Dibenz(a,h)anthracene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Benzo(g,h,i)perylene	ND	292	D	µg/Kg-dry	5	9/16/2014 5:19:00 PM
Surr: 2-Fluorobiphenyl	84.8	42.7-132	D	%REC	5	9/16/2014 5:19:00 PM
Surr: Terphenyl-d14 (surr)	116	48.8-157	D	%REC	5	9/16/2014 5:19:00 PM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	5.29		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Surr: Toluene-d8	99.3	65-135		%REC	1	9/11/2014 10:04:00 AM
Surr: 4-Bromofluorobenzene	93.2	65-135		%REC	1	9/11/2014 10:04:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:36:00 PM

Project: SLU Marriott

Lab ID: 1409077-062

Matrix: Soil

Client Sample ID: DP-11-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0635		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Chloromethane	ND	0.0635		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Vinyl chloride	ND	0.00212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Bromomethane	ND	0.0953		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0529		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Chloroethane	ND	0.0635		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,1-Dichloroethene	ND	0.0529		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Methylene chloride	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
trans-1,2-Dichloroethene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0529		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,1-Dichloroethane	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
2,2-Dichloropropane	ND	0.0529		mg/Kg-dry	1	9/11/2014 10:04:00 AM
cis-1,2-Dichloroethene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Chloroform	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,1-Dichloropropene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Carbon tetrachloride	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2-Dichloroethane (EDC)	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Benzene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Trichloroethene (TCE)	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2-Dichloropropane	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Bromodichloromethane	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Dibromomethane	ND	0.0424		mg/Kg-dry	1	9/11/2014 10:04:00 AM
cis-1,3-Dichloropropene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Toluene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
trans-1,3-Dichloropropylene	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,1,2-Trichloroethane	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,3-Dichloropropane	ND	0.0529		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Tetrachloroethene (PCE)	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Dibromochloromethane	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2-Dibromoethane (EDB)	ND	0.00529		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Chlorobenzene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Ethylbenzene	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
m,p-Xylene	0.0776	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:36:00 PM

Project: SLU Marriott

Lab ID: 1409077-062

Matrix: Soil

Client Sample ID: DP-11-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.0415	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Styrene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Isopropylbenzene	ND	0.0847		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Bromoform	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
n-Propylbenzene	0.0669	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Bromobenzene	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,3,5-Trimethylbenzene	0.0378	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
2-Chlorotoluene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
4-Chlorotoluene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
tert-Butylbenzene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2,3-Trichloropropane	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2,4-Trichlorobenzene	ND	0.0529		mg/Kg-dry	1	9/11/2014 10:04:00 AM
sec-Butylbenzene	0.0564	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
4-Isopropyltoluene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,3-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,4-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
n-Butylbenzene	0.105	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2,4-Trimethylbenzene	0.0533	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Hexachlorobutadiene	ND	0.106		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Naphthalene	0.0704	0.0318		mg/Kg-dry	1	9/11/2014 10:04:00 AM
1,2,3-Trichlorobenzene	ND	0.0212		mg/Kg-dry	1	9/11/2014 10:04:00 AM
Surr: Dibromofluoromethane	90.4	63.7-129		%REC	1	9/11/2014 10:04:00 AM
Surr: Toluene-d8	106	61.4-128		%REC	1	9/11/2014 10:04:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.4	63.1-141		%REC	1	9/11/2014 10:04:00 AM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.256		mg/Kg-dry	1	9/10/2014 4:09:50 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	2.59	0.0866		mg/Kg-dry	1	9/10/2014 5:00:01 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 12:36:00 PM

Project: SLU Marriott

Lab ID: 1409077-062

Matrix: Soil

Client Sample ID: DP-11-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Barium	424	0.433		mg/Kg-dry	1	9/10/2014 5:00:01 PM
Cadmium	1.83	0.173		mg/Kg-dry	1	9/10/2014 5:00:01 PM
Chromium	27.1	0.0866		mg/Kg-dry	1	9/10/2014 5:00:01 PM
Lead	1,370	0.173		mg/Kg-dry	1	9/10/2014 5:00:01 PM
Selenium	1.01	0.433		mg/Kg-dry	1	9/10/2014 5:00:01 PM
Silver	0.235	0.0866		mg/Kg-dry	1	9/10/2014 5:00:01 PM

Metals (SW6020) with TCLP Extraction (EPA 1311)

Batch ID: 8796

Analyst: TN

Lead	3.26	0.200		mg/L	1	9/22/2014 11:41:10 AM
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Sample Moisture (Percent Moisture)

Batch ID: R16685

Analyst: SL

Percent Moisture	14.4			wt%	1	9/10/2014 10:35:08 AM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:27:00 PM

Project: SLU Marriott

Lab ID: 1409077-067

Matrix: Soil

Client Sample ID: DP-11-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8671

Analyst: EC

Diesel (Fuel Oil)	ND	24.9		mg/Kg-dry	1	9/10/2014 3:35:00 PM
Heavy Oil	ND	62.1		mg/Kg-dry	1	9/10/2014 3:35:00 PM
Surr: 2-Fluorobiphenyl	84.5	50-150		%REC	1	9/10/2014 3:35:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	9/10/2014 3:35:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: NG

Naphthalene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
2-Methylnaphthalene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
1-Methylnaphthalene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Acenaphthylene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Acenaphthene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Fluorene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Phenanthrene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Anthracene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Fluoranthene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Pyrene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Benz(a)anthracene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Chrysene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Benzo(b)fluoranthene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Benzo(k)fluoranthene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Benzo(a)pyrene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Indeno(1,2,3-cd)pyrene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Dibenz(a,h)anthracene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Benzo(g,h,i)perylene	ND	62.5		µg/Kg-dry	1	9/12/2014 11:58:00 AM
Surr: 2-Fluorobiphenyl	79.1	42.7-132		%REC	1	9/12/2014 11:58:00 AM
Surr: Terphenyl-d14 (surr)	121	48.8-157		%REC	1	9/12/2014 11:58:00 AM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	23.3	6.05		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Surr: Toluene-d8	99.1	65-135		%REC	1	9/11/2014 2:59:00 PM
Surr: 4-Bromofluorobenzene	94.4	65-135		%REC	1	9/11/2014 2:59:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:27:00 PM

Project: SLU Marriott

Lab ID: 1409077-067

Matrix: Soil

Client Sample ID: DP-11-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0726		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Chloromethane	ND	0.0726		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Vinyl chloride	ND	0.00242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Bromomethane	ND	0.109		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0605		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Chloroethane	ND	0.0726		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,1-Dichloroethene	ND	0.0605		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Methylene chloride	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
trans-1,2-Dichloroethene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0605		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,1-Dichloroethane	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
2,2-Dichloropropane	ND	0.0605		mg/Kg-dry	1	9/11/2014 2:59:00 PM
cis-1,2-Dichloroethene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Chloroform	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,1-Dichloropropene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Carbon tetrachloride	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2-Dichloroethane (EDC)	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Benzene	0.0375	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Trichloroethene (TCE)	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2-Dichloropropane	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Bromodichloromethane	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Dibromomethane	ND	0.0484		mg/Kg-dry	1	9/11/2014 2:59:00 PM
cis-1,3-Dichloropropene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Toluene	0.0252	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
trans-1,3-Dichloropropylene	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,1,2-Trichloroethane	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,3-Dichloropropane	ND	0.0605		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Tetrachloroethene (PCE)	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Dibromochloromethane	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2-Dibromoethane (EDB)	ND	0.00605		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Chlorobenzene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Ethylbenzene	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
m,p-Xylene	0.144	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 1:27:00 PM

Project: SLU Marriott

Lab ID: 1409077-067

Matrix: Soil

Client Sample ID: DP-11-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.0593	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Styrene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Isopropylbenzene	0.471	0.0968		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Bromoform	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
n-Propylbenzene	0.254	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Bromobenzene	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,3,5-Trimethylbenzene	0.0516	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
2-Chlorotoluene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
4-Chlorotoluene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
tert-Butylbenzene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2,3-Trichloropropane	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2,4-Trichlorobenzene	ND	0.0605		mg/Kg-dry	1	9/11/2014 2:59:00 PM
sec-Butylbenzene	0.0592	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
4-Isopropyltoluene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,3-Dichlorobenzene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,4-Dichlorobenzene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
n-Butylbenzene	0.0486	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2-Dichlorobenzene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2,4-Trimethylbenzene	0.0577	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Hexachlorobutadiene	ND	0.121		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Naphthalene	0.0767	0.0363		mg/Kg-dry	1	9/11/2014 2:59:00 PM
1,2,3-Trichlorobenzene	ND	0.0242		mg/Kg-dry	1	9/11/2014 2:59:00 PM
Surr: Dibromofluoromethane	93.9	63.7-129		%REC	1	9/11/2014 2:59:00 PM
Surr: Toluene-d8	112	61.4-128		%REC	1	9/11/2014 2:59:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.2	63.1-141		%REC	1	9/11/2014 2:59:00 PM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.293		mg/Kg-dry	1	9/10/2014 4:11:26 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	6.21	0.0955		mg/Kg-dry	1	9/10/2014 5:03:26 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1409077-067
Client Sample ID: DP-11-15.0

Collection Date: 9/6/2014 1:27:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 8674	Analyst: TN
Barium	139	0.477		mg/Kg-dry	1	9/10/2014 5:03:26 PM
Cadmium	ND	0.191		mg/Kg-dry	1	9/10/2014 5:03:26 PM
Chromium	66.3	0.0955		mg/Kg-dry	1	9/10/2014 5:03:26 PM
Lead	21.8	0.191		mg/Kg-dry	1	9/10/2014 5:03:26 PM
Selenium	2.23	0.477		mg/Kg-dry	1	9/10/2014 5:03:26 PM
Silver	0.103	0.0955		mg/Kg-dry	1	9/10/2014 5:03:26 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R16685	Analyst: SL
Percent Moisture	22.4			wt%	1	9/10/2014 10:35:08 AM
<u>Hexavalent Chromium by EPA Method 7196</u>					Batch ID: 8795	Analyst: MW
Chromium, Hexavalent	ND	0.640		mg/Kg-dry	1	9/21/2014 10:22:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:21:00 AM

Project: SLU Marriott

Lab ID: 1409077-070

Matrix: Soil

Client Sample ID: DP-12-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8671

Analyst: EC

Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	9/10/2014 4:06:00 PM
Heavy Oil	230	54.3		mg/Kg-dry	1	9/10/2014 4:06:00 PM
Surr: 2-Fluorobiphenyl	91.4	50-150		%REC	1	9/10/2014 4:06:00 PM
Surr: o-Terphenyl	92.2	50-150		%REC	1	9/10/2014 4:06:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: DB

Naphthalene	72.2	316	JD	µg/Kg-dry	5	9/16/2014 5:50:00 PM
2-Methylnaphthalene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
1-Methylnaphthalene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Acenaphthylene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Acenaphthene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Fluorene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Phenanthrene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Anthracene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Fluoranthene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Pyrene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Benz(a)anthracene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Chrysene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Benzo(b)fluoranthene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Benzo(k)fluoranthene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Benzo(a)pyrene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Indeno(1,2,3-cd)pyrene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Dibenz(a,h)anthracene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Benzo(g,h,i)perylene	ND	316	D	µg/Kg-dry	5	9/16/2014 5:50:00 PM
Surr: 2-Fluorobiphenyl	72.1	42.7-132	D	%REC	5	9/16/2014 5:50:00 PM
Surr: Terphenyl-d14 (surr)	125	48.8-157	D	%REC	5	9/16/2014 5:50:00 PM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	10.3		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	9/11/2014 3:29:00 PM
Surr: 4-Bromofluorobenzene	96.7	65-135		%REC	1	9/11/2014 3:29:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:21:00 AM

Project: SLU Marriott

Lab ID: 1409077-070

Matrix: Soil

Client Sample ID: DP-12-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.124		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Chloromethane	ND	0.124		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Vinyl chloride	ND	0.00413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Bromomethane	ND	0.186		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.103		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Chloroethane	ND	0.124		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,1-Dichloroethene	ND	0.103		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Methylene chloride	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
trans-1,2-Dichloroethene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.103		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,1-Dichloroethane	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
2,2-Dichloropropane	ND	0.103		mg/Kg-dry	1	9/11/2014 3:29:00 PM
cis-1,2-Dichloroethene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Chloroform	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,1-Dichloropropene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Carbon tetrachloride	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2-Dichloroethane (EDC)	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Benzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Trichloroethene (TCE)	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2-Dichloropropane	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Bromodichloromethane	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Dibromomethane	ND	0.0825		mg/Kg-dry	1	9/11/2014 3:29:00 PM
cis-1,3-Dichloropropene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Toluene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
trans-1,3-Dichloropropylene	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,1,2-Trichloroethane	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,3-Dichloropropane	ND	0.103		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Tetrachloroethene (PCE)	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Dibromochloromethane	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2-Dibromoethane (EDB)	ND	0.0103		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Chlorobenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Ethylbenzene	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
m,p-Xylene	0.138	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:21:00 AM

Project: SLU Marriott

Lab ID: 1409077-070

Matrix: Soil

Client Sample ID: DP-12-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.0817	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Styrene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Isopropylbenzene	ND	0.165		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Bromoform	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
n-Propylbenzene	0.0868	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Bromobenzene	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,3,5-Trimethylbenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
2-Chlorotoluene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
4-Chlorotoluene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
tert-Butylbenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2,3-Trichloropropane	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2,4-Trichlorobenzene	ND	0.103		mg/Kg-dry	1	9/11/2014 3:29:00 PM
sec-Butylbenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
4-Isopropyltoluene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,3-Dichlorobenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,4-Dichlorobenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
n-Butylbenzene	0.0813	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2-Dichlorobenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2,4-Trimethylbenzene	0.0869	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Hexachlorobutadiene	ND	0.206		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Naphthalene	0.179	0.0619		mg/Kg-dry	1	9/11/2014 3:29:00 PM
1,2,3-Trichlorobenzene	ND	0.0413		mg/Kg-dry	1	9/11/2014 3:29:00 PM
Surr: Dibromofluoromethane	89.3	63.7-129		%REC	1	9/11/2014 3:29:00 PM
Surr: Toluene-d8	97.6	61.4-128		%REC	1	9/11/2014 3:29:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	9/11/2014 3:29:00 PM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	ND	0.281		mg/Kg-dry	1	9/10/2014 4:13:02 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	8.76	0.0956		mg/Kg-dry	1	9/10/2014 5:06:52 PM
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1409077-070
Client Sample ID: DP-12-7.5

Collection Date: 9/6/2014 8:21:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>					Batch ID: 8674	Analyst: TN
Barium	677	0.478		mg/Kg-dry	1	9/10/2014 5:06:52 PM
Cadmium	0.380	0.191		mg/Kg-dry	1	9/10/2014 5:06:52 PM
Chromium	44.5	0.0956		mg/Kg-dry	1	9/10/2014 5:06:52 PM
Lead	604	0.191		mg/Kg-dry	1	9/10/2014 5:06:52 PM
Selenium	1.88	0.478		mg/Kg-dry	1	9/10/2014 5:06:52 PM
Silver	0.909	0.0956		mg/Kg-dry	1	9/10/2014 5:06:52 PM
<u>Metals (SW6020) with TCLP Extraction (EPA 1311)</u>					Batch ID: 8796	Analyst: TN
Lead	ND	0.200		mg/L	1	9/22/2014 11:51:29 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R16685	Analyst: SL
Percent Moisture	21.9			wt%	1	9/10/2014 10:35:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:30:00 AM

Project: SLU Marriott

Lab ID: 1409077-072

Matrix: Soil

Client Sample ID: DP-12-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 8671

Analyst: EC

Diesel (Fuel Oil)	ND	29.7		mg/Kg-dry	1	9/10/2014 4:37:00 PM
Heavy Oil	ND	74.4		mg/Kg-dry	1	9/10/2014 4:37:00 PM
Surr: 2-Fluorobiphenyl	86.2	50-150		%REC	1	9/10/2014 4:37:00 PM
Surr: o-Terphenyl	96.0	50-150		%REC	1	9/10/2014 4:37:00 PM

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 8675

Analyst: NG

Naphthalene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
2-Methylnaphthalene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
1-Methylnaphthalene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Acenaphthylene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Acenaphthene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Fluorene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Phenanthrene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Anthracene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Fluoranthene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Pyrene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Benz(a)anthracene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Chrysene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Benzo(b)fluoranthene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Benzo(k)fluoranthene	154	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Benzo(a)pyrene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Indeno(1,2,3-cd)pyrene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Dibenz(a,h)anthracene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Benzo(g,h,i)perylene	ND	69.8		µg/Kg-dry	1	9/12/2014 4:10:00 PM
Surr: 2-Fluorobiphenyl	91.0	42.7-132		%REC	1	9/12/2014 4:10:00 PM
Surr: Terphenyl-d14 (surr)	133	48.8-157		%REC	1	9/12/2014 4:10:00 PM

Gasoline by NWTPH-Gx

Batch ID: R16714

Analyst: EM

Gasoline	ND	5.51		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Surr: Toluene-d8	100	65-135		%REC	1	9/11/2014 3:59:00 PM
Surr: 4-Bromofluorobenzene	94.5	65-135		%REC	1	9/11/2014 3:59:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:30:00 AM

Project: SLU Marriott

Lab ID: 1409077-072

Matrix: Soil

Client Sample ID: DP-12-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

Dichlorodifluoromethane (CFC-12)	ND	0.0661		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Chloromethane	ND	0.0661		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Vinyl chloride	ND	0.00220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Bromomethane	ND	0.0992		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0551		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Chloroethane	ND	0.0661		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,1-Dichloroethene	ND	0.0551		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Methylene chloride	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
trans-1,2-Dichloroethene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0551		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,1-Dichloroethane	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
2,2-Dichloropropane	ND	0.0551		mg/Kg-dry	1	9/11/2014 3:59:00 PM
cis-1,2-Dichloroethene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Chloroform	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,1-Dichloropropene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Carbon tetrachloride	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2-Dichloroethane (EDC)	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Benzene	0.0358	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Trichloroethene (TCE)	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2-Dichloropropane	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Bromodichloromethane	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Dibromomethane	ND	0.0441		mg/Kg-dry	1	9/11/2014 3:59:00 PM
cis-1,3-Dichloropropene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Toluene	0.0344	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
trans-1,3-Dichloropropylene	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,1,2-Trichloroethane	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,3-Dichloropropane	ND	0.0551		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Tetrachloroethene (PCE)	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Dibromochloromethane	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2-Dibromoethane (EDB)	ND	0.00551		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Chlorobenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Ethylbenzene	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
m,p-Xylene	0.0745	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:30:00 AM

Project: SLU Marriott

Lab ID: 1409077-072

Matrix: Soil

Client Sample ID: DP-12-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8672

Analyst: EM

o-Xylene	0.0436	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Styrene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Isopropylbenzene	ND	0.0882		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Bromoform	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
n-Propylbenzene	0.0450	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Bromobenzene	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,3,5-Trimethylbenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
2-Chlorotoluene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
4-Chlorotoluene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
tert-Butylbenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2,3-Trichloropropane	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2,4-Trichlorobenzene	ND	0.0551		mg/Kg-dry	1	9/11/2014 3:59:00 PM
sec-Butylbenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
4-Isopropyltoluene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,3-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,4-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
n-Butylbenzene	0.0417	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2,4-Trimethylbenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Hexachlorobutadiene	ND	0.110		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Naphthalene	0.0914	0.0331		mg/Kg-dry	1	9/11/2014 3:59:00 PM
1,2,3-Trichlorobenzene	ND	0.0220		mg/Kg-dry	1	9/11/2014 3:59:00 PM
Surr: Dibromofluoromethane	87.0	63.7-129		%REC	1	9/11/2014 3:59:00 PM
Surr: Toluene-d8	96.6	61.4-128		%REC	1	9/11/2014 3:59:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.4	63.1-141		%REC	1	9/11/2014 3:59:00 PM

Mercury by EPA Method 7471

Batch ID: 8681

Analyst: TN

Mercury	0.443	0.353		mg/Kg-dry	1	9/10/2014 4:14:39 PM
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Total Metals by EPA Method 6020

Batch ID: 8674

Analyst: TN

Arsenic	10.3	0.112		mg/Kg-dry	1	9/10/2014 5:10:17 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1409077-072
Client Sample ID: DP-12-12.5

Collection Date: 9/6/2014 8:30:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>			Batch ID: 8674		Analyst: TN	
Barium	976	0.558		mg/Kg-dry	1	9/10/2014 5:10:17 PM
Cadmium	1.38	0.223		mg/Kg-dry	1	9/10/2014 5:10:17 PM
Chromium	99.4	0.112		mg/Kg-dry	1	9/10/2014 5:10:17 PM
Lead	1,390	0.223		mg/Kg-dry	1	9/10/2014 5:10:17 PM
Selenium	1.71	0.558		mg/Kg-dry	1	9/10/2014 5:10:17 PM
Silver	0.530	0.112		mg/Kg-dry	1	9/10/2014 5:10:17 PM
<u>Metals (SW6020) with TCLP Extraction (EPA 1311)</u>			Batch ID: 8796		Analyst: TN	
Lead	ND	0.200		mg/L	1	9/22/2014 11:54:55 AM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R16685		Analyst: SL	
Percent Moisture	33.2			wt%	1	9/10/2014 10:35:08 AM
<u>Hexavalent Chromium by EPA Method 7196</u>			Batch ID: 8795		Analyst: MW	
Chromium, Hexavalent	ND	0.731		mg/Kg-dry	1	9/21/2014 10:23:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1409077

Date Reported: 9/24/2014

Client: GeoEngineers, Inc. - Redmond

Collection Date: 9/6/2014 8:31:00 AM

Project: SLU Marriott

Lab ID: 1409077-073

Matrix: Soil

Client Sample ID: DP-12-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 8824

Analyst: EM

Benzene	ND	0.0262	H	mg/Kg-dry	1	9/24/2014 10:14:00 AM
Surr: Dibromofluoromethane	99.3	63.7-129	H	%REC	1	9/24/2014 10:14:00 AM
Surr: Toluene-d8	100	64.3-131	H	%REC	1	9/24/2014 10:14:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.8	63.1-141	H	%REC	1	9/24/2014 10:14:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R16932

Analyst: SL

Percent Moisture	23.2			wt%	1	9/23/2014 3:54:00 PM
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Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Hexavalent Chromium by EPA Method 7196

Sample ID: MB-8795	SampType: MBLK	Units: mg/Kg	Prep Date: 9/21/2014	RunNo: 16890							
Client ID: MBLKS	Batch ID: 8795		Analysis Date: 9/21/2014	SeqNo: 339168							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent ND 0.500

Sample ID: LCS-8795	SampType: LCS	Units: mg/Kg	Prep Date: 9/21/2014	RunNo: 16890							
Client ID: LCSS	Batch ID: 8795		Analysis Date: 9/21/2014	SeqNo: 339169							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 2.41 0.500 2.500 0 96.3 65 135

Sample ID: 1409077-011ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/21/2014	RunNo: 16890							
Client ID: DP-2-12.5	Batch ID: 8795		Analysis Date: 9/21/2014	SeqNo: 339171							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent ND 0.646 0 30

Sample ID: 1409077-011AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/21/2014	RunNo: 16890							
Client ID: DP-2-12.5	Batch ID: 8795		Analysis Date: 9/21/2014	SeqNo: 339172							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 3.82 0.646 3.231 0 118 65 135

Sample ID: 1409077-011AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 9/21/2014	RunNo: 16890							
Client ID: DP-2-12.5	Batch ID: 8795		Analysis Date: 9/21/2014	SeqNo: 339173							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium, Hexavalent 3.70 0.660 3.299 0 112 65 135 3.816 3.10 30

Qualifiers: B Analyte detected in the associated Method Blank
 D Dilution was required
 E Value above quantitation range
 H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits
 RL Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Dissolved Metals by EPA Method 200.8

Sample ID: MB-8658	SampType: MBLK	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16661							
Client ID: MBLKW	Batch ID: 8658		Analysis Date: 9/9/2014	SeqNo: 334919							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.00									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.500									
Lead	ND	1.00									
Selenium	ND	1.00									
Silver	ND	0.200									

Sample ID: LCS-8658	SampType: LCS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16661							
Client ID: LCSW	Batch ID: 8658		Analysis Date: 9/9/2014	SeqNo: 334920							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	101	1.00	100.0	0	101	85	115				
Barium	105	0.500	100.0	0	105	85	115				
Cadmium	4.48	0.200	5.000	0	89.7	85	115				
Chromium	104	0.500	100.0	0	104	85	115				
Lead	50.3	1.00	50.00	0	101	85	115				
Selenium	9.80	1.00	10.00	0	98.0	85	115				
Silver	4.80	0.200	5.000	0	96.0	85	115				

Sample ID: 1409077-050DDUP	SampType: DUP	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16661							
Client ID: MW-2-140906	Batch ID: 8658		Analysis Date: 9/9/2014	SeqNo: 334922							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	3.20	1.00						3.984	21.9	30	
Barium	251	0.500						251.1	0.0910	30	
Cadmium	ND	0.200						0		30	
Chromium	0.560	0.500						0.6665	17.4	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Dissolved Metals by EPA Method 200.8

Sample ID: 1409077-050DDUP	SampType: DUP	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16661							
Client ID: MW-2-140906	Batch ID: 8658		Analysis Date: 9/9/2014	SeqNo: 334922							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	ND	1.00						0		30	
Selenium	ND	1.00						0		30	
Silver	ND	0.200						0		30	

Sample ID: 1409077-050DMS	SampType: MS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16661							
Client ID: MW-2-140906	Batch ID: 8658		Analysis Date: 9/9/2014	SeqNo: 334923							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	540	1.00	500.0	3.984	107	70	130				
Barium	788	0.500	500.0	251.1	107	70	130				
Cadmium	25.6	0.200	25.00	0.01600	102	70	130				
Chromium	529	0.500	500.0	0.6665	106	70	130				
Lead	237	1.00	250.0	0.2265	94.9	70	130				
Selenium	59.4	1.00	50.00	0.6435	117	70	130				
Silver	20.9	0.200	25.00	0.03650	83.3	70	130				

Sample ID: 1409077-050DMSD	SampType: MSD	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16661							
Client ID: MW-2-140906	Batch ID: 8658		Analysis Date: 9/9/2014	SeqNo: 334924							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	547	1.00	500.0	3.984	109	70	130	540.3	1.32	30	
Barium	779	0.500	500.0	251.1	106	70	130	788.5	1.21	30	
Cadmium	25.2	0.200	25.00	0.01600	101	70	130	25.60	1.66	30	
Chromium	540	0.500	500.0	0.6665	108	70	130	528.8	2.05	30	
Lead	238	1.00	250.0	0.2265	95.0	70	130	237.4	0.121	30	
Selenium	59.0	1.00	50.00	0.6435	117	70	130	59.36	0.672	30	
Silver	20.5	0.200	25.00	0.03650	81.8	70	130	20.86	1.85	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Dissolved Metals by EPA Method 200.8

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Dissolved Mercury by EPA Method 245.1

Sample ID: MB-8690	SampType: MBLK	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16733							
Client ID: MBLKW	Batch ID: 8690	Analysis Date: 9/11/2014	SeqNo: 336195								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.100

Sample ID: LCS-8690	SampType: LCS	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16733							
Client ID: LCSW	Batch ID: 8690	Analysis Date: 9/11/2014	SeqNo: 336196								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 2.30 0.100 2.000 0 115 85 115

Sample ID: 1409077-050DDUP	SampType: DUP	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16733							
Client ID: MW-2-140906	Batch ID: 8690	Analysis Date: 9/11/2014	SeqNo: 336198								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.100 0 20

Sample ID: 1409077-050DMS	SampType: MS	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16733							
Client ID: MW-2-140906	Batch ID: 8690	Analysis Date: 9/11/2014	SeqNo: 336199								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 2.38 0.100 2.000 0 119 80 120

Sample ID: 1409077-050DMSD	SampType: MSD	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16733							
Client ID: MW-2-140906	Batch ID: 8690	Analysis Date: 9/11/2014	SeqNo: 336200								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 2.38 0.100 2.000 0 119 80 120 2.380 0 20

Qualifiers: B Analyte detected in the associated Method Blank
 D Dilution was required
 E Value above quantitation range
 H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits
 RL Reporting Limit
 S Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-8664	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16678							
Client ID: MBLKS	Batch ID: 8664	Analysis Date: 9/9/2014	SeqNo: 335221								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Selenium	ND	0.500									
Silver	ND	0.100									

Sample ID: LCS-8664	SampType: LCS	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16678							
Client ID: LCSS	Batch ID: 8664	Analysis Date: 9/9/2014	SeqNo: 335222								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	107	0.100	104.0	0	103	69.5	130.8				
Barium	836	0.500	779.0	0	107	74.8	125.3				
Cadmium	86.4	0.200	92.80	0	93.1	73.3	127.2				
Chromium	79.6	0.100	62.90	0	127	67.9	132				
Lead	314	0.200	319.0	0	98.5	75.9	124.1				
Selenium	79.7	0.500	77.70	0	103	63.1	136.4				
Silver	47.3	0.100	48.50	0	97.6	66.4	133.6				

Sample ID: 1409084-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16678							
Client ID: BATCH	Batch ID: 8664	Analysis Date: 9/9/2014	SeqNo: 335224								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	3.12	0.0819						3.031	2.77	30	
Barium	59.5	0.410						57.43	3.56	30	
Cadmium	ND	0.164						0		30	
Chromium	27.5	0.0819						25.37	8.01	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1409084-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16678							
Client ID: BATCH	Batch ID: 8664	Analysis Date: 9/9/2014	SeqNo: 335224								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	6.56	0.164						7.209	9.43	30	
Selenium	ND	0.410						0		30	
Silver	ND	0.0819						0		30	

Sample ID: 1409084-001AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16678							
Client ID: BATCH	Batch ID: 8664	Analysis Date: 9/9/2014	SeqNo: 335226								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	44.9	0.0802	40.08	3.031	104	75	125				
Barium	103	0.401	40.08	57.43	114	75	125				
Cadmium	2.53	0.160	2.004	0.1030	121	75	125				
Chromium	75.8	0.0802	40.08	25.37	126	75	125				S
Lead	30.9	0.160	20.04	7.209	118	75	125				
Selenium	4.75	0.401	4.008	0	119	75	125				
Silver	1.94	0.0802	2.004	0.05412	94.2	75	125				

NOTES:

S - Outlying spike recovery observed. A duplicate analysis was performed and was within range.

Sample ID: 1409084-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16678							
Client ID: BATCH	Batch ID: 8664	Analysis Date: 9/9/2014	SeqNo: 335227								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	47.1	0.0858	42.88	3.031	103	75	125	44.90	4.71	30	
Barium	110	0.429	42.88	57.43	123	75	125	102.9	6.62	30	
Cadmium	2.59	0.172	2.144	0.1030	116	75	125	2.527	2.33	30	
Chromium	78.2	0.0858	42.88	25.37	123	75	125	75.84	3.06	30	
Lead	31.6	0.172	21.44	7.209	114	75	125	30.95	1.99	30	
Selenium	4.83	0.429	4.288	0	113	75	125	4.751	1.55	30	

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1409084-001AMSD	SampType: MSD	Units: mg/Kg-dry				Prep Date: 9/9/2014	RunNo: 16678				
Client ID: BATCH	Batch ID: 8664					Analysis Date: 9/9/2014	SeqNo: 335227				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Silver	1.97	0.0858	2.144	0.05412	89.3	75	125	1.942	1.42	30	
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Sample ID: CCV-8664E	SampType: CCV	Units: µg/L				Prep Date: 9/10/2014	RunNo: 16678				
Client ID: CCV	Batch ID: 8664					Analysis Date: 9/10/2014	SeqNo: 335530				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	101	1.00	100.0	0	101	90	110				
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Sample ID: CCV-8664F	SampType: CCV	Units: µg/L				Prep Date: 9/10/2014	RunNo: 16678				
Client ID: CCV	Batch ID: 8664					Analysis Date: 9/10/2014	SeqNo: 335542				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	100	1.00	100.0	0	100	90	110				
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Sample ID: MB-8674	SampType: MBLK	Units: mg/Kg				Prep Date: 9/10/2014	RunNo: 16702				
Client ID: MBLKS	Batch ID: 8674					Analysis Date: 9/10/2014	SeqNo: 335676				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.100									
Barium	ND	0.500									
Cadmium	ND	0.200									
Chromium	ND	0.100									
Lead	ND	0.200									
Selenium	ND	0.500									
Silver	ND	0.100									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: LCS-8674	SampType: LCS	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16702							
Client ID: LCSS	Batch ID: 8674		Analysis Date: 9/10/2014	SeqNo: 335679							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	108	0.100	104.0	0	104	69.5	130.8				
Barium	834	0.500	779.0	0	107	74.8	125.3				
Cadmium	93.5	0.200	92.80	0	101	73.3	127.2				
Chromium	68.1	0.100	62.90	0	108	67.9	132				
Lead	349	0.200	319.0	0	109	75.9	124.1				
Selenium	73.9	0.500	77.70	0	95.0	63.1	136.4				
Silver	50.6	0.100	48.50	0	104	66.4	133.6				

Sample ID: 1409077-033ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16702							
Client ID: DP-6-10.0	Batch ID: 8674		Analysis Date: 9/10/2014	SeqNo: 335681							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.60	0.0849						1.672	4.56	30	
Barium	46.3	0.425						46.47	0.317	30	
Cadmium	ND	0.170						0		30	
Chromium	23.8	0.0849						24.88	4.50	30	
Lead	1.86	0.170						1.815	2.54	30	
Selenium	0.877	0.425						0.9969	12.8	30	
Silver	ND	0.0849						0		30	

Sample ID: 1409077-033AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16702							
Client ID: DP-6-10.0	Batch ID: 8674		Analysis Date: 9/10/2014	SeqNo: 335683							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.9	0.0862	43.10	1.672	97.9	75	125				
Barium	89.9	0.431	43.10	46.47	101	75	125				
Cadmium	2.05	0.172	2.155	0.05073	92.7	75	125				
Chromium	71.8	0.0862	43.10	24.88	109	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1409077-033AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16702							
Client ID: DP-6-10.0	Batch ID: 8674		Analysis Date: 9/10/2014	SeqNo: 335683							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	24.6	0.172	21.55	1.815	106	75	125				
Selenium	5.27	0.431	4.310	0.9969	99.0	75	125				
Silver	2.08	0.0862	2.155	0.03289	95.0	75	125				

Sample ID: 1409077-033AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16702							
Client ID: DP-6-10.0	Batch ID: 8674		Analysis Date: 9/10/2014	SeqNo: 335684							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	45.2	0.0855	42.77	1.672	102	75	125	43.87	3.06	30	
Barium	95.4	0.428	42.77	46.47	114	75	125	89.86	6.02	30	
Cadmium	2.13	0.171	2.139	0.05073	97.4	75	125	2.049	4.05	30	
Chromium	76.4	0.0855	42.77	24.88	121	75	125	71.82	6.24	30	
Lead	24.0	0.171	21.39	1.815	104	75	125	24.58	2.31	30	
Selenium	4.87	0.428	4.277	0.9969	90.4	75	125	5.266	7.90	30	
Silver	2.06	0.0855	2.139	0.03289	94.6	75	125	2.080	1.18	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Mercury by EPA Method 7471

Sample ID: MB-8665	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: MBLKS	Batch ID: 8665		Analysis Date: 9/9/2014	SeqNo: 335131							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.250

Sample ID: LCS-8665	SampType: LCS	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: LCSS	Batch ID: 8665		Analysis Date: 9/9/2014	SeqNo: 335132							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 6.35 0.250 5.000 0 127 80 120 S

NOTES:

S - Outlying spike recovery observed (high bias). Samples with detections may be qualified with an *

Sample ID: 1409084-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: BATCH	Batch ID: 8665		Analysis Date: 9/9/2014	SeqNo: 335134							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.247 0 20

Sample ID: 1409084-001AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: BATCH	Batch ID: 8665		Analysis Date: 9/9/2014	SeqNo: 335135							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.628 0.247 0.4939 0.02533 122 70 130

Sample ID: 1409084-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: BATCH	Batch ID: 8665		Analysis Date: 9/9/2014	SeqNo: 335136							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.643 0.247 0.4939 0.02533 125 70 130 0.6282 2.33 20

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Mercury by EPA Method 7471

Sample ID: 1409084-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: BATCH	Batch ID: 8665	Analysis Date: 9/9/2014	SeqNo: 335136								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: CCV-8665C	SampType: CCV	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: CCV	Batch ID: 8665	Analysis Date: 9/9/2014	SeqNo: 335151								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 5.19 0.250 5.000 0 104 90 110

Sample ID: CCV-8665D	SampType: CCV	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16677							
Client ID: CCV	Batch ID: 8665	Analysis Date: 9/9/2014	SeqNo: 335157								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 5.23 0.250 5.000 0 105 90 110

Sample ID: MB-8681	SampType: MBLK	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16699							
Client ID: MBLKS	Batch ID: 8681	Analysis Date: 9/10/2014	SeqNo: 335622								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.250

Sample ID: LCS-8681	SampType: LCS	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16699							
Client ID: LCSS	Batch ID: 8681	Analysis Date: 9/10/2014	SeqNo: 335623								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 4.56 0.250 5.000 0 91.2 80 120

Qualifiers: B Analyte detected in the associated Method Blank
 D Dilution was required
 E Value above quantitation range
 H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits
 RL Reporting Limit
 S Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Mercury by EPA Method 7471

Sample ID: 1409077-013ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16699							
Client ID: DP-3-2.5	Batch ID: 8681	Analysis Date: 9/10/2014	SeqNo: 335625								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.280						0		20	

Sample ID: 1409077-013AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16699							
Client ID: DP-3-2.5	Batch ID: 8681	Analysis Date: 9/10/2014	SeqNo: 335626								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.617	0.242	0.4849	0.2762	70.2	70	130				

Sample ID: 1409077-013AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16699							
Client ID: DP-3-2.5	Batch ID: 8681	Analysis Date: 9/10/2014	SeqNo: 335627								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.700	0.242	0.4849	0.2762	87.4	70	130	0.6168	12.7	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Mercury by EPA Method 7470

Sample ID: MB-8811	SampType: MBLK	Units: µg/L	Prep Date: 9/23/2014	RunNo: 16940							
Client ID: MBLKW	Batch ID: 8811		Analysis Date: 9/23/2014	SeqNo: 340076							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.100

Sample ID: LCS-8811	SampType: LCS	Units: µg/L	Prep Date: 9/23/2014	RunNo: 16940							
Client ID: LCSW	Batch ID: 8811		Analysis Date: 9/23/2014	SeqNo: 340077							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 2.31 0.100 2.500 0 92.4 70 130

Sample ID: 1409077-044ADUP	SampType: DUP	Units: µg/L-dry	Prep Date: 9/23/2014	RunNo: 16940							
Client ID: DP-9-5.0	Batch ID: 8811		Analysis Date: 9/23/2014	SeqNo: 340079							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.138 0 20

Sample ID: 1409077-044AMS	SampType: MS	Units: µg/L-dry	Prep Date: 9/23/2014	RunNo: 16940							
Client ID: DP-9-5.0	Batch ID: 8811		Analysis Date: 9/23/2014	SeqNo: 340080							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 3.06 0.138 3.445 0.01516 88.4 70 130

Sample ID: 1409077-044AMSD	SampType: MSD	Units: µg/L-dry	Prep Date: 9/23/2014	RunNo: 16940							
Client ID: DP-9-5.0	Batch ID: 8811		Analysis Date: 9/23/2014	SeqNo: 340081							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 3.06 0.138 3.445 0.01516 88.4 70 130 3.059 0 20

Qualifiers: B Analyte detected in the associated Method Blank
 D Dilution was required
 E Value above quantitation range
 H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits
 RL Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID: LCS-8796	SampType: LCS	Units: mg/L	Prep Date: 9/22/2014	RunNo: 16895							
Client ID: LCSS	Batch ID: 8796		Analysis Date: 9/22/2014	SeqNo: 339276							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	2.23	0.200	2.500	0	89.2	65	135				
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Sample ID: 1408231-020ADUP	SampType: DUP	Units: mg/L	Prep Date: 9/22/2014	RunNo: 16895							
Client ID: BATCH	Batch ID: 8796		Analysis Date: 9/22/2014	SeqNo: 339278							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	ND	0.200						0		30	
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Sample ID: 1408231-020AMS	SampType: MS	Units: mg/L	Prep Date: 9/22/2014	RunNo: 16895							
Client ID: BATCH	Batch ID: 8796		Analysis Date: 9/22/2014	SeqNo: 339279							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	2.10	0.200	2.500	0	84.0	65	135				
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Sample ID: 1408231-020AMSD	SampType: MSD	Units: mg/L	Prep Date: 9/22/2014	RunNo: 16895							
Client ID: BATCH	Batch ID: 8796		Analysis Date: 9/22/2014	SeqNo: 339280							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	2.10	0.200	2.500	0	84.0	65	135	2.099	0.0148	30	
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 1409077-058ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16694							
Client ID: DP-8-20.0	Batch ID: 8671		Analysis Date: 9/10/2014	SeqNo: 335486							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	23.1						0		30	
Heavy Oil	ND	57.7						0		30	
Surr: 2-Fluorobiphenyl	17.4		23.06		75.3	50	150		0		
Surr: o-Terphenyl	20.2		23.06		87.6	50	150		0		

Sample ID: LCS-8671	SampType: LCS	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16694							
Client ID: LCSS	Batch ID: 8671		Analysis Date: 9/10/2014	SeqNo: 335490							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	512	20.0	500.0	0	102	65	135				
Surr: 2-Fluorobiphenyl	17.9		20.00		89.5	50	150				
Surr: o-Terphenyl	18.4		20.00		91.9	50	150				

Sample ID: MB-8671	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16694							
Client ID: MBLKS	Batch ID: 8671		Analysis Date: 9/10/2014	SeqNo: 335491							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	15.4		20.00		77.2	50	150				
Surr: o-Terphenyl	18.2		20.00		91.2	50	150				

Sample ID: 1409077-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16696							
Client ID: DP-1-2.5	Batch ID: 8670		Analysis Date: 9/10/2014	SeqNo: 335505							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	19.5						0		30	
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Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 1409077-001ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16696							
Client ID: DP-1-2.5	Batch ID: 8670		Analysis Date: 9/10/2014	SeqNo: 335505							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Heavy Oil	ND	48.6						0		30	
Surr: 2-Fluorobiphenyl	18.4		19.45		94.7	50	150		0		
Surr: o-Terphenyl	18.4		19.45		94.8	50	150		0		

Sample ID: LCS-8670	SampType: LCS	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16696							
Client ID: LCSS	Batch ID: 8670		Analysis Date: 9/10/2014	SeqNo: 335512							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	539	20.0	500.0	0	108	65	135				
Surr: 2-Fluorobiphenyl	20.2		20.00		101	50	150				
Surr: o-Terphenyl	17.7		20.00		88.4	50	150				

Sample ID: MB-8670	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16696							
Client ID: MBLKS	Batch ID: 8670		Analysis Date: 9/10/2014	SeqNo: 335513							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	21.5		20.00		108	50	150				
Surr: o-Terphenyl	17.2		20.00		86.0	50	150				

Sample ID: 1409077-029ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16696							
Client ID: DP-5-7.5	Batch ID: 8670		Analysis Date: 9/10/2014	SeqNo: 335704							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Diesel (Fuel Oil)	ND	21.1						0		30	
Heavy Oil	ND	52.6						0		30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 1409077-029ADUP	SampType: DUP	Units: mg/Kg-dry		Prep Date: 9/9/2014	RunNo: 16696						
Client ID: DP-5-7.5	Batch ID: 8670			Analysis Date: 9/10/2014	SeqNo: 335704						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	19.9		21.05		94.5	50	150		0		
Surr: o-Terphenyl	16.2		21.05		76.9	50	150		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 1409077-050BDUP	SampType: DUP	Units: µg/L				Prep Date: 9/10/2014	RunNo: 16728				
Client ID: MW-2-140906	Batch ID: 8679					Analysis Date: 9/11/2014	SeqNo: 336090				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0						0		30	
Heavy Oil	ND	100						0		30	
Surr: 2-Fluorobiphenyl	59.9		80.00		74.9	50	150		0		
Surr: o-Terphenyl	56.2		80.00		70.2	50	150		0		

Sample ID: MB-8679	SampType: MBLK	Units: µg/L				Prep Date: 9/10/2014	RunNo: 16728				
Client ID: MBLKW	Batch ID: 8679					Analysis Date: 9/11/2014	SeqNo: 336167				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	51.1		80.00		63.8	50	150				
Surr: o-Terphenyl	56.3		80.00		70.3	50	150				

Sample ID: LCS-8679	SampType: LCS	Units: µg/L				Prep Date: 9/10/2014	RunNo: 16728				
Client ID: LCSW	Batch ID: 8679					Analysis Date: 9/11/2014	SeqNo: 336168				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	874	50.0	1,000	0	87.4	65	135				
Surr: 2-Fluorobiphenyl	56.5		80.00		70.6	50	150				
Surr: o-Terphenyl	58.8		80.00		73.5	50	150				

Qualifiers: B Analyte detected in the associated Method Blank D Dilution was required E Value above quantitation range
H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
R RPD outside accepted recovery limits RL Reporting Limit S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-8667	SampType: MBLK	Units: µg/Kg	Prep Date: 9/9/2014	RunNo: 16703							
Client ID: MBLKS	Batch ID: 8667		Analysis Date: 9/10/2014	SeqNo: 335711							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	391		500.0		78.3	42.7	132				
Surr: Terphenyl-d14 (surr)	516		500.0		103	48.8	157				

Sample ID: LCS-8667	SampType: LCS	Units: µg/Kg	Prep Date: 9/9/2014	RunNo: 16703							
Client ID: LCSS	Batch ID: 8667		Analysis Date: 9/10/2014	SeqNo: 335712							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	1,110	50.0	1,000	0	111	61.6	125				
2-Methylnaphthalene	1,060	50.0	1,000	0	106	58.2	129				
1-Methylnaphthalene	982	50.0	1,000	0	98.2	56.4	132				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-8667	SampType: LCS	Units: µg/Kg	Prep Date: 9/9/2014	RunNo: 16703							
Client ID: LCSS	Batch ID: 8667		Analysis Date: 9/10/2014	SeqNo: 335712							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	902	50.0	1,000	0	90.2	52.2	133				
Acenaphthene	926	50.0	1,000	0	92.6	54	131				
Fluorene	941	50.0	1,000	0	94.1	53.4	131				
Phenanthrene	886	50.0	1,000	0	88.6	55.6	128				
Anthracene	835	50.0	1,000	0	83.5	51	132				
Fluoranthene	1,040	50.0	1,000	0	104	48.4	134				
Pyrene	1,050	50.0	1,000	0	105	48.6	135				
Benz(a)anthracene	1,060	50.0	1,000	0	106	41.9	136				
Chrysene	866	50.0	1,000	0	86.6	51.4	135				
Benzo(b)fluoranthene	661	50.0	1,000	0	66.1	39.7	137				
Benzo(k)fluoranthene	775	50.0	1,000	0	77.5	45.7	138				
Benzo(a)pyrene	651	50.0	1,000	0	65.1	45.3	135				
Indeno(1,2,3-cd)pyrene	522	50.0	1,000	0	52.2	45.4	137				
Dibenz(a,h)anthracene	535	50.0	1,000	0	53.5	45.8	134				
Benzo(g,h,i)perylene	454	50.0	1,000	0	45.4	45	134				
Surr: 2-Fluorobiphenyl	560		500.0		112	42.7	132				
Surr: Terphenyl-d14 (surr)	624		500.0		125	48.8	157				

Sample ID: 1409084-004AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16703							
Client ID: BATCH	Batch ID: 8667		Analysis Date: 9/10/2014	SeqNo: 335722							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	849	52.0	1,040	0	81.6	42.9	138				
2-Methylnaphthalene	923	52.0	1,040	0	88.7	42.8	151				
1-Methylnaphthalene	905	52.0	1,040	0	86.9	41.6	148				
Acenaphthylene	883	52.0	1,040	0	84.9	32.6	160				
Acenaphthene	969	52.0	1,040	152.3	78.5	46.3	142				
Fluorene	966	52.0	1,040	184.3	75.1	43.4	153				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1409084-004AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16703
Client ID: BATCH	Batch ID: 8667		Analysis Date: 9/10/2014	SeqNo: 335722

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	1,260	52.0	1,040	1,423	-15.4	45.5	140				S
Anthracene	856	52.0	1,040	171.4	65.8	32.6	160				
Fluoranthene	1,540	52.0	1,040	1,154	36.7	44.6	161				S
Pyrene	1,570	52.0	1,040	1,031	51.4	48.3	158				
Benz(a)anthracene	1,240	52.0	1,040	303.6	90.0	57.5	169				
Chrysene	907	52.0	1,040	192.5	68.7	45.2	146				
Benzo(b)fluoranthene	873	52.0	1,040	180.2	66.6	42.2	168				
Benzo(k)fluoranthene	843	52.0	1,040	0	81.1	48	161				
Benzo(a)pyrene	720	52.0	1,040	115.9	58.1	34.4	179				
Indeno(1,2,3-cd)pyrene	577	52.0	1,040	67.28	49.0	41.1	165				
Dibenz(a,h)anthracene	573	52.0	1,040	0	55.1	38.1	166				
Benzo(g,h,i)perylene	504	52.0	1,040	64.49	42.3	45.6	157				S
Surr: 2-Fluorobiphenyl	499		520.2		96.0	42.7	132				
Surr: Terphenyl-d14 (surr)	569		520.2		109	48.8	157				

NOTES:

S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Sample ID: 1409084-005ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16703
Client ID: BATCH	Batch ID: 8667		Analysis Date: 9/10/2014	SeqNo: 335723

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	52.4						0		30	
2-Methylnaphthalene	ND	52.4						0		30	
1-Methylnaphthalene	ND	52.4						0		30	
Acenaphthylene	ND	52.4						0		30	
Acenaphthene	ND	52.4						0		30	
Fluorene	ND	52.4						0		30	
Phenanthrene	ND	52.4						0		30	
Anthracene	ND	52.4						0		30	

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1409084-005ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16703							
Client ID: BATCH	Batch ID: 8667	Analysis Date: 9/10/2014	SeqNo: 335723								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoranthene	ND	52.4						0		30	
Pyrene	ND	52.4						0		30	
Benz(a)anthracene	ND	52.4						0		30	
Chrysene	ND	52.4						0		30	
Benzo(b)fluoranthene	ND	52.4						0		30	
Benzo(k)fluoranthene	ND	52.4						0		30	
Benzo(a)pyrene	ND	52.4						0		30	
Indeno(1,2,3-cd)pyrene	ND	52.4						0		30	
Dibenz(a,h)anthracene	ND	52.4						0		30	
Benzo(g,h,i)perylene	ND	52.4						0		30	
Surr: 2-Fluorobiphenyl	458		523.9		87.5	42.7	132		0		
Surr: Terphenyl-d14 (surr)	602		523.9		115	48.8	157		0		

Sample ID: MB-8675	SampType: MBLK	Units: µg/Kg	Prep Date: 9/10/2014	RunNo: 16704							
Client ID: MBLKS	Batch ID: 8675	Analysis Date: 9/10/2014	SeqNo: 335728								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-8675	SampType: MBLK	Units: µg/Kg	Prep Date: 9/10/2014	RunNo: 16704							
Client ID: MBLKS	Batch ID: 8675		Analysis Date: 9/10/2014	SeqNo: 335728							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	379		500.0		75.8	42.7	132				
Surr: Terphenyl-d14 (surr)	548		500.0		110	48.8	157				

Sample ID: LCS-8675	SampType: LCS	Units: µg/Kg	Prep Date: 9/10/2014	RunNo: 16704							
Client ID: LCSS	Batch ID: 8675		Analysis Date: 9/10/2014	SeqNo: 335729							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	1,090	50.0	1,000	0	109	61.6	125				
2-Methylnaphthalene	1,140	50.0	1,000	0	114	58.2	129				
1-Methylnaphthalene	1,120	50.0	1,000	0	112	56.4	132				
Acenaphthylene	1,110	50.0	1,000	0	111	52.2	133				
Acenaphthene	1,130	50.0	1,000	0	113	54	131				
Fluorene	1,120	50.0	1,000	0	112	53.4	131				
Phenanthrene	1,090	50.0	1,000	0	109	55.6	128				
Anthracene	1,060	50.0	1,000	0	106	51	132				
Fluoranthene	1,210	50.0	1,000	0	121	48.4	134				
Pyrene	1,250	50.0	1,000	0	125	48.6	135				
Benz(a)anthracene	1,310	50.0	1,000	0	131	41.9	136				
Chrysene	1,050	50.0	1,000	0	105	51.4	135				
Benzo(b)fluoranthene	1,090	50.0	1,000	0	109	39.7	137				
Benzo(k)fluoranthene	973	50.0	1,000	0	97.3	45.7	138				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-8675	SampType: LCS	Units: µg/Kg	Prep Date: 9/10/2014	RunNo: 16704							
Client ID: LCSS	Batch ID: 8675	Analysis Date: 9/10/2014	SeqNo: 335729								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	862	50.0	1,000	0	86.2	45.3	135				
Indeno(1,2,3-cd)pyrene	675	50.0	1,000	0	67.5	45.4	137				
Dibenz(a,h)anthracene	681	50.0	1,000	0	68.1	45.8	134				
Benzo(g,h,i)perylene	588	50.0	1,000	0	58.8	45	134				
Surr: 2-Fluorobiphenyl	549		500.0		110	42.7	132				
Surr: Terphenyl-d14 (surr)	594		500.0		119	48.8	157				

Sample ID: CCV-B-8667	SampType: CCV	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16703							
Client ID: CCV	Batch ID: 8667	Analysis Date: 9/11/2014	SeqNo: 336405								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,010	50.0	1,000	0	101	80	120				
2-Methylnaphthalene	1,020	50.0	1,000	0	102	80	120				
1-Methylnaphthalene	1,020	50.0	1,000	0	102	80	120				
Acenaphthylene	1,020	50.0	1,000	0	102	80	120				
Acenaphthene	1,030	50.0	1,000	0	103	80	120				
Fluorene	1,000	50.0	1,000	0	100	80	120				
Phenanthrene	1,010	50.0	1,000	0	101	80	120				
Anthracene	1,000	50.0	1,000	0	100	80	120				
Fluoranthene	956	50.0	1,000	0	95.6	80	120				
Pyrene	943	50.0	1,000	0	94.3	80	120				
Benz(a)anthracene	973	50.0	1,000	0	97.3	80	120				
Chrysene	1,000	50.0	1,000	0	100	80	120				
Benzo(b)fluoranthene	853	50.0	1,000	0	85.3	80	120				
Benzo(k)fluoranthene	1,070	50.0	1,000	0	107	80	120				
Benzo(a)pyrene	879	50.0	1,000	0	87.9	80	120				
Indeno(1,2,3-cd)pyrene	923	50.0	1,000	0	92.3	80	120				
Dibenz(a,h)anthracene	877	50.0	1,000	0	87.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: CCV-B-8667	SampType: CCV	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16703							
Client ID: CCV	Batch ID: 8667		Analysis Date: 9/11/2014	SeqNo: 336405							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzo(g,h,i)perylene	1,140	50.0	1,000	0	114	80	120				
Surr: 2-Fluorobiphenyl	489		500.0		97.8	50.4	142				
Surr: Terphenyl-d14 (surr)	460		500.0		91.9	48.8	157				

Sample ID: 1409077-044ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16704							
Client ID: DP-9-5.0	Batch ID: 8675		Analysis Date: 9/12/2014	SeqNo: 336768							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	70.1	67.9						0	200	30	
2-Methylnaphthalene	ND	67.9						0		30	
1-Methylnaphthalene	ND	67.9						0		30	
Acenaphthylene	ND	67.9						0		30	
Acenaphthene	ND	67.9						0		30	
Fluorene	ND	67.9						0		30	
Phenanthrene	ND	67.9						0		30	
Anthracene	ND	67.9						0		30	
Fluoranthene	ND	67.9						0		30	
Pyrene	ND	67.9						0		30	
Benz(a)anthracene	ND	67.9						0		30	
Chrysene	ND	67.9						0		30	
Benzo(b)fluoranthene	255	67.9						326.3	24.5	30	
Benzo(k)fluoranthene	ND	67.9						0		30	
Benzo(a)pyrene	257	67.9						0	200	30	
Indeno(1,2,3-cd)pyrene	ND	67.9						0		30	
Dibenz(a,h)anthracene	ND	67.9						0		30	
Benzo(g,h,i)perylene	ND	67.9						0		30	
Surr: 2-Fluorobiphenyl	631		678.8		93.0	42.7	132		0		
Surr: Terphenyl-d14 (surr)	971		678.8		143	48.8	157		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1409077-044ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16704							
Client ID: DP-9-5.0	Batch ID: 8675	Analysis Date: 9/12/2014	SeqNo: 336768								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 1409077-048AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16704							
Client ID: DP-9-20.0	Batch ID: 8675	Analysis Date: 9/12/2014	SeqNo: 336770								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	968	53.4	1,068	0	90.7	42.9	138				
2-Methylnaphthalene	1,030	53.4	1,068	0	96.9	42.8	151				
1-Methylnaphthalene	1,070	53.4	1,068	0	100	41.6	148				
Acenaphthylene	1,160	53.4	1,068	0	109	32.6	160				
Acenaphthene	1,140	53.4	1,068	0	107	46.3	142				
Fluorene	1,180	53.4	1,068	0	111	43.4	153				
Phenanthrene	1,150	53.4	1,068	0	108	45.5	140				
Anthracene	1,140	53.4	1,068	0	107	32.6	160				
Fluoranthene	1,210	53.4	1,068	71.19	107	44.6	161				
Pyrene	1,220	53.4	1,068	72.13	108	48.3	158				
Benz(a)anthracene	1,480	53.4	1,068	0	139	57.5	169				
Chrysene	1,090	53.4	1,068	0	102	45.2	146				
Benzo(b)fluoranthene	1,430	53.4	1,068	0	134	42.2	168				
Benzo(k)fluoranthene	1,250	53.4	1,068	0	117	48	161				
Benzo(a)pyrene	1,270	53.4	1,068	0	119	34.4	179				
Indeno(1,2,3-cd)pyrene	1,610	53.4	1,068	0	151	41.1	165				
Dibenz(a,h)anthracene	1,520	53.4	1,068	0	142	38.1	166				
Benzo(g,h,i)perylene	1,290	53.4	1,068	0	121	45.6	157				
Surr: 2-Fluorobiphenyl	377		533.9		70.6	42.7	132				
Surr: Terphenyl-d14 (surr)	593		533.9		111	48.8	157				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: ICV	SampType: ICV	Units: µg/L	Prep Date: 9/16/2014	RunNo: 16790							
Client ID: ICV	Batch ID: R16790		Analysis Date: 9/16/2014	SeqNo: 337515							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	953	50.0	1,000	0	95.3	70	130				
2-Methylnaphthalene	910	50.0	1,000	0	91.0	70	130				
1-Methylnaphthalene	896	50.0	1,000	0	89.6	70	130				
Acenaphthylene	914	50.0	1,000	0	91.4	70	130				
Acenaphthene	948	50.0	1,000	0	94.8	70	130				
Fluorene	865	50.0	1,000	0	86.5	70	130				
Phenanthrene	958	50.0	1,000	0	95.8	70	130				
Anthracene	980	50.0	1,000	0	98.0	70	130				
Fluoranthene	988	50.0	1,000	0	98.8	70	130				
Pyrene	1,000	50.0	1,000	0	100	70	130				
Benz(a)anthracene	988	50.0	1,000	0	98.8	70	130				
Chrysene	961	50.0	1,000	0	96.1	70	130				
Benzo(b)fluoranthene	1,020	50.0	1,000	0	102	70	130				
Benzo(k)fluoranthene	1,020	50.0	1,000	0	102	70	130				
Benzo(a)pyrene	1,020	50.0	1,000	0	103	70	130				
Indeno(1,2,3-cd)pyrene	823	50.0	1,000	0	82.3	70	130				
Dibenz(a,h)anthracene	761	50.0	1,000	0	76.1	70	130				
Benzo(g,h,i)perylene	813	50.0	1,000	0	81.3	70	130				
Surr: 2-Fluorobiphenyl	416		500.0		83.3	50.4	142				
Surr: Terphenyl-d14 (surr)	561		500.0		112	48.8	157				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-8680	SampType: MBLK	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16736							
Client ID: MBLKW	Batch ID: 8680		Analysis Date: 9/11/2014	SeqNo: 336243							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	0.100									
2-Methylnaphthalene	ND	0.100									
1-Methylnaphthalene	ND	0.100									
Acenaphthylene	ND	0.100									
Acenaphthene	ND	0.100									
Fluorene	ND	0.100									
Phenanthrene	ND	0.100									
Anthracene	ND	0.100									
Fluoranthene	ND	0.100									
Pyrene	ND	0.100									
Benz(a)anthracene	ND	0.100									
Chrysene	ND	0.100									
Benzo(b)fluoranthene	ND	0.100									
Benzo(k)fluoranthene	ND	0.100									
Benzo(a)pyrene	ND	0.100									
Indeno(1,2,3-cd)pyrene	ND	0.100									
Dibenz(a,h)anthracene	ND	0.100									
Benzo(g,h,i)perylene	ND	0.100									
Surr: 2-Fluorobiphenyl	1.47		2.000		73.5	23.9	122				
Surr: Terphenyl-d14	1.76		2.000		87.9	33.4	135				

Sample ID: 1409077-050CDUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16736							
Client ID: MW-2-140906	Batch ID: 8680		Analysis Date: 9/12/2014	SeqNo: 336247							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	0.100						0		30	
2-Methylnaphthalene	ND	0.100						0		30	
1-Methylnaphthalene	ND	0.100						0		30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1409077-050CDUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16736							
Client ID: MW-2-140906	Batch ID: 8680		Analysis Date: 9/12/2014	SeqNo: 336247							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	ND	0.100						0		30	
Acenaphthene	ND	0.100						0		30	
Fluorene	ND	0.100						0		30	
Phenanthrene	ND	0.100						0		30	
Anthracene	ND	0.100						0		30	
Fluoranthene	ND	0.100						0		30	
Pyrene	ND	0.100						0		30	
Benz(a)anthracene	ND	0.100						0		30	
Chrysene	ND	0.100						0		30	
Benzo(b)fluoranthene	ND	0.100						0		30	
Benzo(k)fluoranthene	ND	0.100						0		30	
Benzo(a)pyrene	ND	0.100						0		30	
Indeno(1,2,3-cd)pyrene	ND	0.100						0		30	
Dibenz(a,h)anthracene	ND	0.100						0		30	
Benzo(g,h,i)perylene	ND	0.100						0		30	
Surr: 2-Fluorobiphenyl	1.77		2.000		88.4	23.9	122		0		
Surr: Terphenyl-d14	1.64		2.000		82.2	33.4	135		0		

Sample ID: 1409077-051CMS	SampType: MS	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16736							
Client ID: MW-3-140906	Batch ID: 8680		Analysis Date: 9/12/2014	SeqNo: 336249							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	3.10	0.100	4.000	0	77.5	31.2	104				
2-Methylnaphthalene	3.40	0.100	4.000	0	85.0	33.9	109				
1-Methylnaphthalene	3.43	0.100	4.000	0	85.7	33.2	110				
Acenaphthylene	3.57	0.100	4.000	0	89.1	40.5	98.7				
Acenaphthene	3.72	0.100	4.000	0	93.1	30.6	117				
Fluorene	4.08	0.100	4.000	0	102	35.2	99.1				S

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1409077-051CMS	SampType: MS	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16736							
Client ID: MW-3-140906	Batch ID: 8680		Analysis Date: 9/12/2014	SeqNo: 336249							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Phenanthrene	4.03	0.100	4.000	0	101	42.7	111				
Anthracene	3.07	0.100	4.000	0	76.7	43.9	103				
Fluoranthene	4.41	0.100	4.000	0	110	56.1	115				
Pyrene	4.28	0.100	4.000	0	107	44.2	134				
Benz(a)anthracene	4.73	0.100	4.000	0	118	50.4	128				
Chrysene	3.64	0.100	4.000	0	90.9	41.4	118				
Benzo(b)fluoranthene	4.39	0.100	4.000	0	110	50.8	121				
Benzo(k)fluoranthene	3.58	0.100	4.000	0	89.4	43.4	113				
Benzo(a)pyrene	3.68	0.100	4.000	0	91.9	40.8	128				
Indeno(1,2,3-cd)pyrene	4.13	0.100	4.000	0	103	29.5	126				
Dibenz(a,h)anthracene	4.41	0.100	4.000	0	110	31.4	120				
Benzo(g,h,i)perylene	4.27	0.100	4.000	0	107	30	116				
Surr: 2-Fluorobiphenyl	1.79		4.000		44.8	23.9	122				
Surr: Terphenyl-d14	2.20		4.000		54.9	33.4	135				

NOTES:

S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Sample ID: LCS-8680	SampType: LCS	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16736							
Client ID: LCSW	Batch ID: 8680		Analysis Date: 9/11/2014	SeqNo: 336254							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	2.78	0.100	4.000	0	69.6	13.7	121				
2-Methylnaphthalene	2.80	0.100	4.000	0	70.1	35.4	110				
1-Methylnaphthalene	2.85	0.100	4.000	0	71.3	37.5	116				
Acenaphthylene	3.02	0.100	4.000	0	75.5	39.2	114				
Acenaphthene	3.18	0.100	4.000	0	79.4	37	113				
Fluorene	3.44	0.100	4.000	0	86.0	40.3	117				
Phenanthrene	3.64	0.100	4.000	0	90.9	35.1	118				
Anthracene	3.54	0.100	4.000	0	88.4	45.4	115				

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Work Order: 1409077
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-8680	SampType: LCS	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16736							
Client ID: LCSW	Batch ID: 8680		Analysis Date: 9/11/2014	SeqNo: 336254							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoranthene	3.85	0.100	4.000	0	96.2	49.7	126				
Pyrene	3.88	0.100	4.000	0	96.9	48.1	123				
Benz(a)anthracene	4.44	0.100	4.000	0	111	48.7	126				
Chrysene	3.61	0.100	4.000	0	90.3	45.1	114				
Benzo(b)fluoranthene	4.09	0.100	4.000	0	102	52.2	126				
Benzo(k)fluoranthene	4.08	0.100	4.000	0	102	45.5	121				
Benzo(a)pyrene	3.76	0.100	4.000	0	94.0	38.4	121				
Indeno(1,2,3-cd)pyrene	4.61	0.100	4.000	0	115	23.9	143				
Dibenz(a,h)anthracene	4.46	0.100	4.000	0	112	24.9	141				
Benzo(g,h,i)perylene	4.27	0.100	4.000	0	107	35.9	139				
Surr: 2-Fluorobiphenyl	1.54		4.000		38.4	23.9	122				
Surr: Terphenyl-d14	2.15		4.000		53.7	33.4	135				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: MB-8688	SampType: MBLK	Units: mg/Kg	Prep Date: 9/11/2014	RunNo: 16738							
Client ID: MBLKS	Batch ID: 8688		Analysis Date: 9/11/2014	SeqNo: 336292							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.100									
Aroclor 1221	ND	0.100									
Aroclor 1232	ND	0.100									
Aroclor 1242	ND	0.100									
Aroclor 1248	ND	0.100									
Aroclor 1254	ND	0.100									
Aroclor 1260	ND	0.100									
Aroclor 1262	ND	0.100									
Aroclor 1268	ND	0.100									
Total PCBs	ND	0.100									
Surr: Decachlorobiphenyl	43.3		50.00		86.6	50.2	159				
Surr: Tetrachloro-m-xylene	38.8		50.00		77.6	60.3	134				

Sample ID: LCS-8688	SampType: LCS	Units: mg/Kg	Prep Date: 9/11/2014	RunNo: 16738							
Client ID: LCSS	Batch ID: 8688		Analysis Date: 9/11/2014	SeqNo: 336293							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.10	0.100	1.000	0	110	45.8	133				
Aroclor 1260	1.13	0.100	1.000	0	113	57	134				
Surr: Decachlorobiphenyl	45.3		50.00		90.6	50.2	159				
Surr: Tetrachloro-m-xylene	39.7		50.00		79.4	60.3	134				

Sample ID: 1409077-013ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/11/2014	RunNo: 16738							
Client ID: DP-3-2.5	Batch ID: 8688		Analysis Date: 9/11/2014	SeqNo: 336295							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.108						0		30	
Aroclor 1221	ND	0.108						0		30	

Qualifiers: B Analyte detected in the associated Method Blank D Dilution was required E Value above quantitation range
H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
R RPD outside accepted recovery limits RL Reporting Limit S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polychlorinated Biphenyls (PCB) by EPA 8082

Sample ID: 1409077-013ADUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 9/11/2014	RunNo: 16738				
Client ID: DP-3-2.5	Batch ID: 8688					Analysis Date: 9/11/2014	SeqNo: 336295				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1232	ND	0.108						0		30	
Aroclor 1242	ND	0.108						0		30	
Aroclor 1248	ND	0.108						0		30	
Aroclor 1254	ND	0.108						0		30	
Aroclor 1260	ND	0.108						0		30	
Aroclor 1262	ND	0.108						0		30	
Aroclor 1268	ND	0.108						0		30	
Total PCBs	ND	0.108						0		30	
Surr: Decachlorobiphenyl	42.5		53.93		78.9	50.2	159		0		
Surr: Tetrachloro-m-xylene	40.0		53.93		74.2	60.3	134		0		

Sample ID: 1409077-037AMS	SampType: MS	Units: mg/Kg-dry				Prep Date: 9/11/2014	RunNo: 16738				
Client ID: DP-7-7.5	Batch ID: 8688					Analysis Date: 9/11/2014	SeqNo: 336297				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.64	0.147	1.465	0	112	61.7	139				
Aroclor 1260	1.59	0.147	1.465	0	108	63.1	138				
Surr: Decachlorobiphenyl	63.2		73.25		86.3	50.2	159				
Surr: Tetrachloro-m-xylene	59.9		73.25		81.7	60.3	134				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1409077-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16693							
Client ID: DP-1-2.5	Batch ID: R16693	Analysis Date: 9/10/2014	SeqNo: 335470								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	4.70						0		30	
Surr: Toluene-d8	2.41		2.350		103	65	135		0		
Surr: 4-Bromofluorobenzene	2.13		2.350		90.5	65	135		0		

Sample ID: LCS-R16693	SampType: LCS	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16693							
Client ID: LCSS	Batch ID: R16693	Analysis Date: 9/10/2014	SeqNo: 335479								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	24.2	5.00	25.00	0	96.8	65	135				
Surr: Toluene-d8	2.54		2.500		101	65	135				
Surr: 4-Bromofluorobenzene	2.36		2.500		94.3	65	135				

Sample ID: MB-R16693	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16693							
Client ID: MBLKS	Batch ID: R16693	Analysis Date: 9/9/2014	SeqNo: 335480								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	5.00									
Surr: Toluene-d8	2.55		2.500		102	65	135				
Surr: 4-Bromofluorobenzene	2.24		2.500		89.8	65	135				

Sample ID: 1409077-037BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16714							
Client ID: DP-7-7.5	Batch ID: R16714	Analysis Date: 9/11/2014	SeqNo: 335913								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	189	8.32						174.6	8.17	30	
Surr: Toluene-d8	4.06		4.158		97.7	65	135		0		
Surr: 4-Bromofluorobenzene	3.99		4.158		96.0	65	135		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1409077-037BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16714							
Client ID: DP-7-7.5	Batch ID: R16714	Analysis Date: 9/11/2014	SeqNo: 335913								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-R16714	SampType: LCS	Units: mg/Kg	Prep Date: 9/11/2014	RunNo: 16714							
Client ID: LCSS	Batch ID: R16714	Analysis Date: 9/11/2014	SeqNo: 335922								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	22.9	5.00	25.00	0	91.4	65	135				
Surr: Toluene-d8	2.51		2.500		101	65	135				
Surr: 4-Bromofluorobenzene	2.42		2.500		96.6	65	135				

Sample ID: MB-R16714	SampType: MBLK	Units: mg/Kg	Prep Date: 9/11/2014	RunNo: 16714							
Client ID: MBLKS	Batch ID: R16714	Analysis Date: 9/11/2014	SeqNo: 335923								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	5.00									
Surr: Toluene-d8	2.45		2.500		98.0	65	135				
Surr: 4-Bromofluorobenzene	2.30		2.500		92.0	65	135				

Sample ID: 1409090-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16714							
Client ID: BATCH	Batch ID: R16714	Analysis Date: 9/11/2014	SeqNo: 336612								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	5.18						0		30	
Surr: Toluene-d8	2.50		2.590		96.6	65	135		0		
Surr: 4-Bromofluorobenzene	2.56		2.590		98.8	65	135		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: CCV-R16693C	SampType: CCV	Units: mg/Kg	Prep Date: 9/11/2014	RunNo: 16693							
Client ID: CCV	Batch ID: R16693		Analysis Date: 9/11/2014	SeqNo: 336617							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	554	5.00	500.0	0	111	80	120				
Surr: Toluene-d8	50.6		50.00		101	65	135				
Surr: 4-Bromofluorobenzene	49.1		50.00		98.2	65	135				

Sample ID: CCV-R16714D	SampType: CCV	Units: mg/Kg	Prep Date: 9/15/2014	RunNo: 16714							
Client ID: CCV	Batch ID: R16714		Analysis Date: 9/15/2014	SeqNo: 336672							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	431	5.00	500.0	0	86.1	80	120				
Surr: Toluene-d8	49.2		50.00		98.4	65	135				
Surr: 4-Bromofluorobenzene	48.6		50.00		97.2	65	135				

Sample ID: 1409077-012BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/24/2014	RunNo: 16994							
Client ID: DP-2-15.0	Batch ID: 8838		Analysis Date: 9/24/2014	SeqNo: 340730							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	33.2	4.37						34.95	5.05	30	H
Surr: Toluene-d8	2.19		2.187		100	65	135		0		H
Surr: 4-Bromofluorobenzene	2.05		2.187		94.0	65	135		0		H

Sample ID: LCS-8838	SampType: LCS	Units: mg/Kg	Prep Date: 9/24/2014	RunNo: 16994							
Client ID: LCSS	Batch ID: 8838		Analysis Date: 9/24/2014	SeqNo: 340732							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	27.1	5.00	25.00	0	108	65	135				
Surr: Toluene-d8	2.50		2.500		100	65	135				
Surr: 4-Bromofluorobenzene	2.47		2.500		98.9	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: LCS-8838	SampType: LCS	Units: mg/Kg	Prep Date: 9/24/2014	RunNo: 16994							
Client ID: LCSS	Batch ID: 8838	Analysis Date: 9/24/2014	SeqNo: 340732								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: MB-8838	SampType: MBLK	Units: mg/Kg	Prep Date: 9/24/2014	RunNo: 16994							
Client ID: MBLKS	Batch ID: 8838	Analysis Date: 9/24/2014	SeqNo: 340733								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	5.00									
Surr: Toluene-d8	2.49		2.500		99.6	65	135				
Surr: 4-Bromofluorobenzene	2.44		2.500		97.5	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1409077-052ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16682							
Client ID: MW-1-140906	Batch ID: R16682	Analysis Date: 9/10/2014	SeqNo: 335254								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	50.0		50.00		100	65	135		0	0	
Surr: 4-Bromofluorobenzene	54.3		50.00		109	65	135		0	0	

Sample ID: 1409083-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16682							
Client ID: BATCH	Batch ID: R16682	Analysis Date: 9/9/2014	SeqNo: 335257								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	51.7		50.00		103	65	135		0	0	
Surr: 4-Bromofluorobenzene	51.9		50.00		104	65	135		0	0	

Sample ID: LCS-R16682	SampType: LCS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16682							
Client ID: LCSW	Batch ID: R16682	Analysis Date: 9/9/2014	SeqNo: 335261								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	593	50.0	500.0	0	119	65	135				
Surr: Toluene-d8	50.5		50.00		101	65	135				
Surr: 4-Bromofluorobenzene	50.6		50.00		101	65	135				

Sample ID: MB-R16682	SampType: MBLK	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16682							
Client ID: MBLKW	Batch ID: R16682	Analysis Date: 9/9/2014	SeqNo: 335262								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	52.5		50.00		105	65	135				
Surr: 4-Bromofluorobenzene	50.3		50.00		101	65	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: MB-R16682	SampType: MBLK	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16682							
Client ID: MBLKW	Batch ID: R16682	Analysis Date: 9/9/2014	SeqNo: 335262								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: DP-1-2.5	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335444							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	ND	0.0564						0		30	
Chloromethane	ND	0.0564						0		30	
Vinyl chloride	ND	0.00188						0		30	
Bromomethane	ND	0.0846						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0470						0		30	
Chloroethane	ND	0.0564						0		30	
1,1-Dichloroethene	ND	0.0470						0		30	
Methylene chloride	ND	0.0188						0		30	
trans-1,2-Dichloroethene	ND	0.0188						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0470						0		30	
1,1-Dichloroethane	ND	0.0188						0		30	
2,2-Dichloropropane	ND	0.0470						0		30	
cis-1,2-Dichloroethene	ND	0.0188						0		30	
Chloroform	ND	0.0188						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0188						0		30	
1,1-Dichloropropene	ND	0.0188						0		30	
Carbon tetrachloride	ND	0.0188						0		30	
1,2-Dichloroethane (EDC)	ND	0.0282						0		30	
Benzene	ND	0.0188						0		30	
Trichloroethene (TCE)	ND	0.0188						0		30	
1,2-Dichloropropane	ND	0.0188						0		30	
Bromodichloromethane	ND	0.0188						0		30	
Dibromomethane	ND	0.0376						0		30	
cis-1,3-Dichloropropene	ND	0.0188						0		30	
Toluene	ND	0.0188						0		30	
trans-1,3-Dichloropropylene	ND	0.0282						0		30	
1,1,2-Trichloroethane	ND	0.0282						0		30	
1,3-Dichloropropane	ND	0.0470						0		30	
Tetrachloroethene (PCE)	ND	0.0188						0		30	

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: DP-1-2.5	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335444							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dibromochloromethane	ND	0.0282						0		30	
1,2-Dibromoethane (EDB)	ND	0.00470						0		30	
Chlorobenzene	ND	0.0188						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0282						0		30	
Ethylbenzene	ND	0.0282						0		30	
m,p-Xylene	ND	0.0188						0		30	
o-Xylene	ND	0.0188						0		30	
Styrene	ND	0.0188						0		30	
Isopropylbenzene	ND	0.0752						0		30	
Bromoform	ND	0.0188						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0188						0		30	
n-Propylbenzene	ND	0.0188						0		30	
Bromobenzene	ND	0.0282						0		30	
1,3,5-Trimethylbenzene	ND	0.0188						0		30	
2-Chlorotoluene	ND	0.0188						0		30	
4-Chlorotoluene	ND	0.0188						0		30	
tert-Butylbenzene	ND	0.0188						0		30	
1,2,3-Trichloropropane	ND	0.0188						0		30	
1,2,4-Trichlorobenzene	ND	0.0470						0		30	
sec-Butylbenzene	ND	0.0188						0		30	
4-Isopropyltoluene	ND	0.0188						0		30	
1,3-Dichlorobenzene	ND	0.0188						0		30	
1,4-Dichlorobenzene	ND	0.0188						0		30	
n-Butylbenzene	ND	0.0188						0		30	
1,2-Dichlorobenzene	ND	0.0188						0		30	
1,2-Dibromo-3-chloropropane	ND	0.0282						0		30	
1,2,4-Trimethylbenzene	ND	0.0188						0		30	
Hexachlorobutadiene	ND	0.0940						0		30	
Naphthalene	ND	0.0282						0		30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: DP-1-2.5	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335444							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	ND	0.0188						0		30	
Surr: Dibromofluoromethane	2.15		2.350		91.5	63.7	129		0		
Surr: Toluene-d8	2.26		2.350		96.1	61.4	128		0		
Surr: 1-Bromo-4-fluorobenzene	2.17		2.350		92.2	63.1	141		0		

Sample ID: 1409077-002BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: DP-1-5.0	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335450							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.729	0.0455	0.7581	0	96.2	43.5	121				
Chloromethane	0.696	0.0455	0.7581	0	91.8	45	130				
Vinyl chloride	0.764	0.00152	0.7581	0	101	51.2	146				
Bromomethane	0.651	0.0682	0.7581	0	85.8	21.3	120				
Trichlorofluoromethane (CFC-11)	0.327	0.0379	0.7581	0	43.1	35	131				
Chloroethane	0.454	0.0455	0.7581	0	59.9	43.8	117				
1,1-Dichloroethene	0.880	0.0379	0.7581	0	116	61.9	141				
Methylene chloride	0.885	0.0152	0.7581	0	117	54.7	142				
trans-1,2-Dichloroethene	0.845	0.0152	0.7581	0	111	52	136				
Methyl tert-butyl ether (MTBE)	0.675	0.0379	0.7581	0	89.1	54.4	132				
1,1-Dichloroethane	0.816	0.0152	0.7581	0	108	51.8	141				
2,2-Dichloropropane	0.528	0.0379	0.7581	0	69.6	36	123				
cis-1,2-Dichloroethene	0.722	0.0152	0.7581	0	95.3	58.6	136				
Chloroform	0.803	0.0152	0.7581	0	106	53.2	129				
1,1,1-Trichloroethane (TCA)	0.815	0.0152	0.7581	0	108	58.3	145				
1,1-Dichloropropene	0.779	0.0152	0.7581	0	103	55.1	138				
Carbon tetrachloride	0.779	0.0152	0.7581	0	103	53.3	144				
1,2-Dichloroethane (EDC)	0.693	0.0227	0.7581	0	91.4	51.3	139				
Benzene	0.791	0.0152	0.7581	0	104	63.5	133				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-002BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: DP-1-5.0	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335450							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	0.815	0.0152	0.7581	0	108	68.6	132				
1,2-Dichloropropane	0.782	0.0152	0.7581	0	103	59	136				
Bromodichloromethane	0.770	0.0152	0.7581	0	102	50.7	141				
Dibromomethane	0.751	0.0303	0.7581	0	99.0	50.6	137				
cis-1,3-Dichloropropene	0.686	0.0152	0.7581	0	90.5	50.4	138				
Toluene	0.803	0.0152	0.7581	0	106	63.4	132				
trans-1,3-Dichloropropylene	0.708	0.0227	0.7581	0	93.4	44.1	147				
1,1,2-Trichloroethane	0.776	0.0227	0.7581	0	102	51.6	137				
1,3-Dichloropropane	0.787	0.0379	0.7581	0	104	53.1	134				
Tetrachloroethene (PCE)	0.831	0.0152	0.7581	0	110	35.6	158				
Dibromochloromethane	0.748	0.0227	0.7581	0	98.7	55.3	140				
1,2-Dibromoethane (EDB)	0.769	0.00379	0.7581	0	101	50.4	136				
Chlorobenzene	0.798	0.0152	0.7581	0	105	60	133				
1,1,1,2-Tetrachloroethane	0.789	0.0227	0.7581	0	104	53.1	142				
Ethylbenzene	0.797	0.0227	0.7581	0	105	54.5	134				
m,p-Xylene	1.62	0.0152	1.516	0	107	53.1	132				
o-Xylene	0.795	0.0152	0.7581	0	105	53.3	139				
Styrene	0.793	0.0152	0.7581	0	105	51.1	132				
Isopropylbenzene	0.791	0.0606	0.7581	0	104	58.9	138				
Bromoform	0.707	0.0152	0.7581	0	93.2	57.9	130				
1,1,2,2-Tetrachloroethane	0.776	0.0152	0.7581	0	102	51.9	131				
n-Propylbenzene	0.803	0.0152	0.7581	0	106	53.6	140				
Bromobenzene	0.795	0.0227	0.7581	0	105	54.2	140				
1,3,5-Trimethylbenzene	0.820	0.0152	0.7581	0	108	51.8	136				
2-Chlorotoluene	0.817	0.0152	0.7581	0	108	51.6	136				
4-Chlorotoluene	0.811	0.0152	0.7581	0	107	50.1	139				
tert-Butylbenzene	0.816	0.0152	0.7581	0	108	50.5	135				
1,2,3-Trichloropropane	0.793	0.0152	0.7581	0	105	50.5	131				
1,2,4-Trichlorobenzene	0.742	0.0379	0.7581	0	97.9	50.8	130				

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-002BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: DP-1-5.0	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335450							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

sec-Butylbenzene	0.818	0.0152	0.7581	0	108	52.6	141				
4-Isopropyltoluene	0.835	0.0152	0.7581	0	110	52.9	134				
1,3-Dichlorobenzene	0.794	0.0152	0.7581	0	105	52.6	131				
1,4-Dichlorobenzene	0.801	0.0152	0.7581	0	106	52.9	129				
n-Butylbenzene	0.779	0.0152	0.7581	0	103	52.6	130				
1,2-Dichlorobenzene	0.761	0.0152	0.7581	0	100	55.8	129				
1,2-Dibromo-3-chloropropane	0.790	0.0227	0.7581	0	104	40.5	131				
1,2,4-Trimethylbenzene	0.812	0.0152	0.7581	0	107	50.6	137				
Hexachlorobutadiene	0.825	0.0758	0.7581	0	109	40.6	158				
Naphthalene	0.754	0.0227	0.7581	0	99.5	52.3	124				
1,2,3-Trichlorobenzene	0.787	0.0152	0.7581	0	104	54.4	124				
Surr: Dibromofluoromethane	1.83		1.895		96.6	63.7	129				
Surr: Toluene-d8	1.99		1.895		105	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	1.97		1.895		104	63.1	141				

Sample ID: LCS-8663	SampType: LCS	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: LCSS	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335463							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	0.719	0.0600	1.000	0	71.9	37.7	136				
Chloromethane	0.728	0.0600	1.000	0	72.8	38.8	132				
Vinyl chloride	0.820	0.00200	1.000	0	82.0	56.1	130				
Bromomethane	0.774	0.0900	1.000	0	77.4	41.3	148				
Trichlorofluoromethane (CFC-11)	0.771	0.0500	1.000	0	77.1	42.9	147				
Chloroethane	0.707	0.0600	1.000	0	70.7	37.1	144				
1,1-Dichloroethene	0.794	0.0500	1.000	0	79.4	49.7	142				
Methylene chloride	0.727	0.0200	1.000	0	72.7	54.5	131				
trans-1,2-Dichloroethene	0.878	0.0200	1.000	0	87.8	68	130				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-8663	SampType: LCS	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: LCSS	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335463							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.763	0.0500	1.000	0	76.3	59.1	138				
1,1-Dichloroethane	0.881	0.0200	1.000	0	88.1	65.5	132				
2,2-Dichloropropane	0.776	0.0500	1.000	0	77.6	28.1	149				
cis-1,2-Dichloroethene	0.924	0.0200	1.000	0	92.4	71.6	123				
Chloroform	0.955	0.0200	1.000	0	95.5	67.5	129				
1,1,1-Trichloroethane (TCA)	0.906	0.0200	1.000	0	90.6	69	132				
1,1-Dichloropropene	0.914	0.0200	1.000	0	91.4	72.7	131				
Carbon tetrachloride	0.886	0.0200	1.000	0	88.6	63.4	137				
1,2-Dichloroethane (EDC)	0.815	0.0300	1.000	0	81.5	61.9	136				
Benzene	1.02	0.0200	1.000	0	102	74.6	124				
Trichloroethene (TCE)	0.936	0.0200	1.000	0	93.6	65.5	137				
1,2-Dichloropropane	0.952	0.0200	1.000	0	95.2	63.2	142				
Bromodichloromethane	0.904	0.0200	1.000	0	90.4	76.1	136				
Dibromomethane	0.924	0.0400	1.000	0	92.4	70	130				
cis-1,3-Dichloropropene	0.883	0.0200	1.000	0	88.3	59.1	143				
Toluene	0.967	0.0200	1.000	0	96.7	67.3	138				
trans-1,3-Dichloropropylene	0.905	0.0300	1.000	0	90.5	49.2	149				
1,1,2-Trichloroethane	0.987	0.0300	1.000	0	98.7	74.5	129				
1,3-Dichloropropane	0.961	0.0500	1.000	0	96.1	70	130				
Tetrachloroethene (PCE)	0.950	0.0200	1.000	0	95.0	52.7	150				
Dibromochloromethane	0.909	0.0300	1.000	0	90.9	70.6	144				
1,2-Dibromoethane (EDB)	0.960	0.00500	1.000	0	96.0	70	130				
Chlorobenzene	1.01	0.0200	1.000	0	101	76.1	123				
1,1,1,2-Tetrachloroethane	0.984	0.0300	1.000	0	98.4	74.8	131				
Ethylbenzene	0.992	0.0300	1.000	0	99.2	74	129				
m,p-Xylene	2.04	0.0200	2.000	0	102	79.8	128				
o-Xylene	1.00	0.0200	1.000	0	100	72.7	124				
Styrene	0.997	0.0200	1.000	0	99.7	76.8	130				
Isopropylbenzene	0.963	0.0800	1.000	0	96.3	70	130				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-8663	SampType: LCS	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: LCSS	Batch ID: 8663		Analysis Date: 9/10/2014	SeqNo: 335463							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Bromoform	0.935	0.0200	1.000	0	93.5	67	154				
1,1,2,2-Tetrachloroethane	1.03	0.0200	1.000	0	103	60	130				
n-Propylbenzene	0.977	0.0200	1.000	0	97.7	74.8	125				
Bromobenzene	1.01	0.0300	1.000	0	101	49.2	144				
1,3,5-Trimethylbenzene	0.988	0.0200	1.000	0	98.8	74.6	123				
2-Chlorotoluene	0.992	0.0200	1.000	0	99.2	76.7	129				
4-Chlorotoluene	0.987	0.0200	1.000	0	98.7	77.5	125				
tert-Butylbenzene	0.969	0.0200	1.000	0	96.9	66.2	130				
1,2,3-Trichloropropane	1.01	0.0200	1.000	0	101	67.9	136				
1,2,4-Trichlorobenzene	0.928	0.0500	1.000	0	92.8	65.6	137				
sec-Butylbenzene	0.962	0.0200	1.000	0	96.2	75.6	133				
4-Isopropyltoluene	0.985	0.0200	1.000	0	98.5	76.8	131				
1,3-Dichlorobenzene	1.01	0.0200	1.000	0	101	72.8	128				
1,4-Dichlorobenzene	1.03	0.0200	1.000	0	103	72.6	126				
n-Butylbenzene	0.969	0.0200	1.000	0	96.9	65.3	136				
1,2-Dichlorobenzene	1.00	0.0200	1.000	0	100	72.8	126				
1,2-Dibromo-3-chloropropane	0.955	0.0300	1.000	0	95.5	61.2	139				
1,2,4-Trimethylbenzene	1.01	0.0200	1.000	0	101	77.5	129				
Hexachlorobutadiene	0.972	0.100	1.000	0	97.2	42	151				
Naphthalene	0.954	0.0300	1.000	0	95.4	62.3	134				
1,2,3-Trichlorobenzene	0.972	0.0200	1.000	0	97.2	62.1	140				
Surr: Dibromofluoromethane	2.33		2.500		93.2	63.7	129				
Surr: Toluene-d8	2.52		2.500		101	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	2.57		2.500		103	63.1	141				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-8663	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: MBLKS	Batch ID: 8663		Analysis Date: 9/9/2014	SeqNo: 335464							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-8663	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: MBLKS	Batch ID: 8663		Analysis Date: 9/9/2014	SeqNo: 335464							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-8663	SampType: MBLK	Units: mg/Kg	Prep Date: 9/9/2014	RunNo: 16692							
Client ID: MBLKS	Batch ID: 8663		Analysis Date: 9/9/2014	SeqNo: 335464							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	2.37		2.500		94.7	63.7	129				
Surr: Toluene-d8	2.51		2.500		100	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	2.28		2.500		91.3	63.1	141				

Sample ID: 1409077-037BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: DP-7-7.5	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335859							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	ND	0.0998						0		30	
Chloromethane	ND	0.0998						0		30	
Vinyl chloride	ND	0.00333						0		30	
Bromomethane	ND	0.150						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0832						0		30	
Chloroethane	ND	0.0998						0		30	
1,1-Dichloroethene	ND	0.0832						0		30	
Methylene chloride	ND	0.0333						0		30	
trans-1,2-Dichloroethene	ND	0.0333						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0832						0		30	
1,1-Dichloroethane	ND	0.0333						0		30	
2,2-Dichloropropane	ND	0.0832						0		30	
cis-1,2-Dichloroethene	ND	0.0333						0		30	
Chloroform	ND	0.0333						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0333						0		30	
1,1-Dichloropropene	ND	0.0333						0		30	
Carbon tetrachloride	ND	0.0333						0		30	
1,2-Dichloroethane (EDC)	ND	0.0499						0		30	
Benzene	0.350	0.0333						0.3458	1.31	30	

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
D Dilution was required
J Analyte detected below quantitation limits
RL Reporting Limit
E Value above quantitation range
ND Not detected at the Reporting Limit
S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-037BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: DP-7-7.5	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335859							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Trichloroethene (TCE)	ND	0.0333						0		30	
1,2-Dichloropropane	ND	0.0333						0		30	
Bromodichloromethane	ND	0.0333						0		30	
Dibromomethane	ND	0.0665						0		30	
cis-1,3-Dichloropropene	ND	0.0333						0		30	
Toluene	0.207	0.0333						0.2252	8.53	30	
trans-1,3-Dichloropropylene	ND	0.0499						0		30	
1,1,2-Trichloroethane	ND	0.0499						0		30	
1,3-Dichloropropane	ND	0.0832						0		30	
Tetrachloroethene (PCE)	ND	0.0333						0		30	
Dibromochloromethane	ND	0.0499						0		30	
1,2-Dibromoethane (EDB)	ND	0.00832						0		30	
Chlorobenzene	ND	0.0333						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0499						0		30	
Ethylbenzene	0.156	0.0499						0.1702	8.47	30	
m,p-Xylene	0.529	0.0333						0.5451	2.97	30	
o-Xylene	0.117	0.0333						0.1243	6.49	30	
Styrene	ND	0.0333						0		30	
Isopropylbenzene	0.753	0.133						0.7296	3.14	30	
Bromoform	ND	0.0333						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0333						0		30	
n-Propylbenzene	0.941	0.0333						0.9261	1.57	30	
Bromobenzene	ND	0.0499						0		30	
1,3,5-Trimethylbenzene	0.102	0.0333						0.09731	4.27	30	
2-Chlorotoluene	ND	0.0333						0		30	
4-Chlorotoluene	ND	0.0333						0		30	
tert-Butylbenzene	ND	0.0333						0		30	
1,2,3-Trichloropropane	ND	0.0333						0		30	
1,2,4-Trichlorobenzene	ND	0.0832						0		30	

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-037BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: DP-7-7.5	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335859							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

sec-Butylbenzene	0.413	0.0333						0.3919	5.29	30	
4-Isopropyltoluene	0.0753	0.0333						0.06688	11.8	30	
1,3-Dichlorobenzene	ND	0.0333						0		30	
1,4-Dichlorobenzene	ND	0.0333						0		30	
n-Butylbenzene	0.630	0.0333						0.6071	3.77	30	
1,2-Dichlorobenzene	ND	0.0333						0		30	
1,2-Dibromo-3-chloropropane	ND	0.0499						0		30	
1,2,4-Trimethylbenzene	0.117	0.0333						0.1307	10.7	30	
Hexachlorobutadiene	ND	0.166						0		30	
Naphthalene	ND	0.0499						0		30	
1,2,3-Trichlorobenzene	ND	0.0333						0		30	
Surr: Dibromofluoromethane	3.91		4.158		94.0	63.7	129		0		
Surr: Toluene-d8	4.52		4.158		109	61.4	128		0		
Surr: 1-Bromo-4-fluorobenzene	4.15		4.158		99.9	63.1	141		0		

Sample ID: 1409077-038BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: DP-7-13.0	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335861							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	1.36	0.0787	1.312	0	103	43.5	121				
Chloromethane	1.28	0.0787	1.312	0	97.7	45	130				
Vinyl chloride	1.52	0.00262	1.312	0	116	51.2	146				
Bromomethane	1.14	0.118	1.312	0	87.0	21.3	120				
Trichlorofluoromethane (CFC-11)	0.505	0.0656	1.312	0	38.5	35	131				
Chloroethane	0.821	0.0787	1.312	0	62.6	43.8	117				
1,1-Dichloroethene	1.47	0.0656	1.312	0	112	61.9	141				
Methylene chloride	1.86	0.0262	1.312	0	142	54.7	142				
trans-1,2-Dichloroethene	1.51	0.0262	1.312	0	115	52	136				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-038BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: DP-7-13.0	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335861							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Methyl tert-butyl ether (MTBE)	1.34	0.0656	1.312	0	102	54.4	132				
1,1-Dichloroethane	1.25	0.0262	1.312	0	95.2	51.8	141				
2,2-Dichloropropane	1.08	0.0656	1.312	0	82.4	36	123				
cis-1,2-Dichloroethene	1.32	0.0262	1.312	0	101	58.6	136				
Chloroform	1.02	0.0262	1.312	0	77.7	53.2	129				
1,1,1-Trichloroethane (TCA)	1.23	0.0262	1.312	0	94.1	58.3	145				
1,1-Dichloropropene	1.27	0.0262	1.312	0	96.6	55.1	138				
Carbon tetrachloride	1.29	0.0262	1.312	0	98.0	53.3	144				
1,2-Dichloroethane (EDC)	1.06	0.0394	1.312	0	80.7	51.3	139				
Benzene	2.55	0.0262	1.312	1.277	97.2	63.5	133				
Trichloroethene (TCE)	1.51	0.0262	1.312	0	115	68.6	132				
1,2-Dichloropropane	1.39	0.0262	1.312	0	106	59	136				
Bromodichloromethane	1.58	0.0262	1.312	0	120	50.7	141				
Dibromomethane	1.45	0.0525	1.312	0	111	50.6	137				
cis-1,3-Dichloropropene	1.45	0.0262	1.312	0	110	50.4	138				
Toluene	1.73	0.0262	1.312	0.3196	107	63.4	132				
trans-1,3-Dichloropropylene	1.43	0.0394	1.312	0	109	44.1	147				
1,1,2-Trichloroethane	3.21	0.0394	1.312	0	245	51.6	137				S
1,3-Dichloropropane	1.52	0.0656	1.312	0	116	53.1	134				
Tetrachloroethene (PCE)	1.50	0.0262	1.312	0	114	35.6	158				
Dibromochloromethane	1.36	0.0394	1.312	0	104	55.3	140				
1,2-Dibromoethane (EDB)	1.67	0.00656	1.312	0	127	50.4	136				
Chlorobenzene	1.19	0.0262	1.312	0	90.4	60	133				
1,1,1,2-Tetrachloroethane	1.39	0.0394	1.312	0	106	53.1	142				
Ethylbenzene	1.83	0.0394	1.312	0.3479	113	54.5	134				
m,p-Xylene	3.23	0.0262	2.624	0.7749	93.4	53.1	132				
o-Xylene	1.40	0.0262	1.312	0.1598	94.9	53.3	139				
Styrene	1.28	0.0262	1.312	0	97.4	51.1	132				
Isopropylbenzene	1.97	0.105	1.312	0.6508	100	58.9	138				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-038BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: DP-7-13.0	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335861							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	1.37	0.0262	1.312	0	104	57.9	130				
1,1,2,2-Tetrachloroethane	1.04	0.0262	1.312	0	79.2	51.9	131				
n-Propylbenzene	2.07	0.0262	1.312	0.7902	97.2	53.6	140				
Bromobenzene	1.36	0.0394	1.312	0	104	54.2	140				
1,3,5-Trimethylbenzene	1.43	0.0262	1.312	0.2136	92.7	51.8	136				
2-Chlorotoluene	1.18	0.0262	1.312	0	89.9	51.6	136				
4-Chlorotoluene	1.25	0.0262	1.312	0.07995	89.3	50.1	139				
tert-Butylbenzene	1.32	0.0262	1.312	0	101	50.5	135				
1,2,3-Trichloropropane	1.17	0.0262	1.312	0	89.2	50.5	131				
1,2,4-Trichlorobenzene	1.90	0.0656	1.312	0	145	50.8	130				S
sec-Butylbenzene	1.58	0.0262	1.312	0.2930	98.2	52.6	141				
4-Isopropyltoluene	1.96	0.0262	1.312	0.3752	121	52.9	134				
1,3-Dichlorobenzene	1.38	0.0262	1.312	0	105	52.6	131				
1,4-Dichlorobenzene	1.14	0.0262	1.312	0	87.3	52.9	129				
n-Butylbenzene	1.83	0.0262	1.312	0.4319	106	52.6	130				
1,2-Dichlorobenzene	1.47	0.0262	1.312	0	112	55.8	129				
1,2-Dibromo-3-chloropropane	1.49	0.0394	1.312	0	114	40.5	131				
1,2,4-Trimethylbenzene	1.39	0.0262	1.312	0.1724	92.4	50.6	137				
Hexachlorobutadiene	1.77	0.131	1.312	0	135	40.6	158				
Naphthalene	1.95	0.0394	1.312	0.4111	117	52.3	124				
1,2,3-Trichlorobenzene	1.88	0.0262	1.312	0	143	54.4	124				S
Surr: Dibromofluoromethane	3.12		3.280		95.2	63.7	129				
Surr: Toluene-d8	3.73		3.280		114	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	3.24		3.280		98.9	63.1	141				

NOTES:

S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-8672	SampType: LCS	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: LCSS	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335866							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	0.923	0.0600	1.000	0	92.3	37.7	136				
Chloromethane	0.969	0.0600	1.000	0	96.9	38.8	132				
Vinyl chloride	0.926	0.00200	1.000	0	92.6	56.1	130				
Bromomethane	1.00	0.0900	1.000	0	100	41.3	148				
Trichlorofluoromethane (CFC-11)	0.964	0.0500	1.000	0	96.4	42.9	147				
Chloroethane	1.04	0.0600	1.000	0	104	37.1	144				
1,1-Dichloroethene	0.984	0.0500	1.000	0	98.4	49.7	142				
Methylene chloride	1.03	0.0200	1.000	0	103	54.5	131				
trans-1,2-Dichloroethene	1.06	0.0200	1.000	0	106	68	130				
Methyl tert-butyl ether (MTBE)	0.918	0.0500	1.000	0	91.8	59.1	138				
1,1-Dichloroethane	0.951	0.0200	1.000	0	95.1	65.5	132				
2,2-Dichloropropane	0.946	0.0500	1.000	0	94.6	28.1	149				
cis-1,2-Dichloroethene	1.00	0.0200	1.000	0	100	71.6	123				
Chloroform	0.873	0.0200	1.000	0	87.3	67.5	129				
1,1,1-Trichloroethane (TCA)	1.03	0.0200	1.000	0	103	69	132				
1,1-Dichloropropene	0.974	0.0200	1.000	0	97.4	72.7	131				
Carbon tetrachloride	1.07	0.0200	1.000	0	107	63.4	137				
1,2-Dichloroethane (EDC)	0.921	0.0300	1.000	0	92.1	61.9	136				
Benzene	0.927	0.0200	1.000	0	92.7	74.6	124				
Trichloroethene (TCE)	1.07	0.0200	1.000	0	107	65.5	137				
1,2-Dichloropropane	1.01	0.0200	1.000	0	101	63.2	142				
Bromodichloromethane	1.17	0.0200	1.000	0	117	76.1	136				
Dibromomethane	1.03	0.0400	1.000	0	103	70	130				
cis-1,3-Dichloropropene	0.980	0.0200	1.000	0	98.0	59.1	143				
Toluene	0.999	0.0200	1.000	0	99.9	67.3	138				
trans-1,3-Dichloropropylene	0.974	0.0300	1.000	0	97.4	49.2	149				
1,1,2-Trichloroethane	1.01	0.0300	1.000	0	101	74.5	129				
1,3-Dichloropropane	1.05	0.0500	1.000	0	105	70	130				
Tetrachloroethene (PCE)	1.08	0.0200	1.000	0	108	52.7	150				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-8672	SampType: LCS	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: LCSS	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335866							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dibromochloromethane	1.01	0.0300	1.000	0	101	70.6	144				
1,2-Dibromoethane (EDB)	1.14	0.00500	1.000	0	114	70	130				
Chlorobenzene	0.953	0.0200	1.000	0	95.3	76.1	123				
1,1,1,2-Tetrachloroethane	1.17	0.0300	1.000	0	117	74.8	131				
Ethylbenzene	1.12	0.0300	1.000	0	112	74	129				
m,p-Xylene	1.96	0.0200	2.000	0	98.0	79.8	128				
o-Xylene	0.944	0.0200	1.000	0	94.4	72.7	124				
Styrene	0.962	0.0200	1.000	0	96.2	76.8	130				
Isopropylbenzene	0.947	0.0800	1.000	0	94.7	70	130				
Bromoform	1.12	0.0200	1.000	0	112	67	154				
1,1,2,2-Tetrachloroethane	0.950	0.0200	1.000	0	95.0	60	130				
n-Propylbenzene	0.970	0.0200	1.000	0	97.0	74.8	125				
Bromobenzene	1.05	0.0300	1.000	0	105	49.2	144				
1,3,5-Trimethylbenzene	0.989	0.0200	1.000	0	98.9	74.6	123				
2-Chlorotoluene	0.980	0.0200	1.000	0	98.0	76.7	129				
4-Chlorotoluene	0.980	0.0200	1.000	0	98.0	77.5	125				
tert-Butylbenzene	0.949	0.0200	1.000	0	94.9	66.2	130				
1,2,3-Trichloropropane	0.916	0.0200	1.000	0	91.6	67.9	136				
1,2,4-Trichlorobenzene	1.08	0.0500	1.000	0	108	65.6	137				
sec-Butylbenzene	0.944	0.0200	1.000	0	94.4	75.6	133				
4-Isopropyltoluene	1.15	0.0200	1.000	0	115	76.8	131				
1,3-Dichlorobenzene	1.05	0.0200	1.000	0	105	72.8	128				
1,4-Dichlorobenzene	0.883	0.0200	1.000	0	88.3	72.6	126				
n-Butylbenzene	0.951	0.0200	1.000	0	95.1	65.3	136				
1,2-Dichlorobenzene	1.02	0.0200	1.000	0	102	72.8	126				
1,2-Dibromo-3-chloropropane	1.01	0.0300	1.000	0	101	61.2	139				
1,2,4-Trimethylbenzene	0.975	0.0200	1.000	0	97.5	77.5	129				
Hexachlorobutadiene	1.03	0.100	1.000	0	103	42	151				
Naphthalene	0.874	0.0300	1.000	0	87.4	62.3	134				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-8672	SampType: LCS	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: LCSS	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335866							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,2,3-Trichlorobenzene	1.14	0.0200	1.000	0	114	62.1	140				
Surr: Dibromofluoromethane	2.51		2.500		100	63.7	129				
Surr: Toluene-d8	2.55		2.500		102	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	2.65		2.500		106	63.1	141				

Sample ID: MB-8672	SampType: MBLK	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: MBLKS	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	ND	0.0600									
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Bromomethane	ND	0.0900									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
Methyl tert-butyl ether (MTBE)	ND	0.0500									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Benzene	ND	0.0200									

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-8672	SampType: MBLK	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: MBLKS	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0400									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Styrene	ND	0.0200									
Isopropylbenzene	ND	0.0800									
Bromoform	ND	0.0200									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0200									
Bromobenzene	ND	0.0300									
1,3,5-Trimethylbenzene	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									
tert-Butylbenzene	ND	0.0200									
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-8672	SampType: MBLK	Units: mg/Kg	Prep Date: 9/10/2014	RunNo: 16710							
Client ID: MBLKS	Batch ID: 8672		Analysis Date: 9/11/2014	SeqNo: 335867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

sec-Butylbenzene	ND	0.0200									
4-Isopropyltoluene	ND	0.0200									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.100									
Naphthalene	ND	0.0300									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	2.41		2.500		96.4	63.7	129				
Surr: Toluene-d8	2.67		2.500		107	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	2.40		2.500		95.9	63.1	141				

Sample ID: CCV-8663B	SampType: CCV	Units: µg/L	Prep Date: 9/11/2014	RunNo: 16692							
Client ID: CCV	Batch ID: 8663		Analysis Date: 9/11/2014	SeqNo: 336379							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Ethylbenzene	22.8	0.0300	20.00	0	114	80	120				
n-Propylbenzene	18.9	0.0200	20.00	0	94.6	80	120				
n-Butylbenzene	19.2	0.0200	20.00	0	95.8	80	120				
Surr: Dibromofluoromethane	46.2		50.00		92.5	63.7	129				
Surr: Toluene-d8	53.9		50.00		108	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	50.0		50.00		100	63.1	141				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: CCV-8672B	SampType: CCV	Units: µg/L				Prep Date: 9/15/2014	RunNo: 16710				
Client ID: CCV	Batch ID: 8672					Analysis Date: 9/15/2014	SeqNo: 336675				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene	21.1	0.0300	20.00	0	106	80	120				
Isopropylbenzene	18.2	0.0800	20.00	0	91.0	80	120				
sec-Butylbenzene	19.1	0.0200	20.00	0	95.6	80	120				
n-Butylbenzene	18.6	0.0200	20.00	0	93.1	80	120				
Naphthalene	17.1	0.0300	20.00	0	85.4	80	120				
Surr: Dibromofluoromethane	52.3		50.00		105	63.7	129				
Surr: Toluene-d8	49.7		50.00		99.4	61.4	128				
Surr: 1-Bromo-4-fluorobenzene	55.0		50.00		110	63.1	141				

Sample ID: LCS-8824	SampType: LCS	Units: mg/Kg				Prep Date: 9/23/2014	RunNo: 16955				
Client ID: LCSS	Batch ID: 8824					Analysis Date: 9/24/2014	SeqNo: 340419				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.655	0.0200	1.000	0	65.5	64.3	133				
Surr: Dibromofluoromethane	2.58		2.500		103	63.7	129				
Surr: Toluene-d8	2.62		2.500		105	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	2.61		2.500		105	63.1	141				

Sample ID: MB-8824	SampType: MBLK	Units: mg/Kg				Prep Date: 9/23/2014	RunNo: 16955				
Client ID: MBLKS	Batch ID: 8824					Analysis Date: 9/23/2014	SeqNo: 340420				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Surr: Dibromofluoromethane	2.34		2.500		93.6	63.7	129				
Surr: Toluene-d8	2.60		2.500		104	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	2.33		2.500		93.1	63.1	141				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-059BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/23/2014	RunNo: 16955							
Client ID: DP-8-25.0	Batch ID: 8824		Analysis Date: 9/24/2014	SeqNo: 340457							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.0591	0.0160						0.08638	37.5	30	RH
Surr: Dibromofluoromethane	2.00		1.994		100	63.7	129		0		H
Surr: Toluene-d8	1.97		1.994		98.9	64.3	131		0		H
Surr: 1-Bromo-4-fluorobenzene	1.95		1.994		97.9	63.1	141		0		H

NOTES:

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: 1409077-073BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/23/2014	RunNo: 16955							
Client ID: DP-12-15.0	Batch ID: 8824		Analysis Date: 9/24/2014	SeqNo: 340553							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.855	0.0262	1.310	0	65.3	63.5	133				H
Surr: Dibromofluoromethane	3.44		3.274		105	63.7	129				H
Surr: Toluene-d8	3.41		3.274		104	64.3	131				H
Surr: 1-Bromo-4-fluorobenzene	3.43		3.274		105	63.1	141				H

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R16668	SampType: LCS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668
Client ID: LCSW	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 334995

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	25.8	1.00	20.00	0	129	43	136				
Chloromethane	25.1	1.00	20.00	0	126	43.9	139				
Vinyl chloride	26.3	0.200	20.00	0	131	53.6	139				
Bromomethane	28.6	1.00	20.00	0	143	44.8	148				
Trichlorofluoromethane (CFC-11)	25.4	1.00	20.00	0	127	63.7	133				
Chloroethane	25.4	1.00	20.00	0	127	53	141				
1,1-Dichloroethene	25.5	1.00	20.00	0	128	65.6	136				
Methylene chloride	25.0	1.00	20.00	0	125	67.1	131				
trans-1,2-Dichloroethene	24.1	1.00	20.00	0	121	71.7	129				
Methyl tert-butyl ether (MTBE)	25.2	1.00	20.00	0	126	67.7	131				
1,1-Dichloroethane	24.7	1.00	20.00	0	124	67.9	134				
2,2-Dichloropropane	27.6	2.00	20.00	0	138	33.7	152				
cis-1,2-Dichloroethene	24.8	1.00	20.00	0	124	71.1	130				
Chloroform	24.6	1.00	20.00	0	123	76.7	124				
1,1,1-Trichloroethane (TCA)	25.5	1.00	20.00	0	127	71	131				
1,1-Dichloropropene	24.8	1.00	20.00	0	124	74.5	126				
Carbon tetrachloride	24.9	1.00	20.00	0	124	66.2	134				
1,2-Dichloroethane (EDC)	25.6	1.00	20.00	0	128	70	129				
Benzene	24.8	1.00	20.00	0	124	73.1	126				
Trichloroethene (TCE)	24.8	0.500	20.00	0	124	65.2	136				
1,2-Dichloropropane	24.8	1.00	20.00	0	124	70.5	130				
Bromodichloromethane	25.5	1.00	20.00	0	128	74.6	127				S
Dibromomethane	25.3	1.00	20.00	0	126	75.5	126				S
cis-1,3-Dichloropropene	25.2	1.00	20.00	0	126	62.6	137				
Toluene	24.8	1.00	20.00	0	124	61.3	145				
trans-1,3-Dichloropropene	26.1	1.00	20.00	0	131	58.5	142				
1,1,2-Trichloroethane	27.3	1.00	20.00	0	136	76	124				S
1,3-Dichloropropane	25.7	1.00	20.00	0	129	73.5	127				S
Tetrachloroethene (PCE)	24.6	1.00	20.00	0	123	47.5	147				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R16668	SampType: LCS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668
Client ID: LCSW	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 334995

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	24.9	1.00	20.00	0	125	67.2	134				
1,2-Dibromoethane (EDB)	25.1	0.0600	20.00	0	126	73.6	125				S
Chlorobenzene	25.4	1.00	20.00	0	127	73.9	126				S
1,1,1,2-Tetrachloroethane	25.7	1.00	20.00	0	128	76.8	124				S
Ethylbenzene	25.0	1.00	20.00	0	125	72	130				
m,p-Xylene	49.8	1.00	40.00	0	125	73	131				
o-Xylene	25.9	1.00	20.00	0	130	72.1	131				
Styrene	25.4	1.00	20.00	0	127	64.3	140				
Isopropylbenzene	25.2	1.00	20.00	0	126	73.9	128				
Bromoform	25.1	1.00	20.00	0	125	63.8	135				
1,1,2,2-Tetrachloroethane	26.0	1.00	20.00	0	130	62.9	132				
n-Propylbenzene	23.9	1.00	20.00	0	119	74.5	127				
Bromobenzene	25.0	1.00	20.00	0	125	71	131				
1,3,5-Trimethylbenzene	24.8	1.00	20.00	0	124	73.1	128				
2-Chlorotoluene	25.4	1.00	20.00	0	127	70.8	130				
4-Chlorotoluene	25.2	1.00	20.00	0	126	70.1	131				
tert-Butylbenzene	24.6	1.00	20.00	0	123	68.2	131				
1,2,3-Trichloropropane	25.3	1.00	20.00	0	126	67.7	131				
1,2,4-Trichlorobenzene	20.8	2.00	20.00	0	104	72.4	127				
sec-Butylbenzene	23.9	1.00	20.00	0	119	72	129				
4-Isopropyltoluene	23.6	1.00	20.00	0	118	69.2	130				
1,3-Dichlorobenzene	26.9	1.00	20.00	0	134	72.4	129				S
1,4-Dichlorobenzene	25.4	1.00	20.00	0	127	70.6	128				
n-Butylbenzene	24.1	1.00	20.00	0	121	73.8	127				
1,2-Dichlorobenzene	25.4	1.00	20.00	0	127	74.2	129				
1,2-Dibromo-3-chloropropane	22.1	1.00	20.00	0	110	63.1	136				
1,2,4-Trimethylbenzene	25.1	1.00	20.00	0	125	73.4	127				
Hexachlorobutadiene	23.5	4.00	20.00	0	117	58.6	138				
Naphthalene	15.9	1.00	20.00	0	79.7	50.4	140				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R16668	SampType: LCS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: LCSW	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 334995							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	14.5	4.00	20.00	0	72.4	50.2	139				
Surr: Dibromofluoromethane	47.5		50.00		95.0	61.7	130				
Surr: Toluene-d8	48.0		50.00		96.0	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	45.6		50.00		91.3	68.2	127				

NOTES:

S - Outlying QC recoveries were observed (high bias). There were no detections of these analytes in the samples, no further action is required.

Sample ID: MB-R16668	SampType: MBLK	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: MBLKW	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 334996							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00									
Chloromethane	ND	1.00									
Vinyl chloride	ND	0.200									
Bromomethane	ND	1.00									
Trichlorofluoromethane (CFC-11)	ND	1.00									
Chloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
Methylene chloride	ND	1.00									
trans-1,2-Dichloroethene	ND	1.00									
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,1-Dichloroethane	ND	1.00									
2,2-Dichloropropane	ND	2.00									
cis-1,2-Dichloroethene	ND	1.00									
Chloroform	ND	1.00									
1,1,1-Trichloroethane (TCA)	ND	1.00									
1,1-Dichloropropene	ND	1.00									
Carbon tetrachloride	ND	1.00									
1,2-Dichloroethane (EDC)	ND	1.00									

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-R16668	SampType: MBLK	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: MBLKW	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 334996							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Trichloroethene (TCE)	ND	0.500									
1,2-Dichloropropane	ND	1.00									
Bromodichloromethane	ND	1.00									
Dibromomethane	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Toluene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,3-Dichloropropane	ND	1.00									
Tetrachloroethene (PCE)	ND	1.00									
Dibromochloromethane	ND	1.00									
1,2-Dibromoethane (EDB)	ND	0.0600									
Chlorobenzene	ND	1.00									
1,1,1,2-Tetrachloroethane	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Styrene	ND	1.00									
Isopropylbenzene	ND	1.00									
Bromoform	ND	1.00									
1,1,1,2,2-Tetrachloroethane	ND	1.00									
n-Propylbenzene	ND	1.00									
Bromobenzene	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
2-Chlorotoluene	ND	1.00									
4-Chlorotoluene	ND	1.00									
tert-Butylbenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-R16668	SampType: MBLK	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: MBLKW	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 334996							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,2,4-Trichlorobenzene	ND	2.00									
sec-Butylbenzene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
n-Butylbenzene	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	4.00									
Naphthalene	ND	1.00									
1,2,3-Trichlorobenzene	ND	4.00									
Surr: Dibromofluoromethane	46.0		50.00		91.9	61.7	130				
Surr: Toluene-d8	47.2		50.00		94.3	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	46.0		50.00		91.9	68.2	127				

Sample ID: 1409077-052ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16668							
Client ID: MW-1-140906	Batch ID: R16668		Analysis Date: 9/10/2014	SeqNo: 335266							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	ND	1.00						0		30	
Chloromethane	ND	1.00						0		30	
Vinyl chloride	ND	0.200						0		30	
Bromomethane	ND	1.00						0		30	
Trichlorofluoromethane (CFC-11)	ND	1.00						0		30	
Chloroethane	ND	1.00						0		30	
1,1-Dichloroethene	ND	1.00						0		30	
Methylene chloride	ND	1.00						0		30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-052ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16668							
Client ID: MW-1-140906	Batch ID: R16668		Analysis Date: 9/10/2014	SeqNo: 335266							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

trans-1,2-Dichloroethene	ND	1.00						0		30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0		30	
1,1-Dichloroethane	ND	1.00						0		30	
2,2-Dichloropropane	ND	2.00						0		30	
cis-1,2-Dichloroethene	ND	1.00						0		30	
Chloroform	ND	1.00						0		30	
1,1,1-Trichloroethane (TCA)	ND	1.00						0		30	
1,1-Dichloropropene	ND	1.00						0		30	
Carbon tetrachloride	ND	1.00						0		30	
1,2-Dichloroethane (EDC)	ND	1.00						0		30	
Benzene	ND	1.00						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
1,2-Dichloropropane	ND	1.00						0		30	
Bromodichloromethane	ND	1.00						0		30	
Dibromomethane	ND	1.00						0		30	
cis-1,3-Dichloropropene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
trans-1,3-Dichloropropene	ND	1.00						0		30	
1,1,2-Trichloroethane	ND	1.00						0		30	
1,3-Dichloropropane	ND	1.00						0		30	
Tetrachloroethene (PCE)	ND	1.00						0		30	
Dibromochloromethane	ND	1.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.0600						0		30	
Chlorobenzene	ND	1.00						0		30	
1,1,1,2-Tetrachloroethane	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Styrene	ND	1.00						0		30	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409077-052ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/10/2014	RunNo: 16668
Client ID: MW-1-140906	Batch ID: R16668		Analysis Date: 9/10/2014	SeqNo: 335266

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Isopropylbenzene	ND	1.00						0		30	
Bromoform	ND	1.00						0		30	
1,1,2,2-Tetrachloroethane	ND	1.00						0		30	
n-Propylbenzene	ND	1.00						0		30	
Bromobenzene	ND	1.00						0		30	
1,3,5-Trimethylbenzene	ND	1.00						0		30	
2-Chlorotoluene	ND	1.00						0		30	
4-Chlorotoluene	ND	1.00						0		30	
tert-Butylbenzene	ND	1.00						0		30	
1,2,3-Trichloropropane	ND	1.00						0		30	
1,2,4-Trichlorobenzene	ND	2.00						0		30	
sec-Butylbenzene	ND	1.00						0		30	
4-Isopropyltoluene	ND	1.00						0		30	
1,3-Dichlorobenzene	ND	1.00						0		30	
1,4-Dichlorobenzene	ND	1.00						0		30	
n-Butylbenzene	ND	1.00						0		30	
1,2-Dichlorobenzene	ND	1.00						0		30	
1,2-Dibromo-3-chloropropane	ND	1.00						0		30	
1,2,4-Trimethylbenzene	ND	1.00						0		30	
Hexachlorobutadiene	ND	4.00						0		30	
Naphthalene	ND	1.00						0		30	
1,2,3-Trichlorobenzene	ND	4.00						0		30	
Surr: Dibromofluoromethane	49.5		50.00		99.0	61.7	130		0		
Surr: Toluene-d8	48.3		50.00		96.6	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	49.8		50.00		99.7	68.2	127		0		

Qualifiers: B Analyte detected in the associated Method Blank
 D Dilution was required
 E Value above quantitation range
 H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits
 ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits
 RL Reporting Limit
 S Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409082-005AMS	SampType: MS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668
Client ID: BATCH	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 335279

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	24.9	1.00	20.00	0	124	33.3	122				S
Chloromethane	25.6	1.00	20.00	0	128	48.2	145				
Vinyl chloride	26.1	0.200	20.00	0	131	58.1	158				
Bromomethane	25.2	1.00	20.00	0	126	31.5	135				
Trichlorofluoromethane (CFC-11)	27.6	1.00	20.00	0	138	54.7	138				S
Chloroethane	27.2	1.00	20.00	0	136	49.9	143				
1,1-Dichloroethene	28.8	1.00	20.00	0	144	63	141				S
Methylene chloride	24.4	1.00	20.00	0	122	61.6	135				
trans-1,2-Dichloroethene	26.5	1.00	20.00	0	132	63.5	138				
Methyl tert-butyl ether (MTBE)	25.3	1.00	20.00	0	126	60.9	132				
1,1-Dichloroethane	26.1	1.00	20.00	0	131	67.8	136				
2,2-Dichloropropane	25.2	2.00	20.00	0	126	31.5	121				S
cis-1,2-Dichloroethene	26.3	1.00	20.00	0	131	67.1	123				S
Chloroform	25.0	1.00	20.00	0	125	66.7	136				
1,1,1-Trichloroethane (TCA)	26.8	1.00	20.00	0.2200	133	64.2	146				
1,1-Dichloropropene	27.1	1.00	20.00	0	136	73.8	136				
Carbon tetrachloride	26.0	1.00	20.00	0	130	62.7	146				
1,2-Dichloroethane (EDC)	26.0	1.00	20.00	0	130	63.4	137				
Benzene	26.2	1.00	20.00	0	131	65.4	138				
Trichloroethene (TCE)	27.2	0.500	20.00	0	136	60.4	134				S
1,2-Dichloropropane	25.8	1.00	20.00	0	129	62.6	138				
Bromodichloromethane	25.0	1.00	20.00	0	125	59.4	139				
Dibromomethane	23.9	1.00	20.00	0	120	63.6	139				
cis-1,3-Dichloropropene	25.8	1.00	20.00	0	129	63.8	132				
Toluene	26.5	1.00	20.00	0	133	64	139				
trans-1,3-Dichloropropene	24.5	1.00	20.00	0	122	57.7	125				
1,1,2-Trichloroethane	26.8	1.00	20.00	0	134	59.4	127				S
1,3-Dichloropropane	25.4	1.00	20.00	0	127	64.3	135				
Tetrachloroethene (PCE)	25.9	1.00	20.00	0	130	50.3	133				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409082-005AMS	SampType: MS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668
Client ID: BATCH	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 335279

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	25.0	1.00	20.00	0	125	61.6	139				
1,2-Dibromoethane (EDB)	26.3	0.0600	20.00	0	132	63.2	134				
Chlorobenzene	26.1	1.00	20.00	0	131	65.8	134				
1,1,1,2-Tetrachloroethane	24.8	1.00	20.00	0	124	65.4	135				
Ethylbenzene	25.8	1.00	20.00	0	129	64.5	136				
m,p-Xylene	52.1	1.00	40.00	0	130	63.3	135				
o-Xylene	26.9	1.00	20.00	0	134	65.4	134				S
Styrene	25.7	1.00	20.00	0	129	59.1	134				
Isopropylbenzene	25.9	1.00	20.00	0.2100	128	56	147				
Bromoform	25.5	1.00	20.00	0	128	57.7	139				
1,1,2,2-Tetrachloroethane	27.2	1.00	20.00	0	136	59.8	146				
n-Propylbenzene	24.8	1.00	20.00	0.2500	123	57.6	142				
Bromobenzene	26.2	1.00	20.00	0	131	63.6	130				S
1,3,5-Trimethylbenzene	25.7	1.00	20.00	0	129	59.9	136				
2-Chlorotoluene	25.3	1.00	20.00	0	127	61.7	134				
4-Chlorotoluene	26.4	1.00	20.00	0.1500	131	58.4	134				
tert-Butylbenzene	25.4	1.00	20.00	0	127	66.8	141				
1,2,3-Trichloropropane	25.5	1.00	20.00	0	128	62.4	129				
1,2,4-Trichlorobenzene	22.0	2.00	20.00	0.6600	107	50.9	133				
sec-Butylbenzene	24.4	1.00	20.00	0.1900	121	56	146				
4-Isopropyltoluene	24.6	1.00	20.00	0.1600	122	56.4	136				
1,3-Dichlorobenzene	26.4	1.00	20.00	0	132	58.2	128				S
1,4-Dichlorobenzene	26.3	1.00	20.00	0	132	60.1	123				S
n-Butylbenzene	24.1	1.00	20.00	0.3700	118	54.6	135				
1,2-Dichlorobenzene	27.0	1.00	20.00	0	135	65.4	133				S
1,2-Dibromo-3-chloropropane	27.2	1.00	20.00	0	136	51.8	142				
1,2,4-Trimethylbenzene	25.0	1.00	20.00	0.1200	125	63.7	132				
Hexachlorobutadiene	22.6	4.00	20.00	0.9100	109	58.1	130				
Naphthalene	18.2	1.00	20.00	2.030	81.0	54.5	132				

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409082-005AMS	SampType: MS	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: BATCH	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 335279							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,2,3-Trichlorobenzene	15.8	4.00	20.00	1.990	69.0	57	131				
Surr: Dibromofluoromethane	46.8		50.00		93.6	61.7	130				
Surr: Toluene-d8	47.2		50.00		94.4	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	47.1		50.00		94.2	68.2	127				

NOTES:

S - Outlying spike recoveries were associated with this sample. The method is in control as indicated by the LCS.

Sample ID: 1409083-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: BATCH	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 335281							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dichlorodifluoromethane (CFC-12)	ND	1.00						0		30	
Chloromethane	ND	1.00						0		30	
Vinyl chloride	ND	0.200						0		30	
Bromomethane	ND	1.00						0		30	
Trichlorofluoromethane (CFC-11)	ND	1.00						0		30	
Chloroethane	ND	1.00						0		30	
1,1-Dichloroethene	ND	1.00						0		30	
Methylene chloride	ND	1.00						0		30	
trans-1,2-Dichloroethene	ND	1.00						0		30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0		30	
1,1-Dichloroethane	ND	1.00						0		30	
2,2-Dichloropropane	ND	2.00						0		30	
cis-1,2-Dichloroethene	ND	1.00						0		30	
Chloroform	ND	1.00						0		30	
1,1,1-Trichloroethane (TCA)	ND	1.00						0		30	
1,1-Dichloropropene	ND	1.00						0		30	
Carbon tetrachloride	ND	1.00						0		30	
1,2-Dichloroethane (EDC)	ND	1.00						0		30	

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Work Order: 1409077
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409083-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: BATCH	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 335281							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
1,2-Dichloropropane	ND	1.00						0		30	
Bromodichloromethane	ND	1.00						0		30	
Dibromomethane	ND	1.00						0		30	
cis-1,3-Dichloropropene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
trans-1,3-Dichloropropene	ND	1.00						0		30	
1,1,2-Trichloroethane	ND	1.00						0		30	
1,3-Dichloropropane	ND	1.00						0		30	
Tetrachloroethene (PCE)	ND	1.00						0		30	
Dibromochloromethane	ND	1.00						0		30	
1,2-Dibromoethane (EDB)	ND	0.0600						0		30	
Chlorobenzene	ND	1.00						0		30	
1,1,1,2-Tetrachloroethane	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Styrene	ND	1.00						0		30	
Isopropylbenzene	ND	1.00						0		30	
Bromoform	ND	1.00						0		30	
1,1,2,2-Tetrachloroethane	ND	1.00						0		30	
n-Propylbenzene	ND	1.00						0		30	
Bromobenzene	ND	1.00						0		30	
1,3,5-Trimethylbenzene	ND	1.00						0		30	
2-Chlorotoluene	ND	1.00						0		30	
4-Chlorotoluene	ND	1.00						0		30	
tert-Butylbenzene	ND	1.00						0		30	
1,2,3-Trichloropropane	ND	1.00						0		30	

Qualifiers:	B Analyte detected in the associated Method Blank	D Dilution was required	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits	ND Not detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit	S Spike recovery outside accepted recovery limits



Date: 9/24/2014

Work Order: 1409077
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1409083-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 9/9/2014	RunNo: 16668							
Client ID: BATCH	Batch ID: R16668		Analysis Date: 9/9/2014	SeqNo: 335281							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

1,2,4-Trichlorobenzene	ND	2.00						0		30	
sec-Butylbenzene	ND	1.00						0		30	
4-Isopropyltoluene	ND	1.00						0		30	
1,3-Dichlorobenzene	ND	1.00						0		30	
1,4-Dichlorobenzene	ND	1.00						0		30	
n-Butylbenzene	ND	1.00						0		30	
1,2-Dichlorobenzene	ND	1.00						0		30	
1,2-Dibromo-3-chloropropane	ND	1.00						0		30	
1,2,4-Trimethylbenzene	ND	1.00						0		30	
Hexachlorobutadiene	ND	4.00						0		30	
Naphthalene	ND	1.00						0		30	
1,2,3-Trichlorobenzene	ND	4.00						0		30	
Surr: Dibromofluoromethane	46.8		50.00		93.5	61.7	130		0		
Surr: Toluene-d8	46.6		50.00		93.2	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	47.5		50.00		94.9	68.2	127		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Client Name: **GEI1**
 Logged by: **Clare Griggs**

Work Order Number: **1409077**
 Date Received: **9/8/2014 12:00:00 PM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody seals intact on shipping container/cooler? Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all coolers received at a temperature of >0°C to 10.0°C? Yes No NA
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is the headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C	Condition
Cooler 1	5.6	Good
Cooler 2	5.7	Good
Cooler 3	4.9	Good
Sample 1	2.3	Good
Sample 2	3.8	Good
Sample 3	0.9	Good



Chain of Custody Record

3600 Fremont Ave N, Seattle, WA 98103

Tel: 206-352-3790 Fax: 206-352-7178

Date: 9/11/14

Page: 1 of 8

Laboratory Project No. (Internal):

1469077

Client: GAO Engineers

Project Name: SLU Marriott 339 9th Avenue North

City, State, Zip: Redmond, WA 98052-4455

Location: 339 9th Avenue North

Reports To (PM): Lance Priplig

Collected by: Email: lpriplig@gaoengineers.com 20714-003-00

*Matrix Codes: A = Air, AQ = Aerosols, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, OW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Label#)	VOC (EPA 8260)	OX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DH)	SEM VOC (EPA 8270)	PAH (EPA 8270 - SM)	PCBs (EPA 8082)	Metals** (8020 / 200.8)	Total (T) Dissolved (D)	Anions (C)***	ECB (8011)	FIELD	Comments/Depth
1 DP-1-2.5	9/10	9:24	Soil	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
2 DP-1-5.0		9:36		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3 DP-1-7.5		9:45		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4 DP-1-10.0		9:52		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5 DP-1-12.5		10:03		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
6 DP-1-15.0		10:10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X
7 DP-2-2.5	9/10	11:25	Soil	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8 DP-2-5.0		11:31		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9 DP-2-7.5		11:45		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10 DP-2-10.0		11:50		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Special Remarks:

Return to Client Disposal by Lab (a fee may be assessed if samples are retained after 30 days)

Received: 9/11/14 3:00 pm

Released: 9/18/14 12:00

Date/Time



Fremont

Chain of Custody Record

3500 Fremont Ave N
 Seattle, WA 98103

Tel: 206-352-3790
 Fax: 206-352-7178

Date: 9/14/14

Laboratory Project No (Internal): _____
 Page: 2 of 8

Client: G&I
 Address: Redmond
 City, State, Zip: _____

Tel: 425 941 0000
 Fax: _____

Project Name:
 Location:
 Collected by:

SKM Marriott
 739 9th Avenue North

Reports To (PM): Garret Phillips

Project No: 20774-003-00

*Matrix Codes: A = Air, AQ = Aquifer, B = Bulk, C = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	Sample Type (Matrix)*											Comments/Depth				
				VOC (EPA 8260)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DH)	SEM VOL (EPA 8270)	PAH (EPA 8270)	PCB (EPA 8082)	Metals** (8020 / 200.8)	Total (T) Dissolved (D)		Anions (C)***	ECB (8011)	TRD	
1 DP-2-12.5	9/4	1205	Soil	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2 DP-2-15.0		1210		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3 DP-3-2.5		1025		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4 DP-3-5.0		1031		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5 DP-3-7.5		1043		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6 DP-3-10.0		1052		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7 DP-3-12.5		1100		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8 DP-3-15.0		1106		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9 DP-4-2.5		946		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10 DP-4-5.0		950		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Relinquished: _____ Date/Time: 9/17/14 @ 3:00pm
 Refrignish: _____ Date/Time: _____

Received: _____ Date/Time: 9/8/14 1200
 Refrignish: _____ Date/Time: _____

Special Remarks: _____
 *Please coordinate with the lab in advance



Fremont

ANALYTICAL

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/6/14

Laboratory Project No (internal):

Page: 3

of: 8

Client: G&I

Address: Redmond

City, State, Zip

Tel:

Location: Collected by:

Grace Phully / Al Cochran

Reports To (PM): Grace Phully

Fax:

Email: gphully@gseerphully.com Project No: 20776-003-02

*Matrix Codes: A = Air, AQ = Aerosol, B = Bulk, C = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, OW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	YOC (EPA 8260)	OX/BTEX	ETEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCD)	Diesel/Heavy Oil Range Organics (HX)	SEM VOL (EPA 8270)	PAH (EPA 8270 - SM)	PCBs (EPA 8082)	Metals** (6020 / 200.4)	Total (T) Dissolved (D)	Asbestos (C)***	EDS (6011)	FRDA	Comments/Depth
1 DP-4-7.5	9/10	1005	Sm1															
2 DP-4-10		1013																
3 DP-4-12.5		1025																
4																		
5 DP-4-15.0		1031																
6 DP-4-17.5		1045																
7 DP-4-20.0		1054																
8 DP-5-2.5		1131																
9 DP-5-5.0		1130																
10 DP-5-7.5		1141																

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Iodide
 ***Cations (Circle): Manganese Nickel Lead Cadmium Chromium Copper Iron Manganese Mercury Molybdenum Nickel Nitrate Nitrite
 Sample Disposal: Return to Client Disposed by Lab (A fee may be assessed if materials are returned after 30 days)
 Retained: 3pm
 Date/Time: 9/8/14 12:00
 Received: [Signature] Date/Time: 9/8/14 12:00
 Requisitioned: [Signature] Date/Time: 9/8/14 12:00
 Refused: [Signature] Date/Time: 9/8/14 12:00

Distribution: Write - Lab, Yellow - FTL, Pink - Originator

www.fremontanalytical.com



Fremont

ANALYTICAL

Chain of Custody Record

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 9/6/14

Laboratory Project No (Internal) _____
Page: 4 of 8

Client: GETI Project Name: SW Mallett

Address: Pedmond City, State, Zip: _____ Tel: _____
Reports To (PM): Grace Phily Fax: _____

Materials Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other P = Product, S = Soil, SO = Sediment, SL = Solid, W = Water, EW = Drinking Water, GW = Ground Water, WW = Waste Water
Collected by: gphily@geti.com Project No: 20776-003-10

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8240)	GV/STEX	BTX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DH)	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	ECB (8011)	HPLC	Comments/Depth
1. DP-6-2.5	9/6/14	8:50	847	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
2. DP-6-5.0		9:00	95a	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
3. DP-6-7.5		9:04		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
4. DP-6-10.0		9:07		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
5. DP-6-12.5		9:10		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
6. DP-6-15.0		14:22		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
7. DP-7-2.5		14:29		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
8. DP-7-7.5		14:30		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
9. DP-7-13.0		12:23		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
10. DP-8-2.5				⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	

**Matrix Analysis (Circle): MITCHS RCPMB
 ***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate/Nitrite
 Sample Disturbance: Return to Client Disposed by Lab (a fee may be assessed if samples are returned after 30 days.)
 Requisitioned: 9/7/14 3 pm Date/TIME
 Requisitioned By: [Signature] Date/TIME
 Received: 9/8/14 12:00 Date/TIME
 Received By: [Signature] Date/TIME
 TAT → Same Day Next Day 2 Day 3 Day STD
 *Please coordinate with the lab in advance



Fremont

Chain of Custody Record

3600 Fremont Ave N, Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/6/14
Laboratory Project No (Internal): 5 at S

Client: GEI

Project Name: SW Market

Address: Redmond

Location: SW Market

City, State, Zip: Redmond

Collected by: gphulpy@geosystems.com

Reports To (PM): Grace Phulpy

Email: gphulpy@geosystems.com

Project No: 20776-03-W

Project No: 20776-03-W

**Matrix Codes: A = Air, AD = Aerosol, B = Bulk, C = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Matrix*	VOC (EPA 8260)	SVX/STX	BTX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (HX)	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SW)	PCBs (EPA 8082)	Nitrates** (8250 / 200.9)	Total (T) / Dissolved (D)	Anions (C)***	ECB (8011)	HPLC	Comments/Draws
1 DP-S-10.0	9/4	1149	Soil															X
2 DP-S-12.5		1202																
3 DP-S-15.0		1208																
4 DP-Q-2.5		200																
5 DP-Q-5.0		252																
6 DP-Q-7.5		222																
7 DP-Q-12.5		230																
8 DP-Q-17.5		252																
9 DP-Q-20.0		250																
10 DP-Q-35.0		1330																

Retiquished: 9/7/14 Date/Time: 2:30pm Received: 9/8/14 Date/Time: 1200

Reinquished: 9/7/14 Date/Time: 2:30pm Received: 9/8/14 Date/Time: 1200

Special Remarks:

TAT -> SameDay^ NextDay^ 2 Day^ 3 Day^ 5 Day^ 10 Day^

*Please coordinate with the lab in advance



Fremont

ANALYTICAL

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/16/14

Laboratory Project No (Internal):

Page: 7

of: 8

Client:

GFI

Project Name:

SLU Marriott

Address:

Redmond, WA 98153-3101 425 841-1000

Location:

City, State, Zip

Redmond, WA 98153-3101 425 841-1000

Collected by:

Project No: 20174L-003-00

Reports To (PNA):

Fax:

Email:

*Matrix Codes: A = Air, AQ = Aquifer, B = Bulk, D = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Waste, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8240)	GVX/TEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HID)	Diesel/Heavier Oil Range Organics (HX)	SCM VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8282)	Metals** (6020 / 200.8)	Total (T) Dissolved (D)	Alions (IC)***	EDS (8011)	H2O2	Comments/Depth
1 DP-10-2.5	9/4	1346	Soil	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2 DP-10-10.0		1352		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3 DP-11-2.5		1236		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4 DP-11-5.0		1242		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5 DP-11-7.5		1259		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6 DP-11-9.5		1202		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7 DP-11-12.5		1314		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8 DP-11-15.0		1329		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9 DP-12-2.5		0810		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10 DP-12-5.0		0813		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide D-Phosphate Fluoride Nitrate/Nitrite

Special Remarks:

Sample Disposal: Return to Client Disposal by Lab (In line with the regulated samples are retained after 30 days.)

Relinquished Date/Time: 9/17/14 3pm Received Date/Time: 9/18/14 1200

Relinquished Signature: [Signature] Received Signature: [Signature]



Fremont Analytical

Chain of Custody Record

3600 Fremont Ave N. Seattle, WA 98103
 Tel: 206-352-3790 Fax: 206-352-7178

Date: 9/6/14

Laboratory Project No (Internal): 8 of 8

Client: GEI Pedman
 Address: _____
 City, State, Zip: _____

Project Name: SW Maxwell
 Location: _____
 Collected by: _____

Reports To (PM): Grace Phulpay Fax: _____
 Email: gphulpay@geengineering.com Project No: 20776-001-00
 *Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, D = Drift, F = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GAH/TEX	BTX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HID)	Diesel/Heavy Oil Range Organics (DHR)	SEM VOL (EPA 8270)	PAH (EPA 8270)	PCBs (EPA 8270 - SIM)	Metals** (6020 / 200.8)	Total (T) Disposed (D)	Anions (CI)**	ENB (801)	HOLD	Comments/Depth
1 DP-12-7.5	9/6/14	MO821	S	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2 DP-12-10.0		8237		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3 DP-12-12.5		0830		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4 DP-12-15.0		0831		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5																		
6																		
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): Ni-Cd-S As Pb Cd Cr Cu Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn

**Anions (Circle): Nitrite Nitrate Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Storage/Disposal: Return to Client Disposal by Lab (We may be assessed if samples are retained after 90 days.)

Relinquished Date/Time: 9/7/14 @ 3pm
 Retrieved Date/Time: 9/8/14 12:00

Received: _____
 Received: _____

TAT -> Same Day* Next Day** 2 Day 3 Day STD
 *Please coordinate with the lab in advance



Fremont

ANALYTICAL

Chain of Custody Record

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/16/14

Page: 1 of 8

Laboratory Project No (Internal): 1409077A

Client: GVO Engineers

Project Name: SLU Mannott

Location: 339 9th Avenue North

City, State, Zip: Redmond, WA 98053-0445

Collected by: [Signature]

Reports To (PM): Grace Phillips

Box: 425

Email: gphillips@gvoeng.com
Project No: 2014-083-08

*Matrix Codes: A = Air, AQ = Aquatics, B = Bulk, D = Dig, F = Fluids, S = Soil, SD = Sediment, SL = Soil, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	OXFIDIX	PTX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Distillable Oil Range Organics (DOR)	SMAI VOC (EPA 8210)	PAH (EPA 8270 - SMAI)	PCB (EPA 8082)	Metals** (6020 / 200.6)	Total (T) Dissolved (D)	Aspartic Acid***	TOC (8011)	HL	TD	TCDF	Pb	Comments/Depth
1. DP-1-2.5	9/14	9:34	Soil	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2. DP-1-5.0		9:30		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3. DP-1-7.5		9:45		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4. DP-1-10.0		9:52		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5. DP-1-12.5		10:03		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6. DP-1-15.0		10:10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7. DP-2-2.5	9/14	11:25	82:1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8. DP-2-5.0		11:31		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9. DP-2-7.5		11:45		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10. DP-2-10.0		11:50		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Add per: Smith 9/19 Rush eqn

Sample Disposal: Return to Client Disposal by Lab (All are used in accordance with standard operating procedures)

Special Remarks: TAT <= SameDay NextDay 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originals

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Chain of Custody Record

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Seattle, WA 98103 Fax: 206-352-7178

Date: 9/6/14

Laboratory Project No (external) _____
Page: 3 of 8
SU Markloth

Client: GEI

Address: Redmond Tel: _____
City, State, Zip

Project Name: _____
Location: _____
Collected by: Grace Phully / A. C. Cochran
Email: gphully@geosurvey.com Project No: 20776-003-00

Reports To (PM): Grace Phully Fax: _____

*Matrix Codes: A = Air, AQ = Aquatics, B = Bulk, D = Debris, P = Product, S = Soil, SD = Sediment, SL = Sludge, W = Water, OW = Drinking Water, GW = Ground Water, WW = Wastewater

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8210)	GV/BTEX	PTX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCD)	Diesel/Heavy Oil Range Organics (DRO)	SUM Vol (EPA 8270 - SUM)	PAH (EPA 8270 - SUM)	PCB (EPA 8082)	Metals** (6000 / 200.8)	Total TD / Dissolved (D)	Aspen (C3)**	ESD (601)	TRIA	Comments/Depth
1 DP-4-7.5	9/4	1005	SM															
2 DP-4-10		1013																
3 DP-4-12.5		1025																
4																		
5 DP-4-15.0		1031																
6 DP-4-17.5		1045																
7 DP-4-20.0		1054																
8 DP-5-2.5		1121																
9 DP-5-5.0		1130																
10 DP-5-7.5		1141																

**Metals Analysis (Circle): AL BA BE BI BR BU CA CD CE CF CG CH CU CR FE MG NI NO PN SB SE SI SO TI TR U V ZN

***Antibiotics (Circle): AM AP AT AV AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DD DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KK KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LL LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MM MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NM NN NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QP QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VV VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ

Special Remarks: _____

Signature: [Signature] Date/Time: 9/8/14 1200

Requisitioned: [Signature] Date/Time: 9/8/14 3pm

Returned to Client: Disposal by Lab (a fee may be assessed):

Distribution: White - Lab, Yellow - File, Pink - Originator

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Page 201 of 211



Fremont Analytical

Chain of Custody Record

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Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/6/14

Laboratory Project No (Internal): _____
Page: 10 of 8

Client: GRE

Project Name: 20776-003-00 (SLU WARRIOTT)

Address: EDMUND RD, UNIT 98052 Tel: 425-841-6000

Location: South Lake Union, Seattle
Collected by: John Peters

City, State, Zip: EDMUND RD, UNIT 98052 Tel: 425-841-6000
Email: GRITHS@SEBENTHINSPECS.COM 20776-003-00

Reports To (PM): SPRUE WATER PULPY Fax: _____
*Metric Codes: A = Air, AQ = Aqueous, B = Soil, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, OW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Material)*	VOC (EPA 8160)		Semi-VOC (EPA 8170)		Pesticides (EPA 8210)		Metals (EPA 8210)		Other		Comments/Draws
				GU/ATEL	PTX	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HCO)	Desat/Heavy of Range Organics (DHO)	SEM VOC (EPA 8170)	PAM (EPA 8210 - SW)	PCB (EPA 8062)	Metals** (8210 / 200.8)	Asbestos (8211)	
1 MW-2-14D906	9/6/14	0940	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2 MW-3-140906	9/6/14	1110	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3 MW-1-140906	9/6/14	1330	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4 DP-8-5.0		1225		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5 DP-8-7.5		1240		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6 DP-8-10.0		1243		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7 DP-8-12.5		1250		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8 DP-8-15.0		1255		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9 DP-8-20.0		1305		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10 DP-8-25.0		1320		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

***Analysis Analytic (Circle): A/C/A/S A/C/A/S Priority Pesticides TALS Hydrophobic Ag Al As Ba Be Ca Cd Co Cr Cu Fe Hg K Mn Mo Na Ni Pb Sb Se Sn Ti U Zn

Sample Disposal: Return to Client Disposal by Lab (As per approved methods or retained after 30 days)

Requested Date/Time: 9/7/14 @ 3pm Received Date/Time: 9/8/14 1200

Analyst: ASB Date/Time: 9/7/14 @ 3pm Inspector: [Signature] Date/Time: 9/8/14 1200

Color: White - Lab, Yellow - Field, Pink - Driftstick

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Date: 9/6/14

Laboratory Project No. (Internal): _____
Page 8 of 8

Client: GEI
Address: Seadmark
City, State, Zip _____

Project Name: _____
Location: _____
Collected by: _____

Project Name: SW Mallett
Location: _____
Collected by: _____

Reports To (PM): Grace Hudry Fax: _____
*Matrix Codes: A = Air, AQ = Aquifer, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, W/W = Waste Water
Email: gphilly@geengineering.com Project No: 20776-001-00

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8160)	SV/STX	STX	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HCO)	Distillate/Heavy Oil Range Organics (DRO)	SMA VOC (EPA 8270)	PAH (EPA 8270 SMA)	PCB (EPA 8082)	Metals** (6000 / 200.8)	Total (T) Dissolved (D)	Anions (PC)**	ECAP Pb	ECAP Hx Cr	Comments/Depth
1 DP-12-7.5	9/6/14	0821	S	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
2 DP-12-10.0		823		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
3 DP-12-12.5		0830		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
4 DP-12-15.0		0831		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
5																		
6																		
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): nickel Priority pollutants: TAL Individual: Ag Al As B Ba Be Ca Cd Cr Cu Fe Hg K Mg Mn Ni Pb Pt Sn Sr Ti Tl U V Zn
 **Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Orthophosphate Fluoride Nitrate+Nitrite
 Sample Disposal: Return to Client Disposed by Lab (Lab may be amended/changes are indicated to tags)
 Date/Time: 9/17/14 @ 3pm Date/Time: 9/8/14 12:00
 Signature: [Signature] Signature: [Signature]
 Title: [Signature] Title: [Signature]



Fremont

ANALYTICAL

Chain of Custody Record

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Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-3178

Date: 9/6/14

Laboratory Project no (Internal): 1409077
Page: 5 of 8

Client: GEI
Address: Redmond

Project Name: SW Market

Location: SW Market

City, State, Zip

Tel:

Collected by:

Reports To (PM): Grace Pulpy Fax: 9/16/14 3pm Email: gpulpy@geosensmed.com
*Matrix Code: A = Air, AQ = Aqueous, B = Soil, O = Other, P = Pesticide, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, VW = Wash Water
Project No: 20770-03-W

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	YOC (EPA 8260)	CVX/TEX	BTEX	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HID)	Low/High/Low Organics (LHLO)	SEMI VOI (EPA 8270)	PAH (EPA 8270)	PCB (EPA 8082)	Mercury (EPA 8210)	Total (T) (EPA 8210)	Asbestos (PC-***)	ESR (EPA 8210)	TC/PC/Pb	TC/PC/Pb	Community/Depth	
1 DP-S-10.0	9/4	1149	Soil																	
2 DP-S-12.5		1202																		
3 DP-S-15.0		1208																		
4 DP-Q-2.5		200																		
5 DP-Q-5.0		252																		
6 DP-Q-7.5		222																		
7 DP-Q-12.5		230																		
8 DP-Q-17.5		252																		
9 DP-Q-20.0		250																		
10 DP-8-35.0		1330																		

Add Analysis per G Pulpy
9/16/14

Requested by: GP Date/Time: 9/7/14 2:30pm Date/Time: 9/8/14 12:00

Signature: [Signature] Date/Time: 9/7/14 2:30pm Signature: [Signature] Date/Time: 9/8/14 12:00

Signature: [Signature] Date/Time: 9/7/14 2:30pm Signature: [Signature] Date/Time: 9/8/14 12:00

Signature: [Signature] Date/Time: 9/7/14 2:30pm Signature: [Signature] Date/Time: 9/8/14 12:00



3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

GeoEngineers, Inc. - Redmond

Jessica Smith
8410 154th Ave. NE
Redmond, WA 98052

RE: SLU Marriott

Lab ID: 1506126

September 01, 2015

Attention Jessica Smith:

Fremont Analytical, Inc. received 81 sample(s) on 6/10/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Gasoline by NWTPH-Gx

Mercury by EPA Method 7471

Metals (SW6020) with TCLP Extraction (EPA 1311)

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample Moisture (Percent Moisture)

Total Metals by EPA Method 6020

Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President



CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1506126

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1506126-001	DP-16-2.5	06/08/2015 8:33 AM	06/10/2015 8:22 AM
1506126-002	DP-16-5.0	06/08/2015 8:37 AM	06/10/2015 8:22 AM
1506126-003	DP-16-7.5	06/08/2015 8:40 AM	06/10/2015 8:22 AM
1506126-004	DP-16-10.0	06/08/2015 8:45 AM	06/10/2015 8:22 AM
1506126-005	DP-16-15.0	06/08/2015 8:47 AM	06/10/2015 8:22 AM
1506126-006	DP-16-17.5	06/08/2015 8:57 AM	06/10/2015 8:22 AM
1506126-007	DP-16-20.0	06/08/2015 8:59 AM	06/10/2015 8:22 AM
1506126-008	DP-16-22.5	06/08/2015 9:10 AM	06/10/2015 8:22 AM
1506126-009	DP-16-25.0	06/08/2015 9:12 AM	06/10/2015 8:22 AM
1506126-010	DP-16-27.5	06/08/2015 9:20 AM	06/10/2015 8:22 AM
1506126-011	DP-16-30.0	06/08/2015 9:22 AM	06/10/2015 8:22 AM
1506126-012	DP-14-2.5	06/08/2015 10:05 AM	06/10/2015 8:22 AM
1506126-013	DP-14-5.0	06/08/2015 10:07 AM	06/10/2015 8:22 AM
1506126-014	DP-14-7.5	06/08/2015 10:15 AM	06/10/2015 8:22 AM
1506126-015	DP-14-10.0	06/08/2015 10:17 AM	06/10/2015 8:22 AM
1506126-016	DP-14-12.5	06/08/2015 10:21 AM	06/10/2015 8:22 AM
1506126-017	DP-14-15.0	06/08/2015 10:23 AM	06/10/2015 8:22 AM
1506126-018	DP-14-17.5	06/08/2015 10:27 AM	06/10/2015 8:22 AM
1506126-019	DP-14-20.0	06/08/2015 10:29 AM	06/10/2015 8:22 AM
1506126-020	DP-14-22.5	06/08/2015 10:35 AM	06/10/2015 8:22 AM
1506126-021	DP-14-25.0	06/08/2015 10:37 AM	06/10/2015 8:22 AM
1506126-022	DP-14-27.5	06/08/2015 10:42 AM	06/10/2015 8:22 AM
1506126-023	DP-14-30.0	06/08/2015 10:44 AM	06/10/2015 8:22 AM
1506126-024	MW-7-2.5	06/08/2015 2:10 PM	06/10/2015 8:22 AM
1506126-025	MW-7-5.0	06/08/2015 2:12 PM	06/10/2015 8:22 AM
1506126-026	MW-7-10.0	06/08/2015 2:21 PM	06/10/2015 8:22 AM
1506126-027	MW-7-11.0	06/08/2015 2:28 PM	06/10/2015 8:22 AM
1506126-028	MW-7-15.0	06/08/2015 2:30 PM	06/10/2015 8:22 AM
1506126-029	MW-7-17.5	06/08/2015 2:35 PM	06/10/2015 8:22 AM
1506126-030	MW-7-20.0	06/08/2015 2:37 PM	06/10/2015 8:22 AM
1506126-031	MW-7-22.5	06/08/2015 2:44 PM	06/10/2015 8:22 AM
1506126-032	MW-7-25.0	06/08/2015 2:46 PM	06/10/2015 8:22 AM
1506126-033	MW-7-27.5	06/08/2015 2:55 PM	06/10/2015 8:22 AM
1506126-034	MW-7-30.0	06/08/2015 2:57 PM	06/10/2015 8:22 AM
1506126-035	DP-15-2.5	06/08/2015 12:43 PM	06/10/2015 8:22 AM
1506126-036	DP-15-5.0	06/08/2015 12:45 PM	06/10/2015 8:22 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1506126

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1506126-037	DP-15-12.5	06/08/2015 12:53 PM	06/10/2015 8:22 AM
1506126-038	DP-15-15.0	06/08/2015 12:57 PM	06/10/2015 8:22 AM
1506126-039	DP-15-17.5	06/08/2015 1:05 PM	06/10/2015 8:22 AM
1506126-040	DP-15-27.5	06/08/2015 1:16 PM	06/10/2015 8:22 AM
1506126-041	DP-15-30.0	06/08/2015 1:18 PM	06/10/2015 8:22 AM
1506126-042	DP-15-35.0	06/08/2015 1:35 PM	06/10/2015 8:22 AM
1506126-043	MW-6-2.0	06/08/2015 11:17 AM	06/10/2015 8:22 AM
1506126-044	MW-6-7.5	06/08/2015 11:24 AM	06/10/2015 8:22 AM
1506126-045	MW-6-10.0	06/08/2015 11:26 AM	06/10/2015 8:22 AM
1506126-046	MW-6-15.0	06/08/2015 11:32 AM	06/10/2015 8:22 AM
1506126-047	MW-6-17.5	06/08/2015 11:38 AM	06/10/2015 8:22 AM
1506126-048	MW-6-20.0	06/08/2015 11:40 AM	06/10/2015 8:22 AM
1506126-049	MW-6-22.5	06/08/2015 11:58 AM	06/10/2015 8:22 AM
1506126-050	MW-6-25.0	06/08/2015 12:00 PM	06/10/2015 8:22 AM
1506126-051	MW-6-27.5	06/08/2015 12:07 PM	06/10/2015 8:22 AM
1506126-052	MW-6-30.0	06/08/2015 12:09 PM	06/10/2015 8:22 AM
1506126-053	MW-4-2.5	06/09/2015 10:24 AM	06/10/2015 8:22 AM
1506126-054	MW-4-5.0	06/09/2015 10:26 AM	06/10/2015 8:22 AM
1506126-055	MW-4-10.0	06/09/2015 10:28 AM	06/10/2015 8:22 AM
1506126-056	MW-4-17.5	06/09/2015 10:47 AM	06/10/2015 8:22 AM
1506126-057	MW-4-20.0	06/09/2015 10:49 AM	06/10/2015 8:22 AM
1506126-058	MW-4-22.5	06/09/2015 10:57 AM	06/10/2015 8:22 AM
1506126-059	MW-4-25.0	06/09/2015 10:59 AM	06/10/2015 8:22 AM
1506126-060	MW-4-27.5	06/09/2015 11:13 AM	06/10/2015 8:22 AM
1506126-061	MW-4-30.0	06/09/2015 11:15 AM	06/10/2015 8:22 AM
1506126-062	DP-13-8.0	06/09/2015 9:36 AM	06/10/2015 8:22 AM
1506126-063	DP-13-12.5	06/09/2015 9:41 AM	06/10/2015 8:22 AM
1506126-064	DP-13-15.0	06/09/2015 9:43 AM	06/10/2015 8:22 AM
1506126-065	DP-13-17.5	06/09/2015 9:48 AM	06/10/2015 8:22 AM
1506126-066	DP-13-20.0	06/09/2015 9:50 AM	06/10/2015 8:22 AM
1506126-067	DP-13-22.0	06/09/2015 9:54 AM	06/10/2015 8:22 AM
1506126-068	DP-13-25.0	06/09/2015 9:56 AM	06/10/2015 8:22 AM
1506126-069	DP-13-27.5	06/09/2015 9:59 AM	06/10/2015 8:22 AM
1506126-070	DP-13-30.0	06/09/2015 10:01 AM	06/10/2015 8:22 AM
1506126-071	MW-5-4.0	06/09/2015 7:45 AM	06/10/2015 8:22 AM
1506126-072	MW-5-7.5	06/09/2015 7:48 AM	06/10/2015 8:22 AM
1506126-073	MW-5-10.0	06/09/2015 7:50 AM	06/10/2015 8:22 AM
1506126-074	MW-5-15.0	06/09/2015 7:55 AM	06/10/2015 8:22 AM
1506126-075	MW-5-17.5	06/09/2015 8:00 AM	06/10/2015 8:22 AM
1506126-076	MW-5-20.0	06/09/2015 8:02 AM	06/10/2015 8:22 AM
1506126-077	MW-5-22.5	06/09/2015 8:07 AM	06/10/2015 8:22 AM
1506126-078	MW-5-25.0	06/09/2015 8:09 AM	06/10/2015 8:22 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1506126

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1506126-079	MW-5-27.5	06/09/2015 8:15 AM	06/10/2015 8:22 AM
1506126-080	MW-5-30.0	06/09/2015 8:17 AM	06/10/2015 8:22 AM
1506126-081	Trip Blank	06/05/2015 4:02 PM	06/10/2015 8:22 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers, Inc. - Redmond**Project:** SLU Marriott

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below LOQ
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-003
Client Sample ID: DP-16-7.5

Collection Date: 6/8/2015 8:40:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 10993 Analyst: NG

Naphthalene	ND	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
2-Methylnaphthalene	ND	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
1-Methylnaphthalene	ND	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Acenaphthylene	ND	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Acenaphthene	ND	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Fluorene	ND	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Phenanthrene	503	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Anthracene	138	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Fluoranthene	1,170	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Pyrene	1,430	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Benz(a)anthracene	566	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Chrysene	667	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Benzo(b)fluoranthene	709	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Benzo(k)fluoranthene	199	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Benzo(a)pyrene	608	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Indeno(1,2,3-cd)pyrene	396	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Dibenz(a,h)anthracene	87.1	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Benzo(g,h,i)perylene	546	67.8		µg/Kg-dry	1	6/11/2015 4:07:00 PM
Surr: 2-Fluorobiphenyl	94.0	42.7-132		%REC	1	6/11/2015 4:07:00 PM
Surr: Terphenyl-d14 (surr)	95.3	48.8-157		%REC	1	6/11/2015 4:07:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R22903 Analyst: CG

Percent Moisture	27.2			wt%	1	6/11/2015 1:53:12 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-004
Client Sample ID: DP-16-10.0

Collection Date: 6/8/2015 8:45:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 11142 Analyst: NG

Naphthalene	243	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
2-Methylnaphthalene	177	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
1-Methylnaphthalene	114	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Acenaphthylene	112	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Acenaphthene	ND	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Fluorene	ND	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Phenanthrene	851	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Anthracene	243	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Fluoranthene	501	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Pyrene	459	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Benz(a)anthracene	202	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Chrysene	223	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Benzo(b)fluoranthene	367	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Benzo(k)fluoranthene	ND	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Benzo(a)pyrene	ND	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Indeno(1,2,3-cd)pyrene	ND	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Dibenz(a,h)anthracene	ND	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Benzo(g,h,i)perylene	597	91.2	H	µg/Kg-dry	1	6/26/2015 2:19:00 AM
Surr: 2-Fluorobiphenyl	69.3	40.6-139	H	%REC	1	6/26/2015 2:19:00 AM
Surr: Terphenyl-d14 (surr)	75.2	48.8-157	H	%REC	1	6/26/2015 2:19:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R23199 Analyst: CG

Percent Moisture	45.8			wt%	1	6/25/2015 1:09:09 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-005
Client Sample ID: DP-16-15.0

Collection Date: 6/8/2015 8:47:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 11240 Analyst: NG

Naphthalene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
2-Methylnaphthalene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
1-Methylnaphthalene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Acenaphthylene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Acenaphthene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Fluorene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Phenanthrene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Anthracene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Fluoranthene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Pyrene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Benz(a)anthracene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Chrysene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Benzo(b)fluoranthene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Benzo(k)fluoranthene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Benzo(a)pyrene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Indeno(1,2,3-cd)pyrene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Dibenz(a,h)anthracene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Benzo(g,h,i)perylene	ND	65.0	H	µg/Kg-dry	1	7/10/2015 6:46:00 PM
Surr: 2-Fluorobiphenyl	54.3	40.6-139	H	%REC	1	7/10/2015 6:46:00 PM
Surr: Terphenyl-d14 (surr)	85.7	48.8-157	H	%REC	1	7/10/2015 6:46:00 PM

Total Metals by EPA Method 6020

Batch ID: 11003 Analyst: TN

Lead	10.3	0.194		mg/Kg-dry	1	6/10/2015 5:34:51 PM
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Sample Moisture (Percent Moisture)

Batch ID: R22903 Analyst: CG

Percent Moisture	23.2			wt%	1	6/11/2015 1:53:12 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-006
Client Sample ID: DP-16-17.5

Collection Date: 6/8/2015 8:57:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>				Batch ID: 11003		Analyst: TN
Lead	5.07	0.205		mg/Kg-dry	1	6/10/2015 5:55:59 PM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R22903		Analyst: CG
Percent Moisture	22.4			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
 Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-013
Client Sample ID: DP-14-5.0

Collection Date: 6/8/2015 10:07:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Mercury by EPA Method 7471</u>				Batch ID: 11737		Analyst: TN
Mercury	ND	0.233	H	mg/Kg-dry	1	9/1/2015 3:42:33 PM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R24621		Analyst: CG
Percent Moisture	4.33	0.500		wt%	1	9/1/2015 9:23:30 AM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-014
Client Sample ID: DP-14-7.5

Collection Date: 6/8/2015 10:15:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 10999 Analyst: EC

Diesel (Fuel Oil)	ND	29.5		mg/Kg-dry	1	6/10/2015 8:34:00 PM
Heavy Oil	258	73.7		mg/Kg-dry	1	6/10/2015 8:34:00 PM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	6/10/2015 8:34:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	6/10/2015 8:34:00 PM

Gasoline by NWTPH-Gx

Batch ID: 11026 Analyst: EM

Gasoline	1,250	114	D	mg/Kg-dry	20	6/15/2015 3:33:00 PM
Surr: Toluene-d8	92.3	65-135		%REC	1	6/13/2015 6:43:00 PM
Surr: 4-Bromofluorobenzene	105	65-135	D	%REC	20	6/15/2015 3:33:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 11026 Analyst: EM

Benzene	1.52	0.455	D	mg/Kg-dry	20	6/15/2015 3:33:00 PM
Toluene	2.08	0.455	D	mg/Kg-dry	20	6/15/2015 3:33:00 PM
Ethylbenzene	7.04	0.682	D	mg/Kg-dry	20	6/15/2015 3:33:00 PM
m,p-Xylene	4.81	0.455	D	mg/Kg-dry	20	6/15/2015 3:33:00 PM
o-Xylene	0.978	0.0227		mg/Kg-dry	1	6/13/2015 6:43:00 PM
Surr: Dibromofluoromethane	79.5	63.7-129		%REC	1	6/13/2015 6:43:00 PM
Surr: Toluene-d8	98.0	64.3-131		%REC	1	6/13/2015 6:43:00 PM
Surr: 1-Bromo-4-fluorobenzene	140	63.1-141		%REC	1	6/13/2015 6:43:00 PM

Sample Moisture (Percent Moisture)

Batch ID: R22903 Analyst: CG

Percent Moisture	35.3			wt%	1	6/11/2015 1:53:12 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-018
Client Sample ID: DP-14-17.5

Collection Date: 6/8/2015 10:27:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 10999		Analyst: EC	
Diesel (Fuel Oil)	ND	24.4		mg/Kg-dry	1	6/10/2015 9:39:00 PM
Heavy Oil	ND	60.9		mg/Kg-dry	1	6/10/2015 9:39:00 PM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	6/10/2015 9:39:00 PM
Surr: o-Terphenyl	96.6	50-150		%REC	1	6/10/2015 9:39:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>			Batch ID: 10993		Analyst: NG	
Naphthalene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
2-Methylnaphthalene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
1-Methylnaphthalene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Acenaphthylene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Acenaphthene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Fluorene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Phenanthrene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Anthracene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Fluoranthene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Pyrene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Benz(a)anthracene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Chrysene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Benzo(b)fluoranthene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Benzo(k)fluoranthene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Benzo(a)pyrene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Indeno(1,2,3-cd)pyrene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Dibenz(a,h)anthracene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Benzo(g,h,i)perylene	ND	60.9		µg/Kg-dry	1	6/11/2015 4:32:00 PM
Surr: 2-Fluorobiphenyl	96.0	42.7-132		%REC	1	6/11/2015 4:32:00 PM
Surr: Terphenyl-d14 (surr)	101	48.8-157		%REC	1	6/11/2015 4:32:00 PM
<u>Gasoline by NWTPH-Gx</u>			Batch ID: 11026		Analyst: EM	
Gasoline	1.90	1.48		mg/Kg-dry	1	6/13/2015 3:14:00 PM
Surr: 4-Bromofluorobenzene	99.4	65-135		%REC	1	6/13/2015 3:14:00 PM
Surr: Toluene-d8	102	65-135		%REC	1	6/13/2015 3:14:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>			Batch ID: 11026		Analyst: EM	
Benzene	0.0330	0.00591		mg/Kg-dry	1	6/13/2015 3:14:00 PM
Toluene	ND	0.00591		mg/Kg-dry	1	6/13/2015 3:14:00 PM
Ethylbenzene	ND	0.00887		mg/Kg-dry	1	6/13/2015 3:14:00 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-018
Client Sample ID: DP-14-17.5

Collection Date: 6/8/2015 10:27:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 11026 Analyst: EM

m,p-Xylene	0.0105	0.00591		mg/Kg-dry	1	6/13/2015 3:14:00 PM
o-Xylene	ND	0.00591		mg/Kg-dry	1	6/13/2015 3:14:00 PM
Surr: Dibromofluoromethane	92.6	63.7-129		%REC	1	6/13/2015 3:14:00 PM
Surr: Toluene-d8	100	64.3-131		%REC	1	6/13/2015 3:14:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.2	63.1-141		%REC	1	6/13/2015 3:14:00 PM

Total Metals by EPA Method 6020

Batch ID: 11003 Analyst: TN

Lead	3.39	0.178		mg/Kg-dry	1	6/10/2015 5:59:30 PM
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Sample Moisture (Percent Moisture)

Batch ID: R22903 Analyst: CG

Percent Moisture	19.1			wt%	1	6/11/2015 1:53:12 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-023
Client Sample ID: DP-14-30.0

Collection Date: 6/8/2015 10:44:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 11173 Analyst: BC

Benzene	0.0493	0.00801	H	mg/Kg-dry	1	6/27/2015 6:08:00 AM
Surr: Dibromofluoromethane	98.8	63.7-129	H	%REC	1	6/27/2015 6:08:00 AM
Surr: Toluene-d8	97.4	64.3-131	H	%REC	1	6/27/2015 6:08:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141	H	%REC	1	6/27/2015 6:08:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R23199 Analyst: CG

Percent Moisture	14.7			wt%	1	6/25/2015 1:09:09 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-026
Client Sample ID: MW-7-10.0

Collection Date: 6/8/2015 2:21:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	29.3		mg/Kg-dry	1	6/10/2015 10:11:00 PM
Heavy Oil	ND	73.3		mg/Kg-dry	1	6/10/2015 10:11:00 PM
Heavy Fuel Oil	836	73.3		mg/Kg-dry	1	6/10/2015 10:11:00 PM
Surr: 2-Fluorobiphenyl	120	50-150		%REC	1	6/10/2015 10:11:00 PM
Surr: o-Terphenyl	124	50-150		%REC	1	6/10/2015 10:11:00 PM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 10993	Analyst: NG
Naphthalene	158	76.6		µg/Kg-dry	1	6/11/2015 5:23:00 PM
2-Methylnaphthalene	143	76.6		µg/Kg-dry	1	6/11/2015 5:23:00 PM
1-Methylnaphthalene	145	76.6		µg/Kg-dry	1	6/11/2015 5:23:00 PM
Surr: 2-Fluorobiphenyl	88.9	42.7-132		%REC	1	6/11/2015 5:23:00 PM
Surr: Terphenyl-d14 (surr)	99.4	48.8-157		%REC	1	6/11/2015 5:23:00 PM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11026	Analyst: EM
Gasoline	3.47	2.67		mg/Kg-dry	1	6/13/2015 3:43:00 PM
Surr: 4-Bromofluorobenzene	99.8	65-135		%REC	1	6/13/2015 3:43:00 PM
Surr: Toluene-d8	100	65-135		%REC	1	6/13/2015 3:43:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11026	Analyst: EM
Benzene	0.0484	0.0107		mg/Kg-dry	1	6/13/2015 3:43:00 PM
Toluene	0.0144	0.0107		mg/Kg-dry	1	6/13/2015 3:43:00 PM
Ethylbenzene	ND	0.0160		mg/Kg-dry	1	6/13/2015 3:43:00 PM
m,p-Xylene	0.0548	0.0107		mg/Kg-dry	1	6/13/2015 3:43:00 PM
o-Xylene	ND	0.0107		mg/Kg-dry	1	6/13/2015 3:43:00 PM
Surr: Dibromofluoromethane	91.2	63.7-129		%REC	1	6/13/2015 3:43:00 PM
Surr: Toluene-d8	101	64.3-131		%REC	1	6/13/2015 3:43:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.4	63.1-141		%REC	1	6/13/2015 3:43:00 PM
<u>Total Metals by EPA Method 6020</u>					Batch ID: 11003	Analyst: TN
Lead	670	0.232		mg/Kg-dry	1	6/10/2015 6:10:06 PM
<u>Metals (SW6020) with TCLP Extraction (EPA 1311)</u>					Batch ID: 11129	Analyst: TN
Lead	ND	0.200		mg/L	1	6/25/2015 4:22:18 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-026
Client Sample ID: MW-7-10.0

Collection Date: 6/8/2015 2:21:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R22903	Analyst: CG	
Percent Moisture	35.1			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-028
Client Sample ID: MW-7-15.0

Collection Date: 6/8/2015 2:30:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	6/10/2015 10:43:00 PM
Heavy Oil	ND	55.4		mg/Kg-dry	1	6/10/2015 10:43:00 PM
Surr: 2-Fluorobiphenyl	118	50-150		%REC	1	6/10/2015 10:43:00 PM
Surr: o-Terphenyl	109	50-150		%REC	1	6/10/2015 10:43:00 PM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11026	Analyst: EM
Gasoline	14.5	1.12		mg/Kg-dry	1	6/13/2015 6:13:00 PM
Surr: 4-Bromofluorobenzene	100	65-135		%REC	1	6/13/2015 6:13:00 PM
Surr: Toluene-d8	99.2	65-135		%REC	1	6/13/2015 6:13:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11026	Analyst: EM
Benzene	ND	0.00450		mg/Kg-dry	1	6/13/2015 6:13:00 PM
Toluene	ND	0.00450		mg/Kg-dry	1	6/13/2015 6:13:00 PM
Ethylbenzene	0.0139	0.00675		mg/Kg-dry	1	6/13/2015 6:13:00 PM
m,p-Xylene	0.00495	0.00450		mg/Kg-dry	1	6/13/2015 6:13:00 PM
o-Xylene	ND	0.00450		mg/Kg-dry	1	6/13/2015 6:13:00 PM
Surr: Dibromofluoromethane	85.4	63.7-129		%REC	1	6/13/2015 6:13:00 PM
Surr: Toluene-d8	101	64.3-131		%REC	1	6/13/2015 6:13:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.6	63.1-141		%REC	1	6/13/2015 6:13:00 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	14.9			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126

Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/8/2015 2:37:00 PM

Project: SLU Marriott

Lab ID: 1506126-030

Matrix: Soil

Client Sample ID: MW-7-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 10993

Analyst: NG

Naphthalene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
2-Methylnaphthalene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
1-Methylnaphthalene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Acenaphthylene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Acenaphthene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Fluorene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Phenanthrene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Anthracene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Fluoranthene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Pyrene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Benz(a)anthracene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Chrysene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Benzo(b)fluoranthene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Benzo(k)fluoranthene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Benzo(a)pyrene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Dibenz(a,h)anthracene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Benzo(g,h,i)perylene	ND	52.2		µg/Kg-dry	1	6/11/2015 5:48:00 PM
Surr: 2-Fluorobiphenyl	61.7	42.7-132		%REC	1	6/11/2015 5:48:00 PM
Surr: Terphenyl-d14 (surr)	77.2	48.8-157		%REC	1	6/11/2015 5:48:00 PM

Gasoline by NWTPH-Gx

Batch ID: 11026

Analyst: EM

Gasoline	ND	1.24		mg/Kg-dry	1	6/13/2015 4:13:00 PM
Surr: 4-Bromofluorobenzene	95.8	65-135		%REC	1	6/13/2015 4:13:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	6/13/2015 4:13:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 11026

Analyst: EM

Benzene	0.0265	0.00495		mg/Kg-dry	1	6/13/2015 4:13:00 PM
Toluene	ND	0.00495		mg/Kg-dry	1	6/13/2015 4:13:00 PM
Ethylbenzene	ND	0.00742		mg/Kg-dry	1	6/13/2015 4:13:00 PM
m,p-Xylene	ND	0.00495		mg/Kg-dry	1	6/13/2015 4:13:00 PM
o-Xylene	ND	0.00495		mg/Kg-dry	1	6/13/2015 4:13:00 PM
Surr: Dibromofluoromethane	89.3	63.7-129		%REC	1	6/13/2015 4:13:00 PM
Surr: Toluene-d8	100	64.3-131		%REC	1	6/13/2015 4:13:00 PM
Surr: 1-Bromo-4-fluorobenzene	95.6	63.1-141		%REC	1	6/13/2015 4:13:00 PM



Analytical Report

WO#: 1506126
 Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-030
Client Sample ID: MW-7-20.0

Collection Date: 6/8/2015 2:37:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Total Metals by EPA Method 6020</u>				Batch ID: 11153		Analyst: TN
Lead	2.10	0.158		mg/Kg-dry	1	6/25/2015 6:27:12 PM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R22903		Analyst: CG
Percent Moisture	9.14			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
 Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-034
Client Sample ID: MW-7-30.0

Collection Date: 6/8/2015 2:57:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 11173 Analyst: BC

Benzene	0.0806	0.00632	H	mg/Kg-dry	1	6/27/2015 6:36:00 AM
Surr: Dibromofluoromethane	103	63.7-129	H	%REC	1	6/27/2015 6:36:00 AM
Surr: Toluene-d8	101	64.3-131	H	%REC	1	6/27/2015 6:36:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141	H	%REC	1	6/27/2015 6:36:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R23260 Analyst: CG

Percent Moisture	22.4			wt%	1	6/29/2015 9:04:18 AM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-036
Client Sample ID: DP-15-5.0

Collection Date: 6/8/2015 12:45:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>			Batch ID: 10999		Analyst: EC	
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	6/10/2015 11:16:00 PM
Heavy Oil	ND	55.4		mg/Kg-dry	1	6/10/2015 11:16:00 PM
Heavy Fuel Oil	89.9	55.4		mg/Kg-dry	1	6/10/2015 11:16:00 PM
Surr: 2-Fluorobiphenyl	120	50-150		%REC	1	6/10/2015 11:16:00 PM
Surr: o-Terphenyl	110	50-150		%REC	1	6/10/2015 11:16:00 PM
<u>Gasoline by NWTPH-Gx</u>			Batch ID: 11026		Analyst: EM	
Gasoline	ND	3.73		mg/Kg-dry	1	6/13/2015 4:43:00 PM
Surr: 4-Bromofluorobenzene	97.9	65-135		%REC	1	6/13/2015 4:43:00 PM
Surr: Toluene-d8	101	65-135		%REC	1	6/13/2015 4:43:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>			Batch ID: 11026		Analyst: EM	
Benzene	0.0160	0.0149		mg/Kg-dry	1	6/13/2015 4:43:00 PM
Toluene	ND	0.0149		mg/Kg-dry	1	6/13/2015 4:43:00 PM
Ethylbenzene	ND	0.0224		mg/Kg-dry	1	6/13/2015 4:43:00 PM
m,p-Xylene	0.0354	0.0149		mg/Kg-dry	1	6/13/2015 4:43:00 PM
o-Xylene	ND	0.0149		mg/Kg-dry	1	6/13/2015 4:43:00 PM
Surr: Dibromofluoromethane	81.5	63.7-129		%REC	1	6/13/2015 4:43:00 PM
Surr: Toluene-d8	100	64.3-131		%REC	1	6/13/2015 4:43:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.7	63.1-141		%REC	1	6/13/2015 4:43:00 PM
<u>Mercury by EPA Method 7471</u>			Batch ID: 10992		Analyst: TN	
Mercury	0.638	0.266		mg/Kg-dry	1	6/10/2015 5:59:16 PM
<u>Total Metals by EPA Method 6020</u>			Batch ID: 11003		Analyst: TN	
Lead	5,370	0.187		mg/Kg-dry	1	6/10/2015 6:13:38 PM
<u>Metals (SW6020) with TCLP Extraction (EPA 1311)</u>			Batch ID: 11129		Analyst: TN	
Lead	6.28	0.200		mg/L	1	6/25/2015 4:25:50 PM
<u>Sample Moisture (Percent Moisture)</u>			Batch ID: R22903		Analyst: CG	
Percent Moisture	13.0			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-037
Client Sample ID: DP-15-12.5

Collection Date: 6/8/2015 12:53:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	23.5		mg/Kg-dry	1	6/10/2015 11:48:00 PM
Heavy Oil	ND	58.6		mg/Kg-dry	1	6/10/2015 11:48:00 PM
Surr: 2-Fluorobiphenyl	115	50-150		%REC	1	6/10/2015 11:48:00 PM
Surr: o-Terphenyl	104	50-150		%REC	1	6/10/2015 11:48:00 PM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11026	Analyst: EM
Gasoline	6.95	1.27		mg/Kg-dry	1	6/13/2015 5:13:00 PM
Surr: 4-Bromofluorobenzene	99.7	65-135		%REC	1	6/13/2015 5:13:00 PM
Surr: Toluene-d8	100	65-135		%REC	1	6/13/2015 5:13:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11026	Analyst: EM
Benzene	ND	0.00508		mg/Kg-dry	1	6/13/2015 5:13:00 PM
Toluene	ND	0.00508		mg/Kg-dry	1	6/13/2015 5:13:00 PM
Ethylbenzene	0.00877	0.00763		mg/Kg-dry	1	6/13/2015 5:13:00 PM
m,p-Xylene	0.00648	0.00508		mg/Kg-dry	1	6/13/2015 5:13:00 PM
o-Xylene	ND	0.00508		mg/Kg-dry	1	6/13/2015 5:13:00 PM
Surr: Dibromofluoromethane	83.6	63.7-129		%REC	1	6/13/2015 5:13:00 PM
Surr: Toluene-d8	101	64.3-131		%REC	1	6/13/2015 5:13:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.4	63.1-141		%REC	1	6/13/2015 5:13:00 PM
<u>Total Metals by EPA Method 6020</u>					Batch ID: 11153	Analyst: TN
Lead	3.17	0.189		mg/Kg-dry	1	6/25/2015 6:30:43 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	15.4			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126

Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/8/2015 1:16:00 PM

Project: SLU Marriott

Lab ID: 1506126-040

Matrix: Soil

Client Sample ID: DP-15-27.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Batch ID: 10993

Analyst: NG

Naphthalene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
2-Methylnaphthalene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
1-Methylnaphthalene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Acenaphthylene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Acenaphthene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Fluorene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Phenanthrene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Anthracene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Fluoranthene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Pyrene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Benz(a)anthracene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Chrysene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Benzo(b)fluoranthene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Benzo(k)fluoranthene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Benzo(a)pyrene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Indeno(1,2,3-cd)pyrene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Dibenz(a,h)anthracene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Benzo(g,h,i)perylene	ND	61.4		µg/Kg-dry	1	6/11/2015 6:13:00 PM
Surr: 2-Fluorobiphenyl	99.1	42.7-132		%REC	1	6/11/2015 6:13:00 PM
Surr: Terphenyl-d14 (surr)	103	48.8-157		%REC	1	6/11/2015 6:13:00 PM

Gasoline by NWTPH-Gx

Batch ID: 11026

Analyst: EM

Gasoline	ND	1.34		mg/Kg-dry	1	6/13/2015 5:43:00 PM
Surr: 4-Bromofluorobenzene	97.3	65-135		%REC	1	6/13/2015 5:43:00 PM
Surr: Toluene-d8	100	65-135		%REC	1	6/13/2015 5:43:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 11026

Analyst: EM

Benzene	ND	0.00534		mg/Kg-dry	1	6/13/2015 5:43:00 PM
Toluene	ND	0.00534		mg/Kg-dry	1	6/13/2015 5:43:00 PM
Ethylbenzene	ND	0.00801		mg/Kg-dry	1	6/13/2015 5:43:00 PM
m,p-Xylene	0.0123	0.00534		mg/Kg-dry	1	6/13/2015 5:43:00 PM
o-Xylene	ND	0.00534		mg/Kg-dry	1	6/13/2015 5:43:00 PM
Surr: Dibromofluoromethane	84.5	63.7-129		%REC	1	6/13/2015 5:43:00 PM
Surr: Toluene-d8	99.3	64.3-131		%REC	1	6/13/2015 5:43:00 PM
Surr: 1-Bromo-4-fluorobenzene	97.1	63.1-141		%REC	1	6/13/2015 5:43:00 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-040
Client Sample ID: DP-15-27.5

Collection Date: 6/8/2015 1:16:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R22903	Analyst: CG	
Percent Moisture	19.4			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-042
Client Sample ID: DP-15-35.0

Collection Date: 6/8/2015 1:35:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 10993	Analyst: NG
Naphthalene	ND	60.1		µg/Kg-dry	1	6/11/2015 6:39:00 PM
2-Methylnaphthalene	ND	60.1		µg/Kg-dry	1	6/11/2015 6:39:00 PM
1-Methylnaphthalene	ND	60.1		µg/Kg-dry	1	6/11/2015 6:39:00 PM
Surr: 2-Fluorobiphenyl	87.4	42.7-132		%REC	1	6/11/2015 6:39:00 PM
Surr: Terphenyl-d14 (surr)	105	48.8-157		%REC	1	6/11/2015 6:39:00 PM

<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	19.0			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-044
Client Sample ID: MW-6-7.5

Collection Date: 6/8/2015 11:24:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	6/11/2015 12:20:00 AM
Heavy Oil	147	53.6		mg/Kg-dry	1	6/11/2015 12:20:00 AM
Surr: 2-Fluorobiphenyl	120	50-150		%REC	1	6/11/2015 12:20:00 AM
Surr: o-Terphenyl	118	50-150		%REC	1	6/11/2015 12:20:00 AM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11039	Analyst: BC
Gasoline	362	61.7	D	mg/Kg-dry	20	6/16/2015 10:23:00 AM
Surr: 4-Bromofluorobenzene	112	65-135		%REC	1	6/16/2015 6:06:00 AM
Surr: Toluene-d8	96.5	65-135		%REC	1	6/16/2015 6:06:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11039	Analyst: BC
Benzene	0.0617	0.0123		mg/Kg-dry	1	6/16/2015 6:06:00 AM
Toluene	0.0475	0.0123		mg/Kg-dry	1	6/16/2015 6:06:00 AM
Ethylbenzene	2.74	0.370	D	mg/Kg-dry	20	6/16/2015 10:23:00 AM
m,p-Xylene	0.235	0.0123		mg/Kg-dry	1	6/16/2015 6:06:00 AM
o-Xylene	0.0595	0.0123		mg/Kg-dry	1	6/16/2015 6:06:00 AM
Surr: Dibromofluoromethane	79.0	63.7-129		%REC	1	6/16/2015 6:06:00 AM
Surr: Toluene-d8	99.0	64.3-131		%REC	1	6/16/2015 6:06:00 AM
Surr: 1-Bromo-4-fluorobenzene	112	63.1-141		%REC	1	6/16/2015 6:06:00 AM
<u>Mercury by EPA Method 7471</u>					Batch ID: 10992	Analyst: TN
Mercury	ND	0.248		mg/Kg-dry	1	6/10/2015 6:00:54 PM
<u>Total Metals by EPA Method 6020</u>					Batch ID: 11003	Analyst: TN
Lead	33.5	0.180		mg/Kg-dry	1	6/10/2015 6:17:09 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	13.0			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-046
Client Sample ID: MW-6-15.0

Collection Date: 6/8/2015 11:32:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	22.5		mg/Kg-dry	1	6/11/2015 12:52:00 AM
Heavy Oil	ND	56.2		mg/Kg-dry	1	6/11/2015 12:52:00 AM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	6/11/2015 12:52:00 AM
Surr: o-Terphenyl	101	50-150		%REC	1	6/11/2015 12:52:00 AM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11039	Analyst: BC
Gasoline	912	49.5	D	mg/Kg-dry	20	6/16/2015 10:54:00 AM
Surr: 4-Bromofluorobenzene	104	65-135	D	%REC	20	6/16/2015 10:54:00 AM
Surr: Toluene-d8	92.0	65-135		%REC	1	6/16/2015 7:06:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11039	Analyst: BC
Benzene	0.0265	0.00990		mg/Kg-dry	1	6/16/2015 7:06:00 AM
Toluene	0.0230	0.00990		mg/Kg-dry	1	6/16/2015 7:06:00 AM
Ethylbenzene	22.2	0.297	D	mg/Kg-dry	20	6/16/2015 10:54:00 AM
m,p-Xylene	1.88	0.00990		mg/Kg-dry	1	6/16/2015 7:06:00 AM
o-Xylene	0.0463	0.00990		mg/Kg-dry	1	6/16/2015 7:06:00 AM
Surr: Dibromofluoromethane	79.0	63.7-129		%REC	1	6/16/2015 7:06:00 AM
Surr: Toluene-d8	89.4	64.3-131		%REC	1	6/16/2015 7:06:00 AM
Surr: 1-Bromo-4-fluorobenzene	104	63.1-141	D	%REC	20	6/16/2015 10:54:00 AM
<u>Mercury by EPA Method 7471</u>					Batch ID: 10992	Analyst: TN
Mercury	ND	0.292		mg/Kg-dry	1	6/10/2015 6:02:31 PM
<u>Total Metals by EPA Method 6020</u>					Batch ID: 11003	Analyst: TN
Lead	4.81	0.197		mg/Kg-dry	1	6/10/2015 6:20:40 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	15.9			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-048
Client Sample ID: MW-6-20.0

Collection Date: 6/8/2015 11:40:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: 11039 Analyst: BC

Gasoline	ND	3.95		mg/Kg-dry	1	6/16/2015 3:37:00 AM
Surr: 4-Bromofluorobenzene	95.9	65-135		%REC	1	6/16/2015 3:37:00 AM
Surr: Toluene-d8	101	65-135		%REC	1	6/16/2015 3:37:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 11039 Analyst: BC

Benzene	0.145	0.0158		mg/Kg-dry	1	6/16/2015 3:37:00 AM
Toluene	0.0174	0.0158		mg/Kg-dry	1	6/16/2015 3:37:00 AM
Ethylbenzene	0.0253	0.0237		mg/Kg-dry	1	6/16/2015 3:37:00 AM
m,p-Xylene	0.0538	0.0158		mg/Kg-dry	1	6/16/2015 3:37:00 AM
o-Xylene	ND	0.0158		mg/Kg-dry	1	6/16/2015 3:37:00 AM
Surr: Dibromofluoromethane	84.4	63.7-129		%REC	1	6/16/2015 3:37:00 AM
Surr: Toluene-d8	96.3	64.3-131		%REC	1	6/16/2015 3:37:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.6	63.1-141		%REC	1	6/16/2015 3:37:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R22903 Analyst: CG

Percent Moisture	14.8			wt%	1	6/11/2015 1:53:12 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-050
Client Sample ID: MW-6-25.0

Collection Date: 6/8/2015 12:00:00 PM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Volatile Organic Compounds by EPA Method 8260

Batch ID: 11173 Analyst: BC

Benzene	0.0253	0.00778	H	mg/Kg-dry	1	6/27/2015 7:04:00 AM
Surr: Dibromofluoromethane	101	63.7-129	H	%REC	1	6/27/2015 7:04:00 AM
Surr: Toluene-d8	102	64.3-131	H	%REC	1	6/27/2015 7:04:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.4	63.1-141	H	%REC	1	6/27/2015 7:04:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R23199 Analyst: CG

Percent Moisture	26.5			wt%	1	6/25/2015 1:09:09 PM
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Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-054
Client Sample ID: MW-4-5.0

Collection Date: 6/9/2015 10:26:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	6/11/2015 1:24:00 AM
Heavy Oil	ND	55.3		mg/Kg-dry	1	6/11/2015 1:24:00 AM
Surr: 2-Fluorobiphenyl	110	50-150		%REC	1	6/11/2015 1:24:00 AM
Surr: o-Terphenyl	105	50-150		%REC	1	6/11/2015 1:24:00 AM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11039	Analyst: BC
Gasoline	ND	1.88		mg/Kg-dry	1	6/16/2015 4:07:00 AM
Surr: 4-Bromofluorobenzene	96.5	65-135		%REC	1	6/16/2015 4:07:00 AM
Surr: Toluene-d8	99.7	65-135		%REC	1	6/16/2015 4:07:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11039	Analyst: BC
Benzene	ND	0.00750		mg/Kg-dry	1	6/16/2015 4:07:00 AM
Toluene	ND	0.00750		mg/Kg-dry	1	6/16/2015 4:07:00 AM
Ethylbenzene	ND	0.0113		mg/Kg-dry	1	6/16/2015 4:07:00 AM
m,p-Xylene	ND	0.00750		mg/Kg-dry	1	6/16/2015 4:07:00 AM
o-Xylene	ND	0.00750		mg/Kg-dry	1	6/16/2015 4:07:00 AM
Surr: Dibromofluoromethane	84.7	63.7-129		%REC	1	6/16/2015 4:07:00 AM
Surr: Toluene-d8	97.7	64.3-131		%REC	1	6/16/2015 4:07:00 AM
Surr: 1-Bromo-4-fluorobenzene	96.4	63.1-141		%REC	1	6/16/2015 4:07:00 AM
<u>Mercury by EPA Method 7471</u>					Batch ID: 10992	Analyst: TN
Mercury	ND	0.271		mg/Kg-dry	1	6/10/2015 6:04:07 PM
<u>Total Metals by EPA Method 6020</u>					Batch ID: 11003	Analyst: TN
Lead	3.61	0.191		mg/Kg-dry	1	6/10/2015 6:24:11 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	17.5			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-056
Client Sample ID: MW-4-17.5

Collection Date: 6/9/2015 10:47:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	6/11/2015 1:55:00 AM
Heavy Oil	ND	53.7		mg/Kg-dry	1	6/11/2015 1:55:00 AM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	6/11/2015 1:55:00 AM
Surr: o-Terphenyl	101	50-150		%REC	1	6/11/2015 1:55:00 AM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11039	Analyst: BC
Gasoline	ND	1.53		mg/Kg-dry	1	6/16/2015 4:37:00 AM
Surr: 4-Bromofluorobenzene	97.4	65-135		%REC	1	6/16/2015 4:37:00 AM
Surr: Toluene-d8	99.8	65-135		%REC	1	6/16/2015 4:37:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11039	Analyst: BC
Benzene	ND	0.00610		mg/Kg-dry	1	6/16/2015 4:37:00 AM
Toluene	ND	0.00610		mg/Kg-dry	1	6/16/2015 4:37:00 AM
Ethylbenzene	ND	0.00916		mg/Kg-dry	1	6/16/2015 4:37:00 AM
m,p-Xylene	ND	0.00610		mg/Kg-dry	1	6/16/2015 4:37:00 AM
o-Xylene	ND	0.00610		mg/Kg-dry	1	6/16/2015 4:37:00 AM
Surr: Dibromofluoromethane	85.2	63.7-129		%REC	1	6/16/2015 4:37:00 AM
Surr: Toluene-d8	98.0	64.3-131		%REC	1	6/16/2015 4:37:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.2	63.1-141		%REC	1	6/16/2015 4:37:00 AM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	14.3			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-062
Client Sample ID: DP-13-8.0

Collection Date: 6/9/2015 9:36:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11039	Analyst: BC
Gasoline	4.88	2.20		mg/Kg-dry	1	6/16/2015 5:07:00 AM
Surr: 4-Bromofluorobenzene	99.2	65-135		%REC	1	6/16/2015 5:07:00 AM
Surr: Toluene-d8	100	65-135		%REC	1	6/16/2015 5:07:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11039	Analyst: BC
Benzene	0.0549	0.00882		mg/Kg-dry	1	6/16/2015 5:07:00 AM
Toluene	0.0194	0.00882		mg/Kg-dry	1	6/16/2015 5:07:00 AM
Ethylbenzene	0.0540	0.0132		mg/Kg-dry	1	6/16/2015 5:07:00 AM
m,p-Xylene	0.202	0.00882		mg/Kg-dry	1	6/16/2015 5:07:00 AM
o-Xylene	0.0205	0.00882		mg/Kg-dry	1	6/16/2015 5:07:00 AM
Surr: Dibromofluoromethane	80.7	63.7-129		%REC	1	6/16/2015 5:07:00 AM
Surr: Toluene-d8	99.2	64.3-131		%REC	1	6/16/2015 5:07:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.9	63.1-141		%REC	1	6/16/2015 5:07:00 AM
<u>Mercury by EPA Method 7471</u>					Batch ID: 10992	Analyst: TN
Mercury	0.378	0.296		mg/Kg-dry	1	6/10/2015 6:05:44 PM
<u>Total Metals by EPA Method 6020</u>					Batch ID: 11003	Analyst: TN
Lead	43.5	0.202		mg/Kg-dry	1	6/10/2015 6:27:43 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	23.1			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-064
Client Sample ID: DP-13-15.0

Collection Date: 6/9/2015 9:43:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11039	Analyst: BC
Gasoline	8.27	2.14		mg/Kg-dry	1	6/16/2015 5:37:00 AM
Surr: 4-Bromofluorobenzene	100	65-135		%REC	1	6/16/2015 5:37:00 AM
Surr: Toluene-d8	100	65-135		%REC	1	6/16/2015 5:37:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11039	Analyst: BC
Benzene	ND	0.00856		mg/Kg-dry	1	6/16/2015 5:37:00 AM
Toluene	ND	0.00856		mg/Kg-dry	1	6/16/2015 5:37:00 AM
Ethylbenzene	ND	0.0128		mg/Kg-dry	1	6/16/2015 5:37:00 AM
m,p-Xylene	ND	0.00856		mg/Kg-dry	1	6/16/2015 5:37:00 AM
o-Xylene	ND	0.00856		mg/Kg-dry	1	6/16/2015 5:37:00 AM
Surr: Dibromofluoromethane	85.3	63.7-129		%REC	1	6/16/2015 5:37:00 AM
Surr: Toluene-d8	96.9	64.3-131		%REC	1	6/16/2015 5:37:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.9	63.1-141		%REC	1	6/16/2015 5:37:00 AM
<u>Mercury by EPA Method 7471</u>					Batch ID: 10992	Analyst: TN
Mercury	ND	0.315		mg/Kg-dry	1	6/10/2015 6:07:20 PM
<u>Total Metals by EPA Method 6020</u>					Batch ID: 11003	Analyst: TN
Lead	2.28	0.219		mg/Kg-dry	1	6/10/2015 6:31:14 PM
<u>Sample Moisture (Percent Moisture)</u>					Batch ID: R22903	Analyst: CG
Percent Moisture	23.8			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-072
Client Sample ID: MW-5-7.5

Collection Date: 6/9/2015 7:48:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 10999	Analyst: EC
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	6/11/2015 2:27:00 AM
Heavy Oil	ND	52.9		mg/Kg-dry	1	6/11/2015 2:27:00 AM
Surr: 2-Fluorobiphenyl	121	50-150		%REC	1	6/11/2015 2:27:00 AM
Surr: o-Terphenyl	109	50-150		%REC	1	6/11/2015 2:27:00 AM
<u>Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)</u>					Batch ID: 10993	Analyst: NG
Naphthalene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
2-Methylnaphthalene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
1-Methylnaphthalene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Acenaphthylene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Acenaphthene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Fluorene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Phenanthrene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Anthracene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Fluoranthene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Pyrene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Benz(a)anthracene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Chrysene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Benzo(b)fluoranthene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Benzo(k)fluoranthene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Benzo(a)pyrene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Indeno(1,2,3-cd)pyrene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Dibenz(a,h)anthracene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Benzo(g,h,i)perylene	ND	54.0		µg/Kg-dry	1	6/11/2015 7:05:00 PM
Surr: 2-Fluorobiphenyl	74.0	42.7-132		%REC	1	6/11/2015 7:05:00 PM
Surr: Terphenyl-d14 (surr)	91.3	48.8-157		%REC	1	6/11/2015 7:05:00 PM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: 11034	Analyst: BC
Gasoline	ND	1.92		mg/Kg-dry	1	6/16/2015 12:53:00 AM
Surr: 4-Bromofluorobenzene	93.9	65-135		%REC	1	6/16/2015 12:53:00 AM
Surr: Toluene-d8	98.1	65-135		%REC	1	6/16/2015 12:53:00 AM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: 11034	Analyst: AK
Benzene	ND	0.00770		mg/Kg-dry	1	6/16/2015 12:53:00 AM
Toluene	ND	0.00770		mg/Kg-dry	1	6/16/2015 12:53:00 AM
Ethylbenzene	ND	0.0115		mg/Kg-dry	1	6/16/2015 12:53:00 AM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-072
Client Sample ID: MW-5-7.5

Collection Date: 6/9/2015 7:48:00 AM
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Volatile Organic Compounds by EPA Method 8260</u>				Batch ID: 11034		Analyst: AK
m,p-Xylene	ND	0.00770		mg/Kg-dry	1	6/16/2015 12:53:00 AM
o-Xylene	ND	0.00770		mg/Kg-dry	1	6/16/2015 12:53:00 AM
Surr: Dibromofluoromethane	92.8	63.7-129		%REC	1	6/16/2015 12:53:00 AM
Surr: Toluene-d8	92.2	64.3-131		%REC	1	6/16/2015 12:53:00 AM
Surr: 1-Bromo-4-fluorobenzene	93.7	63.1-141		%REC	1	6/16/2015 12:53:00 AM
<u>Total Metals by EPA Method 6020</u>				Batch ID: 11003		Analyst: TN
Cadmium	ND	0.173		mg/Kg-dry	1	6/10/2015 6:34:45 PM
Lead	2.07	0.173		mg/Kg-dry	1	6/10/2015 6:34:45 PM
<u>Sample Moisture (Percent Moisture)</u>				Batch ID: R22903		Analyst: CG
Percent Moisture	10.2			wt%	1	6/11/2015 1:53:12 PM



Analytical Report

WO#: 1506126
Date Reported: 9/1/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506126-074
Client Sample ID: MW-5-15.0

Collection Date: 6/9/2015 7:55:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Gasoline by NWTPH-Gx

Batch ID: 11034 Analyst: BC

Gasoline	ND	1.41		mg/Kg-dry	1	6/16/2015 1:22:00 AM
Surr: 4-Bromofluorobenzene	99.6	65-135		%REC	1	6/16/2015 1:22:00 AM
Surr: Toluene-d8	95.4	65-135		%REC	1	6/16/2015 1:22:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: 11034 Analyst: AK

Benzene	ND	0.00566		mg/Kg-dry	1	6/16/2015 1:22:00 AM
Toluene	ND	0.00566		mg/Kg-dry	1	6/16/2015 1:22:00 AM
Ethylbenzene	ND	0.00849		mg/Kg-dry	1	6/16/2015 1:22:00 AM
m,p-Xylene	ND	0.00566		mg/Kg-dry	1	6/16/2015 1:22:00 AM
o-Xylene	ND	0.00566		mg/Kg-dry	1	6/16/2015 1:22:00 AM
Surr: Dibromofluoromethane	93.9	63.7-129		%REC	1	6/16/2015 1:22:00 AM
Surr: Toluene-d8	89.8	64.3-131		%REC	1	6/16/2015 1:22:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.5	63.1-141		%REC	1	6/16/2015 1:22:00 AM

Sample Moisture (Percent Moisture)

Batch ID: R22903 Analyst: CG

Percent Moisture	13.3			wt%	1	6/11/2015 1:53:12 PM
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Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: MB-11003	SampType: MBLK	Units: mg/Kg	Prep Date: 6/10/2015	RunNo: 22890							
Client ID: MBLKS	Batch ID: 11003	Analysis Date: 6/10/2015	SeqNo: 433741								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cadmium	ND	0.200									
Lead	ND	0.200									

Sample ID: LCS-11003	SampType: LCS	Units: mg/Kg	Prep Date: 6/10/2015	RunNo: 22890							
Client ID: LCSS	Batch ID: 11003	Analysis Date: 6/10/2015	SeqNo: 433742								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cadmium	182	0.200	171.0	0	107	73.7	126.9				
Lead	227	0.200	237.0	0	95.9	75.1	124.9				

Sample ID: 1506126-005ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22890							
Client ID: DP-16-15.0	Batch ID: 11003	Analysis Date: 6/10/2015	SeqNo: 433744								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cadmium	ND	0.196						0		20	
Lead	8.09	0.196						10.28	23.7	20	R

NOTES:

R - High RPD observed. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID: 1506126-005AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22890							
Client ID: DP-16-15.0	Batch ID: 11003	Analysis Date: 6/10/2015	SeqNo: 433746								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cadmium	2.69	0.194	2.428	0.1303	105	75	125				
Lead	31.3	0.194	24.28	10.28	86.6	75	125				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1506126-005AMSD	SampType: MSD	Units: mg/Kg-dry				Prep Date: 6/10/2015	RunNo: 22890				
Client ID: DP-16-15.0	Batch ID: 11003					Analysis Date: 6/10/2015	SeqNo: 433747				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Cadmium	2.74	0.194	2.428	0.1303	107	75	125	2.685	1.91	20	
Lead	28.9	0.194	24.28	10.28	76.6	75	125	31.31	8.06	20	

Sample ID: MB-11153	SampType: MBLK	Units: mg/Kg				Prep Date: 6/25/2015	RunNo: 23217				
Client ID: MBLKS	Batch ID: 11153					Analysis Date: 6/25/2015	SeqNo: 439824				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	ND	0.200									
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Sample ID: LCS-11153	SampType: LCS	Units: mg/Kg				Prep Date: 6/25/2015	RunNo: 23217				
Client ID: LCSS	Batch ID: 11153					Analysis Date: 6/25/2015	SeqNo: 439825				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	233	0.200	237.0	0	98.2	75.1	124.9				
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Sample ID: 1506275-001ADUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 6/25/2015	RunNo: 23217				
Client ID: BATCH	Batch ID: 11153					Analysis Date: 6/25/2015	SeqNo: 439827				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	15.2	0.167						20.14	28.0	20	R
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NOTES:

R - High RPD observed. The method is in control as indicated by the laboratory control sample (LCS).

Sample ID: 1506275-001AMS	SampType: MS	Units: mg/Kg-dry				Prep Date: 6/25/2015	RunNo: 23217				
Client ID: BATCH	Batch ID: 11153					Analysis Date: 6/25/2015	SeqNo: 439831				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	36.8	0.170	21.22	20.14	78.4	75	125				
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Date: 9/1/2015

Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Total Metals by EPA Method 6020

Sample ID: 1506275-001AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 6/25/2015	RunNo: 23217							
Client ID: BATCH	Batch ID: 11153		Analysis Date: 6/25/2015	SeqNo: 439832							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	40.2	0.167	20.90	20.14	95.8	75	125	36.77	8.81	20	



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Mercury by EPA Method 7471

Sample ID: MB-10992	SampType: MBLK	Units: mg/Kg	Prep Date: 6/10/2015	RunNo: 22888							
Client ID: MBLKS	Batch ID: 10992		Analysis Date: 6/10/2015	SeqNo: 433629							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.250

Sample ID: LCS-10992	SampType: LCS	Units: mg/Kg	Prep Date: 6/10/2015	RunNo: 22888							
Client ID: LCSS	Batch ID: 10992		Analysis Date: 6/10/2015	SeqNo: 433630							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.497 0.250 0.5000 0 99.4 80 120

Sample ID: 1506105-002ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22888							
Client ID: BATCH	Batch ID: 10992		Analysis Date: 6/10/2015	SeqNo: 433632							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.231 0 20

Sample ID: 1506105-002AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22888							
Client ID: BATCH	Batch ID: 10992		Analysis Date: 6/10/2015	SeqNo: 433633							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.531 0.235 0.4696 0 113 70 130

Sample ID: 1506105-002AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22888							
Client ID: BATCH	Batch ID: 10992		Analysis Date: 6/10/2015	SeqNo: 433634							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.532 0.227 0.4532 0 117 70 130 0.5307 0.248 20



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Mercury by EPA Method 7471

Sample ID: MB-11737	SampType: MBLK	Units: mg/Kg	Prep Date: 9/1/2015	RunNo: 24644							
Client ID: MBLKS	Batch ID: 11737		Analysis Date: 9/1/2015	SeqNo: 464363							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.250

Sample ID: LCS-11737	SampType: LCS	Units: mg/Kg	Prep Date: 9/1/2015	RunNo: 24644							
Client ID: LCSS	Batch ID: 11737		Analysis Date: 9/1/2015	SeqNo: 464364							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.471 0.250 0.5000 0 94.3 80 120

Sample ID: 1508345-002ADUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 9/1/2015	RunNo: 24644							
Client ID: BATCH	Batch ID: 11737		Analysis Date: 9/1/2015	SeqNo: 464366							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.252 0 20

Sample ID: 1508345-002AMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 9/1/2015	RunNo: 24644							
Client ID: BATCH	Batch ID: 11737		Analysis Date: 9/1/2015	SeqNo: 464367							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.451 0.234 0.4687 0.01914 92.2 70 130

Sample ID: 1508345-002AMSD	SampType: MSD	Units: mg/Kg-dry	Prep Date: 9/1/2015	RunNo: 24644							
Client ID: BATCH	Batch ID: 11737		Analysis Date: 9/1/2015	SeqNo: 464368							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.506 0.262 0.5239 0.01914 92.9 70 130 0.4514 11.4 20



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID: MB-11117FB	SampType: MBLK	Units: mg/L	Prep Date: 6/24/2015	RunNo: 23211							
Client ID: MBLKS	Batch ID: 11129		Analysis Date: 6/25/2015	SeqNo: 439695							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.200

Sample ID: MB-11129	SampType: MBLK	Units: mg/L	Prep Date: 6/24/2015	RunNo: 23211							
Client ID: MBLKS	Batch ID: 11129		Analysis Date: 6/25/2015	SeqNo: 439696							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.200

Sample ID: LCS-11129	SampType: LCS	Units: mg/L	Prep Date: 6/24/2015	RunNo: 23211							
Client ID: LCSS	Batch ID: 11129		Analysis Date: 6/25/2015	SeqNo: 439697							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 2.37 0.200 2.500 0 94.8 65 135

Sample ID: 1506104-001ADUP	SampType: DUP	Units: mg/L	Prep Date: 6/24/2015	RunNo: 23211							
Client ID: BATCH	Batch ID: 11129		Analysis Date: 6/25/2015	SeqNo: 439701							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.200 0 30

Sample ID: 1506104-001AMS	SampType: MS	Units: mg/L	Prep Date: 6/24/2015	RunNo: 23211							
Client ID: BATCH	Batch ID: 11129		Analysis Date: 6/25/2015	SeqNo: 439702							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 2.49 0.200 2.500 0.1092 95.1 65 135



Date: 9/1/2015

Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Metals (SW6020) with TCLP Extraction (EPA 1311)

Sample ID: 1506104-001AMSD	SampType: MSD	Units: mg/L			Prep Date: 6/24/2015	RunNo: 23211					
Client ID: BATCH	Batch ID: 11129				Analysis Date: 6/25/2015	SeqNo: 439703					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.33	0.200	2.500	0.1092	88.7	65	135	2.486	6.56	30	



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: MB-10999	SampType: MBLK	Units: mg/Kg			Prep Date: 6/10/2015	RunNo: 22892					
Client ID: MBLKS	Batch ID: 10999				Analysis Date: 6/10/2015	SeqNo: 433859					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	26.7		20.00		133	50	150				
Surr: o-Terphenyl	23.7		20.00		118	50	150				

Sample ID: LCS-10999	SampType: LCS	Units: mg/Kg			Prep Date: 6/10/2015	RunNo: 22892					
Client ID: LCSS	Batch ID: 10999				Analysis Date: 6/10/2015	SeqNo: 433858					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	545	20.0	500.0	0	109	65	135				
Surr: 2-Fluorobiphenyl	27.4		20.00		137	50	150				
Surr: o-Terphenyl	28.9		20.00		144	50	150				

Sample ID: 1506126-014ADUP	SampType: DUP	Units: mg/Kg-dry			Prep Date: 6/10/2015	RunNo: 22892					
Client ID: DP-14-7.5	Batch ID: 10999				Analysis Date: 6/10/2015	SeqNo: 433840					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	29.2						0		30	
Heavy Oil	268	73.1						257.9	3.80	30	
Surr: 2-Fluorobiphenyl	30.5		29.23		104	50	150		0		
Surr: o-Terphenyl	30.4		29.23		104	50	150		0		



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-10993	SampType: MBLK	Units: µg/Kg	Prep Date: 6/10/2015	RunNo: 22925							
Client ID: MBLKS	Batch ID: 10993		Analysis Date: 6/11/2015	SeqNo: 434458							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	557		500.0		111	42.7	132				
Surr: Terphenyl-d14 (surr)	470		500.0		94.0	48.8	157				

Sample ID: LCS-10993	SampType: LCS	Units: µg/Kg	Prep Date: 6/10/2015	RunNo: 22925							
Client ID: LCSS	Batch ID: 10993		Analysis Date: 6/11/2015	SeqNo: 434457							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	846	50.0	1,000	0	84.6	61.6	125				
2-Methylnaphthalene	790	50.0	1,000	0	79.0	58.2	129				
1-Methylnaphthalene	842	50.0	1,000	0	84.2	56.4	132				
Acenaphthylene	794	50.0	1,000	0	79.4	52.2	133				
Acenaphthene	783	50.0	1,000	0	78.3	54	131				
Fluorene	834	50.0	1,000	0	83.4	53.4	131				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-10993	SampType: LCS	Units: µg/Kg	Prep Date: 6/10/2015	RunNo: 22925							
Client ID: LCSS	Batch ID: 10993		Analysis Date: 6/11/2015	SeqNo: 434457							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Phenanthrene	797	50.0	1,000	0	79.7	55.6	128				
Anthracene	829	50.0	1,000	0	82.9	51	132				
Fluoranthene	864	50.0	1,000	0	86.4	48.4	134				
Pyrene	854	50.0	1,000	0	85.4	48.6	135				
Benz(a)anthracene	811	50.0	1,000	0	81.1	41.9	136				
Chrysene	871	50.0	1,000	0	87.1	51.4	135				
Benzo(b)fluoranthene	842	50.0	1,000	0	84.2	39.7	137				
Benzo(k)fluoranthene	892	50.0	1,000	0	89.2	45.7	138				
Benzo(a)pyrene	855	50.0	1,000	0	85.5	40.9	141				
Indeno(1,2,3-cd)pyrene	687	50.0	1,000	0	68.7	41	140				
Dibenz(a,h)anthracene	673	50.0	1,000	0	67.3	37.6	140				
Benzo(g,h,i)perylene	641	50.0	1,000	0	64.1	45	134				
Surr: 2-Fluorobiphenyl	538		500.0		108	42.7	132				
Surr: Terphenyl-d14 (surr)	436		500.0		87.3	48.8	157				

Sample ID: 1506105-002ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22925							
Client ID: BATCH	Batch ID: 10993		Analysis Date: 6/11/2015	SeqNo: 434435							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	51.3						0		30	
2-Methylnaphthalene	ND	51.3						0		30	
1-Methylnaphthalene	ND	51.3						0		30	
Acenaphthylene	ND	51.3						0		30	
Acenaphthene	ND	51.3						0		30	
Fluorene	ND	51.3						0		30	
Phenanthrene	ND	51.3						0		30	
Anthracene	ND	51.3						0		30	
Fluoranthene	ND	51.3						0		30	
Pyrene	ND	51.3						0		30	
Benz(a)anthracene	ND	51.3						0		30	
Chrysene	ND	51.3						0		30	



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1506105-002ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22925							
Client ID: BATCH	Batch ID: 10993		Analysis Date: 6/11/2015	SeqNo: 434435							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	51.3						0		30	
Benzo(k)fluoranthene	ND	51.3						0		30	
Benzo(a)pyrene	ND	51.3						0		30	
Indeno(1,2,3-cd)pyrene	ND	51.3						0		30	
Dibenz(a,h)anthracene	ND	51.3						0		30	
Benzo(g,h,i)perylene	ND	51.3						0		30	
Surr: 2-Fluorobiphenyl	444		512.8		86.6	42.7	132		0		
Surr: Terphenyl-d14 (surr)	431		512.8		84.0	48.8	157		0		

Sample ID: 1506105-011AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22925							
Client ID: BATCH	Batch ID: 10993		Analysis Date: 6/11/2015	SeqNo: 434437							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	835	55.0	1,099	0	75.9	42.9	138				
2-Methylnaphthalene	845	55.0	1,099	0	76.9	42.8	151				
1-Methylnaphthalene	897	55.0	1,099	0	81.6	41.6	148				
Acenaphthylene	865	55.0	1,099	0	78.7	32.6	160				
Acenaphthene	819	55.0	1,099	0	74.5	46.3	142				
Fluorene	894	55.0	1,099	0	81.3	43.4	153				
Phenanthrene	900	55.0	1,099	49.62	77.4	45.5	140				
Anthracene	993	55.0	1,099	0	90.3	32.6	160				
Fluoranthene	1,090	55.0	1,099	205.1	80.2	44.6	161				
Pyrene	1,100	55.0	1,099	215.0	80.5	48.3	158				
Benz(a)anthracene	927	55.0	1,099	91.92	75.9	57.5	169				
Chrysene	1,030	55.0	1,099	110.4	83.4	45.2	146				
Benzo(b)fluoranthene	1,010	55.0	1,099	93.87	83.3	42.2	168				
Benzo(k)fluoranthene	930	55.0	1,099	24.18	82.4	48	161				
Benzo(a)pyrene	957	55.0	1,099	63.28	81.3	34.4	179				
Indeno(1,2,3-cd)pyrene	907	55.0	1,099	36.29	79.2	41.1	165				
Dibenz(a,h)anthracene	909	55.0	1,099	21.18	80.8	38.1	166				
Benzo(g,h,i)perylene	834	55.0	1,099	53.45	71.0	45.6	157				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
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QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1506105-011AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 6/10/2015	RunNo: 22925							
Client ID: BATCH	Batch ID: 10993		Analysis Date: 6/11/2015	SeqNo: 434437							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 2-Fluorobiphenyl	558		549.7		101	42.7	132				
Surr: Terphenyl-d14 (surr)	478		549.7		87.0	48.8	157				

Sample ID: MB-11142	SampType: MBLK	Units: µg/Kg	Prep Date: 6/24/2015	RunNo: 23221							
Client ID: MBLKS	Batch ID: 11142		Analysis Date: 6/25/2015	SeqNo: 439957							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	368		500.0		73.7	40.6	139				
Surr: Terphenyl-d14 (surr)	324		500.0		64.9	48.8	157				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
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QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-11142	SampType: LCS	Units: µg/Kg	Prep Date: 6/24/2015	RunNo: 23221							
Client ID: LCSS	Batch ID: 11142		Analysis Date: 6/26/2015	SeqNo: 439956							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	849	50.0	1,000	0	84.9	61.6	125				
2-Methylnaphthalene	813	50.0	1,000	0	81.3	58.2	129				
1-Methylnaphthalene	805	50.0	1,000	0	80.5	56.4	132				
Acenaphthylene	778	50.0	1,000	0	77.8	52.2	133				
Acenaphthene	856	50.0	1,000	0	85.6	54	131				
Fluorene	825	50.0	1,000	0	82.5	53.4	131				
Phenanthrene	826	50.0	1,000	0	82.6	55.6	128				
Anthracene	856	50.0	1,000	0	85.6	51	132				
Fluoranthene	841	50.0	1,000	0	84.1	48.4	134				
Pyrene	822	50.0	1,000	0	82.2	48.6	135				
Benz(a)anthracene	954	50.0	1,000	0	95.4	41.9	136				
Chrysene	824	50.0	1,000	0	82.4	51.4	135				
Benzo(b)fluoranthene	989	50.0	1,000	0	98.9	39.7	137				
Benzo(k)fluoranthene	779	50.0	1,000	0	77.9	45.7	138				
Benzo(a)pyrene	914	50.0	1,000	0	91.4	40.9	141				
Indeno(1,2,3-cd)pyrene	973	50.0	1,000	0	97.3	41	140				
Dibenz(a,h)anthracene	945	50.0	1,000	0	94.5	37.6	140				
Benzo(g,h,i)perylene	924	50.0	1,000	0	92.4	45	134				
Surr: 2-Fluorobiphenyl	497		500.0		99.4	40.6	139				
Surr: Terphenyl-d14 (surr)	441		500.0		88.2	48.8	157				

Sample ID: 1506275-001ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 6/25/2015	RunNo: 23221							
Client ID: BATCH	Batch ID: 11142		Analysis Date: 6/26/2015	SeqNo: 439952							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	57.7	53.8						44.93	24.8	30	
2-Methylnaphthalene	ND	53.8						0		30	
1-Methylnaphthalene	ND	53.8						0		30	
Acenaphthylene	ND	53.8						0		30	
Acenaphthene	ND	53.8						0		30	
Fluorene	ND	53.8						0		30	



Date: 9/1/2015

Work Order: 1506126
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1506275-001ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 6/25/2015	RunNo: 23221							
Client ID: BATCH	Batch ID: 11142		Analysis Date: 6/26/2015	SeqNo: 439952							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Phenanthrene	121	53.8						72.43	49.9	30	
Anthracene	ND	53.8						0		30	
Fluoranthene	159	53.8						108.8	37.8	30	
Pyrene	181	53.8						115.2	44.3	30	R
Benz(a)anthracene	69.6	53.8						40.17	53.6	30	
Chrysene	74.2	53.8						46.35	46.3	30	
Benzo(b)fluoranthene	83.4	53.8						51.13	48.0	30	
Benzo(k)fluoranthene	ND	53.8						0		30	
Benzo(a)pyrene	56.8	53.8						34.17	49.7	30	
Indeno(1,2,3-cd)pyrene	ND	53.8						0		30	
Dibenz(a,h)anthracene	ND	53.8						0		30	
Benzo(g,h,i)perylene	59.3	53.8						36.79	46.9	30	
Surr: 2-Fluorobiphenyl	510		537.8		94.9	40.6	139		0		
Surr: Terphenyl-d14 (surr)	477		537.8		88.7	48.8	157		0		

NOTES:

R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID: 1506275-002AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 6/25/2015	RunNo: 23221							
Client ID: BATCH	Batch ID: 11142		Analysis Date: 6/26/2015	SeqNo: 439954							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	837	54.9	1,098	0	76.2	42.9	138				
2-Methylnaphthalene	834	54.9	1,098	0	76.0	42.8	151				
1-Methylnaphthalene	805	54.9	1,098	0	73.3	41.6	148				
Acenaphthylene	775	54.9	1,098	0	70.6	32.6	160				
Acenaphthene	866	54.9	1,098	0	78.9	46.3	142				
Fluorene	800	54.9	1,098	0	72.9	43.4	153				
Phenanthrene	881	54.9	1,098	0	80.2	45.5	140				
Anthracene	851	54.9	1,098	0	77.5	32.6	160				
Fluoranthene	947	54.9	1,098	27.15	83.8	44.6	161				
Pyrene	936	54.9	1,098	28.53	82.6	48.3	158				
Benz(a)anthracene	1,010	54.9	1,098	0	91.8	57.5	169				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1506275-002AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 6/25/2015	RunNo: 23221							
Client ID: BATCH	Batch ID: 11142		Analysis Date: 6/26/2015	SeqNo: 439954							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chrysene	864	54.9	1,098	0	78.7	45.2	146				
Benzo(b)fluoranthene	1,140	54.9	1,098	0	104	42.2	168				
Benzo(k)fluoranthene	766	54.9	1,098	0	69.7	48	161				
Benzo(a)pyrene	958	54.9	1,098	0	87.3	34.4	179				
Indeno(1,2,3-cd)pyrene	1,210	54.9	1,098	0	110	41.1	165				
Dibenz(a,h)anthracene	1,150	54.9	1,098	0	105	38.1	166				
Benzo(g,h,i)perylene	1,140	54.9	1,098	0	104	45.6	157				
Surr: 2-Fluorobiphenyl	507		548.9		92.4	40.6	139				
Surr: Terphenyl-d14 (surr)	450		548.9		82.0	48.8	157				

Sample ID: MB-11240	SampType: MBLK	Units: µg/Kg	Prep Date: 7/7/2015	RunNo: 23498							
Client ID: MBLKS	Batch ID: 11240		Analysis Date: 7/10/2015	SeqNo: 445369							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	50.0									
2-Methylnaphthalene	ND	50.0									
1-Methylnaphthalene	ND	50.0									
Acenaphthylene	ND	50.0									
Acenaphthene	ND	50.0									
Fluorene	ND	50.0									
Phenanthrene	ND	50.0									
Anthracene	ND	50.0									
Fluoranthene	ND	50.0									
Pyrene	ND	50.0									
Benz(a)anthracene	ND	50.0									
Chrysene	ND	50.0									
Benzo(b)fluoranthene	ND	50.0									
Benzo(k)fluoranthene	ND	50.0									
Benzo(a)pyrene	ND	50.0									
Indeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
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QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-11240	SampType: MBLK	Units: µg/Kg	Prep Date: 7/7/2015	RunNo: 23498							
Client ID: MBLKS	Batch ID: 11240		Analysis Date: 7/10/2015	SeqNo: 445369							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	371		500.0		74.1	40.6	139				
Surr: Terphenyl-d14 (surr)	406		500.0		81.1	48.8	157				

Sample ID: LCS-11240	SampType: LCS	Units: µg/Kg	Prep Date: 7/7/2015	RunNo: 23498							
Client ID: LCSS	Batch ID: 11240		Analysis Date: 7/10/2015	SeqNo: 445368							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	780	50.0	1,000	0	78.0	61.6	125				
2-Methylnaphthalene	848	50.0	1,000	0	84.8	58.2	129				
1-Methylnaphthalene	816	50.0	1,000	0	81.6	56.4	132				
Acenaphthylene	668	50.0	1,000	0	66.8	52.2	133				
Acenaphthene	804	50.0	1,000	0	80.4	54	131				
Fluorene	829	50.0	1,000	0	82.9	53.4	131				
Phenanthrene	826	50.0	1,000	0	82.6	55.6	128				
Anthracene	912	50.0	1,000	0	91.2	51	132				
Fluoranthene	767	50.0	1,000	0	76.7	48.4	134				
Pyrene	757	50.0	1,000	0	75.7	48.6	135				
Benz(a)anthracene	780	50.0	1,000	0	78.0	41.9	136				
Chrysene	993	50.0	1,000	0	99.3	51.4	135				
Benzo(b)fluoranthene	890	50.0	1,000	0	89.0	39.7	137				
Benzo(k)fluoranthene	1,130	50.0	1,000	0	113	45.7	138				
Benzo(a)pyrene	1,020	50.0	1,000	0	102	40.9	141				
Indeno(1,2,3-cd)pyrene	899	50.0	1,000	0	89.9	41	140				
Dibenz(a,h)anthracene	1,010	50.0	1,000	0	101	37.6	140				
Benzo(g,h,i)perylene	1,010	50.0	1,000	0	101	45	134				
Surr: 2-Fluorobiphenyl	344		500.0		68.8	40.6	139				
Surr: Terphenyl-d14 (surr)	356		500.0		71.1	48.8	157				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1507033-001ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 7/7/2015	RunNo: 23498							
Client ID: BATCH	Batch ID: 11240		Analysis Date: 7/10/2015	SeqNo: 445553							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	53.2						0		30	
2-Methylnaphthalene	ND	53.2						0		30	
1-Methylnaphthalene	ND	53.2						0		30	
Acenaphthylene	ND	53.2						0		30	
Acenaphthene	ND	53.2						0		30	
Fluorene	ND	53.2						0		30	
Phenanthrene	ND	53.2						0		30	
Anthracene	ND	53.2						0		30	
Fluoranthene	64.4	53.2						70.45	9.02	30	
Pyrene	103	53.2						102.0	1.16	30	
Benz(a)anthracene	72.2	53.2						73.39	1.65	30	
Chrysene	88.7	53.2						112.6	23.7	30	
Benzo(b)fluoranthene	250	53.2						256.0	2.57	30	
Benzo(k)fluoranthene	95.1	53.2						86.28	9.68	30	
Benzo(a)pyrene	134	53.2						112.6	17.1	30	
Indeno(1,2,3-cd)pyrene	192	53.2						191.1	0.689	30	
Dibenz(a,h)anthracene	79.3	53.2						81.80	3.10	30	
Benzo(g,h,i)perylene	152	53.2						154.8	1.87	30	
Surr: 2-Fluorobiphenyl	313		532.4		58.8	40.6	139		0		
Surr: Terphenyl-d14 (surr)	437		532.4		82.2	48.8	157		0		

Sample ID: 1507033-002AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 7/7/2015	RunNo: 23498							
Client ID: BATCH	Batch ID: 11240		Analysis Date: 7/10/2015	SeqNo: 445553							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	754	53.5	1,070	0	70.4	42.9	138				
2-Methylnaphthalene	880	53.5	1,070	0	82.3	42.8	151				
1-Methylnaphthalene	874	53.5	1,070	0	81.7	41.6	148				
Acenaphthylene	607	53.5	1,070	0	56.8	32.6	160				
Acenaphthene	833	53.5	1,070	0	77.8	46.3	142				
Fluorene	874	53.5	1,070	0	81.7	43.4	153				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1507033-002AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 7/7/2015	RunNo: 23498							
Client ID: BATCH	Batch ID: 11240		Analysis Date: 7/10/2015	SeqNo: 445555							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Phenanthrene	866	53.5	1,070	0	80.9	45.5	140				
Anthracene	873	53.5	1,070	0	81.6	32.6	160				
Fluoranthene	817	53.5	1,070	0	76.4	44.6	161				
Pyrene	806	53.5	1,070	0	75.3	48.3	158				
Benz(a)anthracene	817	53.5	1,070	0	76.3	57.5	169				
Chrysene	960	53.5	1,070	0	89.7	45.2	146				
Benzo(b)fluoranthene	940	53.5	1,070	0	87.9	42.2	168				
Benzo(k)fluoranthene	1,270	53.5	1,070	0	119	48	161				
Benzo(a)pyrene	1,100	53.5	1,070	0	103	34.4	179				
Indeno(1,2,3-cd)pyrene	1,080	53.5	1,070	0	101	41.1	165				
Dibenz(a,h)anthracene	1,340	53.5	1,070	0	125	38.1	166				
Benzo(g,h,i)perylene	1,150	53.5	1,070	0	107	45.6	157				
Surr: 2-Fluorobiphenyl	307		535.0		57.3	40.6	139				
Surr: Terphenyl-d14 (surr)	407		535.0		76.2	48.8	157				

Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: LCS-11026	SampType: LCS	Units: mg/Kg			Prep Date: 6/12/2015	RunNo: 22952					
Client ID: LCSS	Batch ID: 11026				Analysis Date: 6/13/2015	SeqNo: 434900					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	24.6	5.00	25.00	0	98.4	65	135				
Surr: Toluene-d8	1.26		1.250		100	65	135				
Surr: 4-Bromofluorobenzene	1.26		1.250		101	65	135				

Sample ID: MB-11026	SampType: MBLK	Units: mg/Kg			Prep Date: 6/12/2015	RunNo: 22952					
Client ID: MBLKS	Batch ID: 11026				Analysis Date: 6/13/2015	SeqNo: 434901					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	5.00									
Surr: Toluene-d8	1.26		1.250		101	65	135				
Surr: 4-Bromofluorobenzene	1.23		1.250		98.7	65	135				

Sample ID: 1506113-002BDUP	SampType: DUP	Units: mg/Kg-dry			Prep Date: 6/12/2015	RunNo: 22952					
Client ID: BATCH	Batch ID: 11026				Analysis Date: 6/13/2015	SeqNo: 434876					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	3.41						0		30	
Surr: Toluene-d8	0.876		0.8526		103	65	135		0		
Surr: 4-Bromofluorobenzene	0.811		0.8526		95.1	65	135		0		

Sample ID: 1506126-014BDUP	SampType: DUP	Units: mg/Kg-dry			Prep Date: 6/12/2015	RunNo: 22952					
Client ID: DP-14-7.5	Batch ID: 11026				Analysis Date: 6/13/2015	SeqNo: 434889					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	1,040	5.69						1,103	6.00	30	E
Surr: Toluene-d8	1.35		1.422		95.0	65	135		0		
Surr: 4-Bromofluorobenzene	1.98		1.422		139	65	135		0		S

NOTES:

S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: CCV-D-11026	SampType: CCV	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22952							
Client ID: CCV	Batch ID: 11026		Analysis Date: 6/15/2015	SeqNo: 435179							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	435	5.00	500.0	0	87.1	80	120				
Surr: Toluene-d8	24.6		25.00		98.3	65	135				
Surr: 4-Bromofluorobenzene	25.3		25.00		101	65	135				

Sample ID: LCS-11039	SampType: LCS	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22979							
Client ID: LCSS	Batch ID: 11039		Analysis Date: 6/15/2015	SeqNo: 435495							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	25.2	5.00	25.00	0	101	65	135				
Surr: Toluene-d8	1.23		1.250		98.6	65	135				
Surr: 4-Bromofluorobenzene	1.27		1.250		102	65	135				

Sample ID: MB-11039	SampType: MBLK	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22979							
Client ID: MBLKS	Batch ID: 11039		Analysis Date: 6/15/2015	SeqNo: 435496							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	5.00									
Surr: Toluene-d8	1.24		1.250		99.4	65	135				
Surr: 4-Bromofluorobenzene	1.20		1.250		96.2	65	135				

Sample ID: LCS-11034	SampType: LCS	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22977							
Client ID: LCSS	Batch ID: 11034		Analysis Date: 6/15/2015	SeqNo: 435536							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	24.0	5.00	25.00	0	96.1	65	135				
Surr: Toluene-d8	1.22		1.250		97.6	65	135				
Surr: 4-Bromofluorobenzene	1.22		1.250		97.8	65	135				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: MB-11034	SampType: MBLK	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22977							
Client ID: MBLKS	Batch ID: 11034		Analysis Date: 6/15/2015	SeqNo: 435537							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	5.00									
Surr: Toluene-d8	1.17		1.250		93.9	65	135				
Surr: 4-Bromofluorobenzene	1.22		1.250		97.5	65	135				

Sample ID: 1506113-026BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/15/2015	RunNo: 22977							
Client ID: BATCH	Batch ID: 11034		Analysis Date: 6/16/2015	SeqNo: 435530							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	3.37						0		30	
Surr: Toluene-d8	0.823		0.8430		97.7	65	135		0		
Surr: 4-Bromofluorobenzene	0.822		0.8430		97.5	65	135		0		

Sample ID: 1506157-011BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/15/2015	RunNo: 22979							
Client ID: BATCH	Batch ID: 11039		Analysis Date: 6/16/2015	SeqNo: 435489							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	3.67						0		30	
Surr: Toluene-d8	0.919		0.9179		100	65	135		0		
Surr: 4-Bromofluorobenzene	0.894		0.9179		97.4	65	135		0		



Date: 9/1/2015

Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-11026	SampType: LCS	Units: mg/Kg				Prep Date: 6/12/2015	RunNo: 22955				
Client ID: LCSS	Batch ID: 11026					Analysis Date: 6/13/2015	SeqNo: 434961				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.978	0.0200	1.000	0	97.9	64.3	133				
Toluene	1.01	0.0200	1.000	0	101	67.3	138				
Ethylbenzene	1.06	0.0300	1.000	0	106	74	129				
m,p-Xylene	2.17	0.0200	2.000	0	109	79.8	128				
o-Xylene	1.12	0.0200	1.000	0	112	72.7	124				
Surr: Dibromofluoromethane	1.42		1.250		114	63.7	129				
Surr: Toluene-d8	1.27		1.250		101	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.30		1.250		104	63.1	141				

Sample ID: MB-11026	SampType: MBLK	Units: mg/Kg				Prep Date: 6/12/2015	RunNo: 22955				
Client ID: MBLKS	Batch ID: 11026					Analysis Date: 6/13/2015	SeqNo: 434960				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: Dibromofluoromethane	1.13		1.250		90.3	63.7	129				
Surr: Toluene-d8	1.28		1.250		102	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.23		1.250		98.5	63.1	141				

Sample ID: 1506113-002BDUP	SampType: DUP	Units: mg/Kg-dry				Prep Date: 6/12/2015	RunNo: 22955				
Client ID: BATCH	Batch ID: 11026					Analysis Date: 6/13/2015	SeqNo: 434934				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0136						0		30	
Toluene	ND	0.0136						0		30	
Ethylbenzene	ND	0.0205						0		30	
m,p-Xylene	ND	0.0136						0		30	



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1506113-002BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/12/2015	RunNo: 22955							
Client ID: BATCH	Batch ID: 11026		Analysis Date: 6/13/2015	SeqNo: 434934							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0136						0		30	
Surr: Dibromofluoromethane	0.705		0.8526		82.6	63.7	129		0		
Surr: Toluene-d8	0.857		0.8526		101	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.809		0.8526		94.9	63.1	141		0		

Sample ID: 1506113-005BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 6/12/2015	RunNo: 22955							
Client ID: BATCH	Batch ID: 11026		Analysis Date: 6/13/2015	SeqNo: 434936							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.808	0.0150	0.7475	0	108	63.5	133				
Toluene	0.802	0.0150	0.7475	0.002616	107	63.4	132				
Ethylbenzene	0.856	0.0224	0.7475	0	115	54.5	134				
m,p-Xylene	1.74	0.0150	1.495	0	117	53.1	132				
o-Xylene	0.896	0.0150	0.7475	0	120	53.3	139				
Surr: Dibromofluoromethane	1.01		0.9344		108	63.7	129				
Surr: Toluene-d8	0.930		0.9344		99.5	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	0.966		0.9344		103	63.1	141				

Sample ID: CCV-D-11026	SampType: CCV	Units: µg/L	Prep Date: 6/15/2015	RunNo: 22955							
Client ID: CCV	Batch ID: 11026		Analysis Date: 6/15/2015	SeqNo: 440695							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	16.7	0.0200	20.00	0	83.4	80	120				
Toluene	17.0	0.0200	20.00	0	84.9	80	120				
Ethylbenzene	19.2	0.0300	20.00	0	96.2	80	120				
m,p-Xylene	39.4	0.0200	40.00	0	98.5	80	120				
o-Xylene	20.3	0.0200	20.00	0	101	80	120				
Surr: Dibromofluoromethane	26.5		25.00		106	63.7	129				
Surr: Toluene-d8	22.6		25.00		90.5	62.4	141				
Surr: 1-Bromo-4-fluorobenzene	25.5		25.00		102	63.1	141				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: CCV-D-11026	SampType: CCV	Units: µg/L	Prep Date: 6/15/2015	RunNo: 22955							
Client ID: CCV	Batch ID: 11026		Analysis Date: 6/15/2015	SeqNo: 440695							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-11039	SampType: LCS	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22978							
Client ID: LCSS	Batch ID: 11039		Analysis Date: 6/15/2015	SeqNo: 435426							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.924	0.0200	1.000	0	92.4	64.3	133				
Toluene	0.924	0.0200	1.000	0	92.4	67.3	138				
Ethylbenzene	1.05	0.0300	1.000	0	105	74	129				
m,p-Xylene	2.15	0.0200	2.000	0	108	79.8	128				
o-Xylene	1.10	0.0200	1.000	0	110	72.7	124				
Surr: Dibromofluoromethane	1.35		1.250		108	63.7	129				
Surr: Toluene-d8	1.15		1.250		92.4	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.29		1.250		103	63.1	141				

Sample ID: LCS-11034	SampType: LCS	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22966							
Client ID: LCSS	Batch ID: 11034		Analysis Date: 6/15/2015	SeqNo: 435251							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.880	0.0200	1.000	0	88.0	64.3	133				
Toluene	0.865	0.0200	1.000	0	86.5	67.3	138				
Ethylbenzene	0.912	0.0300	1.000	0	91.2	74	129				
m,p-Xylene	1.98	0.0200	2.000	0	98.8	79.8	128				
o-Xylene	1.02	0.0200	1.000	0	102	72.7	124				
Surr: Dibromofluoromethane	1.18		1.250		94.7	63.7	129				
Surr: Toluene-d8	1.15		1.250		92.2	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.23		1.250		98.0	63.1	141				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-11039	SampType: MBLK	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22978							
Client ID: MBLKS	Batch ID: 11039		Analysis Date: 6/15/2015	SeqNo: 435427							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									
o-Xylene	ND	0.0200									
Surr: Dibromofluoromethane	1.04		1.250		83.0	63.7	129				
Surr: Toluene-d8	1.16		1.250		93.0	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.20		1.250		96.1	63.1	141				

Sample ID: 1506161-002BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 6/15/2015	RunNo: 22966							
Client ID: BATCH	Batch ID: 11034		Analysis Date: 6/15/2015	SeqNo: 435345							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.17	0.0229	1.145	0	102	63.5	133				
Toluene	1.15	0.0229	1.145	0	100	63.4	132				
Ethylbenzene	1.24	0.0344	1.145	0	108	54.5	134				
m,p-Xylene	2.72	0.0229	2.291	0	119	53.1	132				
o-Xylene	1.34	0.0229	1.145	0	117	53.3	139				
Surr: Dibromofluoromethane	1.34		1.432		93.8	63.7	129				
Surr: Toluene-d8	1.34		1.432		93.6	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.39		1.432		97.3	63.1	141				

Sample ID: MB-11034	SampType: MBLK	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22966							
Client ID: MBLKS	Batch ID: 11034		Analysis Date: 6/15/2015	SeqNo: 435348							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0200									
Toluene	ND	0.0200									
Ethylbenzene	ND	0.0300									
m,p-Xylene	ND	0.0200									



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-11034	SampType: MBLK	Units: mg/Kg	Prep Date: 6/15/2015	RunNo: 22966							
Client ID: MBLKS	Batch ID: 11034		Analysis Date: 6/15/2015	SeqNo: 435348							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0200									
Surr: Dibromofluoromethane	1.15		1.250		92.3	63.7	129				
Surr: Toluene-d8	1.10		1.250		88.3	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.22		1.250		97.4	63.1	141				

Sample ID: 1506161-001BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/15/2015	RunNo: 22966							
Client ID: BATCH	Batch ID: 11034		Analysis Date: 6/15/2015	SeqNo: 435344							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0222						0		30	
Toluene	ND	0.0222						0		30	
Ethylbenzene	ND	0.0333						0		30	
m,p-Xylene	ND	0.0222						0		30	
o-Xylene	ND	0.0222						0		30	
Surr: Dibromofluoromethane	1.34		1.387		96.5	63.7	129		0		
Surr: Toluene-d8	1.20		1.387		86.8	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	1.30		1.387		93.6	63.1	141		0		

Sample ID: 1506157-002BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 6/15/2015	RunNo: 22978							
Client ID: BATCH	Batch ID: 11039		Analysis Date: 6/15/2015	SeqNo: 435410							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.661	0.0133	0.6634	0	99.6	63.5	133				
Toluene	0.714	0.0133	0.6634	0.05042	100	63.4	132				
Ethylbenzene	0.756	0.0199	0.6634	0.01360	112	54.5	134				
m,p-Xylene	1.60	0.0133	1.327	0.07563	115	53.1	132				
o-Xylene	0.819	0.0133	0.6634	0.03881	118	53.3	139				
Surr: Dibromofluoromethane	0.890		0.8293		107	63.7	129				
Surr: Toluene-d8	0.783		0.8293		94.4	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	0.845		0.8293		102	63.1	141				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1506157-002BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 6/15/2015	RunNo: 22978							
Client ID: BATCH	Batch ID: 11039		Analysis Date: 6/15/2015	SeqNo: 435410							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 1506157-011BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/15/2015	RunNo: 22978							
Client ID: BATCH	Batch ID: 11039		Analysis Date: 6/16/2015	SeqNo: 435420							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	ND	0.0147						0		30	
Toluene	ND	0.0147						0		30	
Ethylbenzene	ND	0.0220						0		30	
m,p-Xylene	ND	0.0147						0		30	
o-Xylene	ND	0.0147						0		30	
Surr: Dibromofluoromethane	0.777		0.9179		84.7	63.7	129		0		
Surr: Toluene-d8	0.890		0.9179		96.9	64.3	131		0		
Surr: 1-Bromo-4-fluorobenzene	0.893		0.9179		97.3	63.1	141		0		

Sample ID: LCS-11173	SampType: LCS	Units: mg/Kg	Prep Date: 6/26/2015	RunNo: 23280							
Client ID: LCSS	Batch ID: 11173		Analysis Date: 6/26/2015	SeqNo: 440970							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	0.884	0.0200	1.000	0	88.4	64.3	133				
Surr: Dibromofluoromethane	1.20		1.250		95.6	63.7	129				
Surr: Toluene-d8	1.17		1.250		93.4	64.3	131				
Surr: 1-Bromo-4-fluorobenzene	1.32		1.250		106	63.1	141				

Sample ID: MB-11173	SampType: MBLK	Units: mg/Kg	Prep Date: 6/26/2015	RunNo: 23280							
Client ID: MBLKS	Batch ID: 11173		Analysis Date: 6/26/2015	SeqNo: 440969							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	ND	0.0200									
Surr: Dibromofluoromethane	1.21		1.250		96.7	63.7	129				
Surr: Toluene-d8	1.18		1.250		94.8	64.3	131				



Work Order: 1506126
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-11173	SampType: MBLK	Units: mg/Kg	Prep Date: 6/26/2015	RunNo: 23280							
Client ID: MBLKS	Batch ID: 11173		Analysis Date: 6/26/2015	SeqNo: 440969							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 1-Bromo-4-fluorobenzene 1.29 1.250 103 63.1 141

Sample ID: 1506247-006BDUP	SampType: DUP	Units: mg/Kg-dry	Prep Date: 6/26/2015	RunNo: 23280							
Client ID: BATCH	Batch ID: 11173		Analysis Date: 6/26/2015	SeqNo: 440947							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene ND 0.0236 0 30
 Surr: Dibromofluoromethane 1.47 1.476 99.9 63.7 129 0
 Surr: Toluene-d8 1.42 1.476 96.5 64.3 131 0
 Surr: 1-Bromo-4-fluorobenzene 1.50 1.476 102 63.1 141 0

Sample ID: 1506247-007BMS	SampType: MS	Units: mg/Kg-dry	Prep Date: 6/26/2015	RunNo: 23280							
Client ID: BATCH	Batch ID: 11173		Analysis Date: 6/27/2015	SeqNo: 440949							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene 1.62 0.0315 1.574 0 103 63.5 133
 Surr: Dibromofluoromethane 1.86 1.968 94.4 63.7 129
 Surr: Toluene-d8 1.93 1.968 97.9 64.3 131
 Surr: 1-Bromo-4-fluorobenzene 1.99 1.968 101 63.1 141



Date: 9/1/2015

Work Order: 1506126
 CLIENT: GeoEngineers, Inc. - Redmond
 Project: SLU Marriott

QC SUMMARY REPORT
Sample Moisture (Percent Moisture)

Sample ID: 1508343-001ADUP	SampType: DUP	Units: wt%	Prep Date: 9/1/2015	RunNo: 24621							
Client ID: BATCH	Batch ID: R24621	Analysis Date: 9/1/2015	SeqNo: 464100								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	15.5	0.500						16.70	7.58	20	

Sample ID: 1509004-001ADUP	SampType: DUP	Units: wt%	Prep Date: 9/1/2015	RunNo: 24621							
Client ID: BATCH	Batch ID: R24621	Analysis Date: 9/1/2015	SeqNo: 464139								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.7	0.500						12.22	3.85	20	

Sample ID: 1509004-012ADUP	SampType: DUP	Units: wt%	Prep Date: 9/1/2015	RunNo: 24621							
Client ID: BATCH	Batch ID: R24621	Analysis Date: 9/1/2015	SeqNo: 464151								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	15.4	0.500						13.98	9.83	20	

Client Name: GEI1	Work Order Number: 1506126
Logged by: Clare Griggs	Date Received: 6/10/2015 8:22:00 AM

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
7. Were all items received at a temperature of >0°C to 10.0°C * Yes No NA
- Please refer to item information.**
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is there headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	10.1
Cooler 2	15.1
Sample 1	4.8
Sample 2	14.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3290
Fax: 206-352-7128

Chain of Custody Record

Laboratory Project No. (Internal):

150061210

Date: 10/19/15

Page: 1 of 9

Client: Geo Engineers
Address: Baldern
City, State, Zip: Baldern

Project Name: SUN NANNETT
Project No: 207710-003-00 collected by: Ali Cochran
Location: 7389th Ave N
Reports To (PM): Jessica Smith

Sample Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Email: asm@threecoengineers.com

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	Analytes										Comments/Depth						
				VOC (EPA 8260)	GYBTEX	BTEX	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HID)	Diesel/Heavy Oil Range Organics (DRO)	Semi Vol (EPA 8270 - 5M)	PAH (EPA 8270 - 5M)	PCBs (EPA 8082)	Metals** (6020 / 200 6)		Total (T) / Dissolved (D)	Anions (AC)**	ED8 (8013)	HID	Lead	
1 DP-10-2.5	10/4	0833	S																	
2 DP-10-5.0		0837																		
3 DP-10-7.5		0840																		
4 DP-10-10.0		0845																		
5 DP-10-12.5		0849																		
6 DP-10-15.0		0847																		
7 DP-10-17.5		0854																		
8 DP-10-20.0		0859																		
9 DP-10-22.5		0910																		
10 DP-10-25.0		0912																		

*Separate coordinate with the lab in advance



Fremont Analytical

Chain of Custody Record

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Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/9/15

Laboratory Project No (Internal):

Page: 3 of 9

Client: AEL

Address: _____

Project Name: _____
Project No: 20740-003-00
Location: _____
Reports To (PM): _____
Collected by: _____

City, State, Zip: _____

Fax: _____

Email: _____

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DOR)	SEMI VOL (EPA 8270 - SAM)	PAH (EPA 8270 - SAM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	ESB (8011)	Hold	Naphthalenes	Lead	Comments/Depth
1 DP-14-22.5	10/9	1035	S																	
2 DP-14-25.0		1037																		
3 DP-14-27.5		1042																		
4 DP-14-30.0		1044																		
5 MN-7-8.5		1410																		
6 MN-7-5.0		1412																		
7 MN-7-10.0		1421																		
8 MN-7-11.0		1428																		
9 MN-7-15.0		1430																		
10 MN-7-17.5		1435																		

**Metals Analysis (Circle): NITCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Pu Sb Se Sn Sr Tl U V Zn

***Anions (Circle): Nitrate Arsenic Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitria

Special Remarks: Turn-around times for samples received after 4:00pm will begin on the following business day.

Relinquished Date/Time: 10/15/15 0822
Received Date/Time: 10/15/15 0522

TAT -> SameDay^ NextDay^ 2 Day 3 Day(Std)



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Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/9/15

Page: 4 of 9

Chain of Custody Record

Laboratory Project No (Internal):

Client: AEI
Address: _____
City, State, Zip: _____
Tel: _____ Fax: _____

Project Name: _____
Project No: 20794-023-02 Collected by: _____
Location: _____
Reports To (PM): _____
Email: _____

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GV/BTEX	BTEX	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HCD)	Diesel/Heav Oil Range Organics (DRO)	SCM VOL (EPA 8270)	PAH (EPA 8270-SIM)	PCB (EPA 8262)	Metals** (6020/200.8)	Total (T) / Dissolved (D)	Anions (IC)**	EDB (8013)	TKM	Comments/Depth
1 MN-7-20.0	10/8	1437	S	(X)														
2 MN-7-28.5		1444																
3 MN-7-25.0		1440																
4 MN-7-27.5		1455																
5 MN-7-30.0		1457																
6 DP-15-2.5		1243			(X)													
7 DP-15-5.0		1345			(X)													
8 DP-15-12.5		1253			(X)													
9 DP-15-15.0		1257			(X)													
10 DP-15-17.5		1305																

**Metals Analysis (Circle): As Cd Cr Pb Sb Se Sr Sn Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide D-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: Return to Client Disposed by Lab (a fee may be assessed; containers are returned after cleanup)

Relinquished: [Signature] Date/Time: 10/10/15 0822 Rec'd: [Signature] Date/Time: 10/10/15 0822

Relinquished: [Signature] Date/Time: 10/10/15 0822 Rec'd: [Signature] Date/Time: 10/10/15 0822

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: _____

*Release coordinate with the lab in advance

TAT -> SameDay* NextDay* 2 Day 3 Day STD



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Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 6/9/15

Laboratory Project No (Internal):
Page: 5 of 9

Chain of Custody Record

Client: AEI
Address: _____
City, State, Zip: _____
Tel: _____ Fax: _____

Project Name: _____
Project No: 20730-003-02
Location: _____
Reports To (PM): _____
Collected by: _____
Email: _____

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GV/VTX	BTX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HID)	Diesel/Heavy Di range Organics (DR)	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200 8)	Total (T) / Dissolved (D)	Anions (IC)***	FDS (8011)	Naphthalenes	Comments/Depth
1 DP-15-27.5	6/8	1310	S	(X)						(+)								
2 DP-15-30.0		1318																
3 DP-15-35.0		1335																
4 MW-0-2.0		1117																
5 MW-0-7.5		1124		(X)														
6 MW-0-10.0		1126																
7 MW-0-15.0		1132		(X)														
8 MW-0-17.5		1138																
9 MW-0-20.0		1140		(X)														
10 MW-0-22.5		1158																

** Metals Analysis (Circle): MTCA-5 PCBs-8 Priority Pollutants TAL Individual: Ag Al As B Ba Ca Cd Co Cr Cu Fe Pb K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Tl U V Zn

*** Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Q-Phosphate Fluoride Nitrate-Nitrite Turn-around times for samples received after 4:30pm will begin on the following business day.

Sample Disposal: Return to Client Disposal by Lab (a fee may be assessed if samples are retained after 30 days.)

Reinspected Date/Time: 6/10/15 0822 Reinspected Date/Time: 6/10/15 0622

Relinquished Date/Time: 6/10/15 0822 Relinquished Date/Time: 6/10/15 0622

TAT -> SameDay/ NextDay/ 2 Day 3 Day STD

*Please coordinate with the lab in advance



Fremont

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Tel: 206-352-3790
Fax: 206-352-7178

Date:

10/21/11

Laboratory Project No (Internal):

1504126A

Page: 3 of 9

Chain of Custody Record

Client:

Address:

City, State, Zip

Tel:

Fax:

Email:

Project Name:

Project No:

Location:

Reports To (PM):

Collected by:

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	6V/8VTEX	8TEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (OX)	SEMI-VOL (EPA 8270-SIM)	PAH (EPA 8270)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) Dissolved (D)	Anions (IC)**	ESB (8011)	Comments/Depth
1. MW-7-2-5	11-24	11:30	S														
2. MW-7-2-5	11-24	11:30	S														
3. MW-7-2-5	11-24	11:30	S														
4. MW-7-2-5	11-24	11:30	S														
5. MW-7-2-5	11-24	11:30	S														
6. MW-7-2-5	11-24	11:30	S														
7. MW-7-10.0	10/18	14:21	S														Pb TCLP requested 10/19/11 10:15 AM
8. MW-7-10.0	10/18	14:21	S														
9. MW-7-10.0	10/18	14:21	S														
10. MW-7-10.0	10/18	14:21	S														

**Metals Analysis (Circle): MTCA-5 RICA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are returned after 90 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Retinquired: Date/Time Received Date/Time

Retinquired: Date/Time Received Date/Time

TAT -> SameDay/ NextDay/ 2 Day/ 3 Day/ STD

Please coordinate with the Lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

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Date:

10/11/15

Page:

6

of:

9

Laboratory Project No (internal):

1506126A

Chain of Custody Record

Client: ACE

Address: _____

City, State, Zip: _____

Tel: _____ Fax: _____

Project Name: _____

Project No: _____

Location: _____

Reports To (PM): _____

Collected by: _____

Email: _____

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	Analytes												Comments/Depth		
				VOC (EPA 8260)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Distillate Heavy Oil Range Organics (DH)	SEMI-VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total Tl Dissolved (D)	Anions (IC)** (111)		HCB (801)	
1 MW-7-200	10/8	1447	S	X														
2 MW-7-200	10/8	1449	S	X														
3 MW-7-200	10/8	1450	S	X														
4 MW-7-200	10/8	1451	S	X														
5 MW-7-200	10/8	1452	S	X														
6 DP-15-4.0	10/8	1453	S	X														
7 DP-15-5.0	10/8	1454	S	X														
8 DP-15-1.5	10/8	1455	S	X														
9 DP-15-1.5	10/8	1456	S	X														
10 DP-15-1.5	10/8	1457	S	X														

Pb TCLP requested by
ATL on 10/14/2015.

**Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag Al As B Ba Be Ca Cd Co Cr Cu Fe (H, K, Ni, Mn, Mo, Ni, Pb, Sb, Se, Sr, Sn, Tl, U, V, Zn)

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate/Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Received: 10/11/15 Date/Time: 15:47:22

Received: [Signature] Date/Time: 10/11/15

Received: [Signature] Date/Time: 10/11/15

Received: [Signature] Date/Time: 10/11/15

Special Remarks: _____

TAT -> SameDay^ NextDay^ 2 Day 3 Day STD

*Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

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Seattle, WA 98108

Tel: 206-352-3790
Fax: 206-352-7128

Date: 10/9/15

Project Name: SUW NAMSTT

Chain of Custody Record

Laboratory Project No. (reference): 1501012103

Client: GeoEngineers

Address: Redmond

Project No: 2015-003-00

Collected by: Ali Cummings

City, State, Zip

Location: 736 Ave N

Reports to (PM): Jessica Smith

Tel:

Email: asmith@geoengineers.com

Matrix Codes: A = Air, AQ = Aquatics, B = Bulk, C = Other, F = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Matrix	LOC (EPA 504)	OVERLAY	STP	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HIDI)	Distillate Oil Range Organics (DORO)	SMB VOL (EPA 821)	PMP (EPA 820 - SAM)	PCB (EPA 803)	Metals ** (4010 / 200 B)	Total (T) / Dissolved (D)	Ammonia (NH3) ***	TOC (M)	Lead	Comments/Draws
DP-10-2.5	10/9	0833	S															
DP-10-5.0		0837																
DP-10-7.5		0840																
DP-10-10.0		0845																
DP-10-12.5		0849																
DP-10-15.0		0847																
DP-10-17.5		0854																
DP-10-20.0		0859																
DP-10-22.5		0910																
DP-10-25.0		0912																

AIC requested 10/24/15 on STD

***Matrix Analysis (Conc'd): METALS REGR-B Priority/Pesticides TAL Individual: Ag Al Ar B Ba Be Ca Cd Co Cr Cu Fe Mn Ni Pb Sn Se Si Sg Sr Ti U V Zn

Sample Change: Return to Client Disposed by Lab (a fee may be assessed for waste materials after 90 days)

Date/Time: 10/9/15 18:22

Date/Time: 6/19/15

Date/Time: 0822

TAT -> SameDay NextDay 2 Day 3 Day (SIB)

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Fremont

3800 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Lab/analytical project No (internal)

1506126B

Chain of Custody Record

Date: 10/9/15

Page: 3

at 9

Client: AEI
Address:
City, State, Zip

Project Name:
Project No:
Location:

Reports To (PM):

Collected by:

Trk:

Fazl:

Email:

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, CW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Matrix*	Priority	Substrate	TAI	Individual	Ag	Al	As	B	Br	Ca	CE	Co	Cr	Cl	Cu	Fa	Hg	K	Mg	Mn	Mo	Ni	Nb	Pb	Se	Sr	Ti	Tl	U	V	Zn
1 DP-14-22.5	10/8	1035	S																															
2 DP-14-25.0		1037																																
3 DP-14-27.5		1042																																
4 DP-14-30.0		1044																																
5 MN-7-8.5		1410																																
6 MN-7-5.0		1412																																
7 MN-7-10.0		1421																																
8 MN-7-11.0		1428																																
9 MN-7-15.0		1430																																
10 MN-7-17.5		1435																																

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

Retained

Day/Time

10/10/15 08:22

Signature

6/11/15 06:22

Date/Time

TAI -> SameDay

NextDay - 2 Day 3 Day (STD)

*Phone consult with the lab is advised.

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Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-552-5700
Fax: 206-552-7178

Date: 10/15

Lab Project No: 15061208
Page 4 of 9

Chain of Custody Record

Client: GEI
Address: _____
City, State, Zip: _____
Project Name: _____
Project No: 20794-023-02 Collected by: _____
Location: _____
Reports To (PM): _____

Matrix Codes: A = Air, AQ = Aquatic, B = Bulk, C = Other, F = Fluid, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Matrix*	Sample Type														Comments/Depth		
				VOC (EPA 8160)	SVI/TEX	TEX	Gasoline Range Organic (GRO)	Hydrocarbon (nonhalogenated) (HCNAP)	Semi-VOC (EPA 8170)	PAH (EPA 8170)	PCB (EPA 8170)	Metals** (602/200.9)	Total (T) / Cuprated (C)	Aspen (AS)**	ES&S (EPA 821)	ES&S (EPA 821)	ES&S (EPA 821)			
1 MW-7-20.0	10/8	1437	S	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>										ALL requested 10/24 via STD	
2 MW-7-28.5		1444																		
3 MW-7-25.0		1440																		
4 MW-7-27.5		1455																		
5 MW-7-30.0		1457																		
6 DP-15-2.5		1243																		
7 DP-15-5.0		1245																		
8 DP-15-12.5		1253		<input checked="" type="checkbox"/>																
9 DP-15-15.0		1257		<input checked="" type="checkbox"/>																
10 DP-15-17.5		1305		<input checked="" type="checkbox"/>																

Distribution: White - Lab Yellow - File, Pink - Designer

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Fremont

3600 Fremont Ave N. Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No: 15061268

Chain of Custody Record

Client: AEI
Address: _____
City/State/Zip: _____

Project Name: _____
Project No: 20334-003-02 collected by: _____
Location: _____
Reports To (PM): _____
Email: _____

Matrix Codes: A = Air, KQ = Aquatics, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, X = Soil, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Volume	VOC (EPA 420)	SVOC (EPA 420)	Chlorine Range Organics (CRO)	Hydrocarbon Identification (HIDH)	Chlorinated Hydrocarbon Organics (CHCO)	Semivolatile (EPA 8210)	PAH (EPA 8210)	PCB (EPA 8210)	Asbestos (EPA 8210)	Lead (EPA 8210)	Mercury (EPA 8210)	Other (EPA 8210)	Comments/Depth
1 DP-15-27.5	6/8	1340	5	(X)												
2 DP-15-30.0		1318														
3 DP-15-35.0		1335														
4 MW-U-2.0		1117														
5 MW-U-7.5		1124		(X)												
6 MW-U-10.0		1126														
7 MW-U-15.0		1132		(X)												
8 MW-U-17.5		1138		(X)												
9 MW-U-20.0		1140		(X)												
10 MW-U-22.5		1158		(X)												

Method Analysis (Order): NTC-5 HCL-8 Heavy Metals (Pb, Cu, Ni, Cr, Cd, Co, Mn, Mg, Na, K, Fe, Zn, Se, Sr, Sb, Ti, U, V, Zr)

Sample Details: Return to Client Special by Lab (Lab is to be completed on request otherwise item is not)

Signature: [Signature] Date/Time: 6/10/15 0822 [Signature] Date/Time: 6/10/15 0522

Notes: 1st - Same Day Monday 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 6/19

Page: 8

of: 9

Laboratory Project No: 15061208

Chain of Custody Record

Client: GEI Project Name: 20740-105-00 Collected by: _____
 Address: _____ Location: _____
 City, State, Zip: _____ Reports To (PM): _____
 Tel: _____ Fax: _____ Email: _____

*Matrix Codes: A = Air, AQ = Aquifer, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SI = Solid, W = Water, DW = Drinking Water, GW = Ground Water, MW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Volume	Sample Type	VOC (EPA 8260)	SVOC (EPA 8260)	BTEX	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HID)	Overhead, Oil Range Organics (ORO)	SEM VOL (EPA 8270)	PAH (EPA 8270)	PCB (EPA 8280)	Mercury (EPA 8290)	Total (T) (EPA 8290)	Ammonia (NH ₃)	TPH (801)	Comments/Depth	
1 DP-13-30.0	6/19	1001	S	S															
2 MW-5-4.0		0945																	
3 MW-7-5-5-7.5		0948																	
4 MW-5-10.0		0950																	
5 MW-5-15.0		0955																	
6 MW-5-17.5		0957																	
7 MW-5-30.0		0802																	
8 MW-5-22.5		0807																	
9 MW-5-25.0		0809																	
10 MW-5-27.5		0815																	

**Wherein Analysis (Circle): VOC/S SVOC/S PCB/S Priority Pollutants TH, Individual, H₂ N₂ O₂ B₂ Br₂ Cl₂ Cd₂ Cr₂ Cu₂ Fe₂ Hg₂ K₂ Mg₂ Mn₂ Ni₂ Pb₂ Se₂ Sr₂ Sn₂ Ti₂ U₂ V₂ Zn₂

**Analyze (Circle): Nitrate Nitrite Chloride Sulfate Boric Acid Phosphate Fluoride Manganese/Dioxide

Sample Disposal: Return to Client Disposed by Lab (As per standard cleanup or removal site design)

Prepared by: [Signature] Date/Time: 6/15/08 0822

Accepted by: [Signature] Date/Time: 6/19/08 0622

Turn-around time for samples received after 4:30pm will begin on the following business day.

Special Remarks:

TAT -> SameDay* NextDay* 2 Day 3 Day STD

*REGULAR DELIVERY WITHIN 24 HOURS IN ADVANCE



3600 Fremont Ave. N.

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F: (206) 352-7178

info@fremontanalytical.com

GeoEngineers, Inc. - Redmond

Jessica Smith
8410 154th Ave. NE
Redmond, WA 98052

RE: SLU Marriott

Lab ID: 1506168

June 22, 2015

Attention Jessica Smith:

Fremont Analytical, Inc. received 7 sample(s) on 6/15/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Gasoline by NWTPH-Gx

Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Ridgeway", written in a cursive style.

Mike Ridgeway
President



CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1506168

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1506168-001	MW-4	06/15/2015 7:50 AM	06/15/2015 2:48 PM
1506168-002	MW-5	06/15/2015 8:33 AM	06/15/2015 2:48 PM
1506168-003	MW-6	06/15/2015 9:02 AM	06/15/2015 2:48 PM
1506168-004	MW-7	06/15/2015 9:50 AM	06/15/2015 2:48 PM
1506168-005	MW-101	06/15/2015 11:56 AM	06/15/2015 2:48 PM
1506168-006	MW-105	06/15/2015 1:50 PM	06/15/2015 2:48 PM
1506168-007	Trip Blank	06/11/2015 12:45 PM	06/15/2015 2:48 PM



Case Narrative

WO#: 1506168

Date: 6/22/2015

CLIENT: GeoEngineers, Inc. - Redmond

Project: SLU Marriott

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below LOQ
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit

Acronyms:

- %Rec - Percent Recovery
 - CCB - Continued Calibration Blank
 - CCV - Continued Calibration Verification
 - DF - Dilution Factor
 - HEM - Hexane Extractable Material
 - ICV - Initial Calibration Verification
 - LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
 - MB or MBLANK - Method Blank
 - MDL - Method Detection Limit
 - MS/MSD - Matrix Spike / Matrix Spike Duplicate
 - PDS - Post Digestion Spike
 - Ref Val - Reference Value
 - RL - Reporting Limit
 - RPD - Relative Percent Difference
 - SD - Serial Dilution
 - SGT - Silica Gel Treatment
 - SPK - Spike
 - Surr - Surrogate
-



Analytical Report

WO#: 1506168

Date Reported: 6/22/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/15/2015 7:50:00 AM

Project: SLU Marriott

Lab ID: 1506168-001

Matrix: Groundwater

Client Sample ID: MW-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11037	Analyst: EC
Diesel (Fuel Oil)	ND	50.1		µg/L	1	6/16/2015 11:13:00 PM
Heavy Oil	ND	100		µg/L	1	6/16/2015 11:13:00 PM
Surr: 2-Fluorobiphenyl	50.1	50-150		%REC	1	6/16/2015 11:13:00 PM
Surr: o-Terphenyl	61.6	50-150		%REC	1	6/16/2015 11:13:00 PM
<u>Gasoline by NWTPH-Gx</u>					Batch ID: R23098	Analyst: BC
Gasoline	ND	50.0		µg/L	1	6/19/2015 11:38:00 PM
Surr: 4-Bromofluorobenzene	100	65-135		%REC	1	6/19/2015 11:38:00 PM
Surr: Toluene-d8	109	65-135		%REC	1	6/19/2015 11:38:00 PM
<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: R23095	Analyst: BC
Benzene	ND	1.00		µg/L	1	6/19/2015 11:38:00 PM
Toluene	ND	1.00		µg/L	1	6/19/2015 11:38:00 PM
Ethylbenzene	ND	1.00		µg/L	1	6/19/2015 11:38:00 PM
m,p-Xylene	ND	1.00		µg/L	1	6/19/2015 11:38:00 PM
o-Xylene	ND	1.00		µg/L	1	6/19/2015 11:38:00 PM
Surr: Dibromofluoromethane	109	77.4-147		%REC	1	6/19/2015 11:38:00 PM
Surr: Toluene-d8	112	40.1-139		%REC	1	6/19/2015 11:38:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	64.2-128		%REC	1	6/19/2015 11:38:00 PM



Analytical Report

WO#: 1506168
Date Reported: 6/22/2015

Client: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab ID: 1506168-002
Client Sample ID: MW-5

Collection Date: 6/15/2015 8:33:00 AM
Matrix: Groundwater

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11037 Analyst: EC

Diesel (Fuel Oil)	ND	49.9		µg/L	1	6/16/2015 11:45:00 PM
Diesel Range Organics (C12-C24)	897	49.9		µg/L	1	6/16/2015 11:45:00 PM
Heavy Oil	1,180	99.8		µg/L	1	6/16/2015 11:45:00 PM
Surr: 2-Fluorobiphenyl	79.6	50-150		%REC	1	6/16/2015 11:45:00 PM
Surr: o-Terphenyl	80.8	50-150		%REC	1	6/16/2015 11:45:00 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Gasoline by NWTPH-Gx

Batch ID: R23098 Analyst: BC

Gasoline	99.3	50.0		µg/L	1	6/20/2015 12:07:00 AM
Surr: 4-Bromofluorobenzene	101	65-135		%REC	1	6/20/2015 12:07:00 AM
Surr: Toluene-d8	107	65-135		%REC	1	6/20/2015 12:07:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R23095 Analyst: BC

Benzene	ND	1.00		µg/L	1	6/20/2015 12:07:00 AM
Toluene	ND	1.00		µg/L	1	6/20/2015 12:07:00 AM
Ethylbenzene	ND	1.00		µg/L	1	6/20/2015 12:07:00 AM
m,p-Xylene	ND	1.00		µg/L	1	6/20/2015 12:07:00 AM
o-Xylene	ND	1.00		µg/L	1	6/20/2015 12:07:00 AM
Surr: Dibromofluoromethane	112	77.4-147		%REC	1	6/20/2015 12:07:00 AM
Surr: Toluene-d8	112	40.1-139		%REC	1	6/20/2015 12:07:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.8	64.2-128		%REC	1	6/20/2015 12:07:00 AM



Analytical Report

WO#: 1506168

Date Reported: 6/22/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/15/2015 9:02:00 AM

Project: SLU Marriott

Lab ID: 1506168-003

Matrix: Groundwater

Client Sample ID: MW-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11037

Analyst: EC

Diesel (Fuel Oil)	ND	49.9		µg/L	1	6/17/2015 12:16:00 AM
Diesel Range Organics (C12-C24)	1,580	49.9		µg/L	1	6/17/2015 12:16:00 AM
Heavy Oil	408	99.9		µg/L	1	6/17/2015 12:16:00 AM
Surr: 2-Fluorobiphenyl	90.4	50-150		%REC	1	6/17/2015 12:16:00 AM
Surr: o-Terphenyl	89.6	50-150		%REC	1	6/17/2015 12:16:00 AM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Gasoline by NWTPH-Gx

Batch ID: R23098

Analyst: BC

Gasoline	10,700	1,000	D	µg/L	20	6/22/2015 12:17:00 PM
Surr: 4-Bromofluorobenzene	114	65-135		%REC	1	6/20/2015 12:35:00 AM
Surr: Toluene-d8	110	65-135		%REC	1	6/20/2015 12:35:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R23095

Analyst: BC

Benzene	187	20.0	D	µg/L	20	6/22/2015 12:53:00 PM
Toluene	9.39	1.00		µg/L	1	6/20/2015 12:35:00 AM
Ethylbenzene	1,010	20.0	D	µg/L	20	6/22/2015 12:53:00 PM
m,p-Xylene	91.8	1.00		µg/L	1	6/20/2015 12:35:00 AM
o-Xylene	5.24	1.00		µg/L	1	6/20/2015 12:35:00 AM
Surr: Dibromofluoromethane	109	77.4-147		%REC	1	6/20/2015 12:35:00 AM
Surr: Toluene-d8	119	40.1-139		%REC	1	6/20/2015 12:35:00 AM
Surr: 1-Bromo-4-fluorobenzene	111	64.2-128		%REC	1	6/20/2015 12:35:00 AM



Analytical Report

WO#: 1506168

Date Reported: 6/22/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/15/2015 9:50:00 AM

Project: SLU Marriott

Lab ID: 1506168-004

Matrix: Groundwater

Client Sample ID: MW-7

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<u>Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.</u>					Batch ID: 11037	Analyst: EC
Diesel (Fuel Oil)	ND	50.1		µg/L	1	6/17/2015 12:48:00 AM
Diesel Range Organics (C12-C24)	1,100	50.1		µg/L	1	6/17/2015 12:48:00 AM
Heavy Oil	653	100		µg/L	1	6/17/2015 12:48:00 AM
Surr: 2-Fluorobiphenyl	85.1	50-150		%REC	1	6/17/2015 12:48:00 AM
Surr: o-Terphenyl	90.7	50-150		%REC	1	6/17/2015 12:48:00 AM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

<u>Gasoline by NWTPH-Gx</u>					Batch ID: R23098	Analyst: BC
Gasoline	1,520	50.0		µg/L	1	6/20/2015 1:04:00 AM
Surr: 4-Bromofluorobenzene	108	65-135		%REC	1	6/20/2015 1:04:00 AM
Surr: Toluene-d8	110	65-135		%REC	1	6/20/2015 1:04:00 AM

<u>Volatile Organic Compounds by EPA Method 8260</u>					Batch ID: R23095	Analyst: BC
Benzene	16.7	1.00		µg/L	1	6/20/2015 1:04:00 AM
Toluene	1.23	1.00		µg/L	1	6/20/2015 1:04:00 AM
Ethylbenzene	4.76	1.00		µg/L	1	6/20/2015 1:04:00 AM
m,p-Xylene	2.98	1.00		µg/L	1	6/20/2015 1:04:00 AM
o-Xylene	ND	1.00		µg/L	1	6/20/2015 1:04:00 AM
Surr: Dibromofluoromethane	113	77.4-147		%REC	1	6/20/2015 1:04:00 AM
Surr: Toluene-d8	113	40.1-139		%REC	1	6/20/2015 1:04:00 AM
Surr: 1-Bromo-4-fluorobenzene	106	64.2-128		%REC	1	6/20/2015 1:04:00 AM



Analytical Report

WO#: 1506168

Date Reported: 6/22/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/15/2015 11:56:00 AM

Project: SLU Marriott

Lab ID: 1506168-005

Matrix: Groundwater

Client Sample ID: MW-101

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11037

Analyst: EC

Diesel (Fuel Oil)	ND	49.8		µg/L	1	6/17/2015 1:20:00 AM
Heavy Oil	ND	99.6		µg/L	1	6/17/2015 1:20:00 AM
Surr: 2-Fluorobiphenyl	76.8	50-150		%REC	1	6/17/2015 1:20:00 AM
Surr: o-Terphenyl	84.0	50-150		%REC	1	6/17/2015 1:20:00 AM



Analytical Report

WO#: 1506168

Date Reported: 6/22/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/15/2015 1:50:00 PM

Project: SLU Marriott

Lab ID: 1506168-006

Matrix: Groundwater

Client Sample ID: MW-105

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11037

Analyst: EC

Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/17/2015 1:51:00 AM
Diesel Range Organics (C12-C24)	708	50.0		µg/L	1	6/17/2015 1:51:00 AM
Heavy Oil	255	100		µg/L	1	6/17/2015 1:51:00 AM
Surr: 2-Fluorobiphenyl	83.7	50-150		%REC	1	6/17/2015 1:51:00 AM
Surr: o-Terphenyl	76.1	50-150		%REC	1	6/17/2015 1:51:00 AM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Gasoline by NWTPH-Gx

Batch ID: R23098

Analyst: BC

Gasoline	7,290	500	D	µg/L	10	6/22/2015 12:45:00 PM
Surr: 4-Bromofluorobenzene	106	65-135		%REC	1	6/20/2015 1:33:00 AM
Surr: Toluene-d8	109	65-135		%REC	1	6/20/2015 1:33:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R23095

Analyst: BC

Benzene	600	20.0	D	µg/L	20	6/22/2015 1:24:00 PM
Toluene	23.6	1.00		µg/L	1	6/20/2015 1:33:00 AM
Ethylbenzene	337	20.0	D	µg/L	20	6/22/2015 1:24:00 PM
m,p-Xylene	216	20.0	D	µg/L	20	6/22/2015 1:24:00 PM
o-Xylene	3.77	1.00		µg/L	1	6/20/2015 1:33:00 AM
Surr: Dibromofluoromethane	101	77.4-147		%REC	1	6/20/2015 1:33:00 AM
Surr: Toluene-d8	108	40.1-139		%REC	1	6/20/2015 1:33:00 AM
Surr: 1-Bromo-4-fluorobenzene	105	64.2-128		%REC	1	6/20/2015 1:33:00 AM



Date: 6/22/2015

Work Order: 1506168
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 1506169-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 6/15/2015	RunNo: 23002					
Client ID: BATCH	Batch ID: 11037				Analysis Date: 6/17/2015	SeqNo: 435850					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	49.9						0		30	
Heavy Oil	ND	99.9						0		30	
Surr: 2-Fluorobiphenyl	59.1		79.88		74.0	50	150		0		
Surr: o-Terphenyl	64.9		79.88		81.2	50	150		0		

Sample ID: LCS-11037	SampType: LCS	Units: µg/L			Prep Date: 6/15/2015	RunNo: 23002					
Client ID: LCSW	Batch ID: 11037				Analysis Date: 6/16/2015	SeqNo: 435857					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	710	50.0	1,000	0	71.0	65	135				
Surr: 2-Fluorobiphenyl	50.2		80.00		62.8	50	150				
Surr: o-Terphenyl	61.4		80.00		76.8	50	150				

Sample ID: MB-11037	SampType: MBLK	Units: µg/L			Prep Date: 6/15/2015	RunNo: 23002					
Client ID: MBLKW	Batch ID: 11037				Analysis Date: 6/16/2015	SeqNo: 435858					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	41.5		80.00		51.9	50	150				
Surr: o-Terphenyl	46.1		80.00		57.6	50	150				



Date: 6/22/2015

Work Order: 1506168
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1506168-006ADUP	SampType: DUP	Units: µg/L	Prep Date: 6/20/2015	RunNo: 23098							
Client ID: MW-105	Batch ID: R23098		Analysis Date: 6/20/2015	SeqNo: 437586							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	9,300	50.0						9,586	2.98	30	E
Surr: Toluene-d8	26.8		25.00		107	65	135		0	0	
Surr: 4-Bromofluorobenzene	26.7		25.00		107	65	135		0	0	

Sample ID: LCS-R23098	SampType: LCS	Units: µg/L	Prep Date: 6/19/2015	RunNo: 23098							
Client ID: LCSW	Batch ID: R23098		Analysis Date: 6/19/2015	SeqNo: 437598							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	568	50.0	500.0	0	114	65	135				
Surr: Toluene-d8	26.9		25.00		108	65	135				
Surr: 4-Bromofluorobenzene	25.9		25.00		104	65	135				

Sample ID: MB-R23098	SampType: MBLK	Units: µg/L	Prep Date: 6/19/2015	RunNo: 23098							
Client ID: MBLKW	Batch ID: R23098		Analysis Date: 6/19/2015	SeqNo: 437599							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	27.3		25.00		109	65	135				
Surr: 4-Bromofluorobenzene	25.3		25.00		101	65	135				

Sample ID: CCV-D-R23098	SampType: CCV	Units: µg/L	Prep Date: 6/22/2015	RunNo: 23098							
Client ID: CCV	Batch ID: R23098		Analysis Date: 6/22/2015	SeqNo: 437907							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	492	50.0	500.0	0	98.3	80	120				
Surr: Toluene-d8	26.4		25.00		105	65	135				
Surr: 4-Bromofluorobenzene	23.8		25.00		95.3	65	135				



Date: 6/22/2015

Work Order: 1506168
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1506168-006ADUP	SampType: DUP	Units: µg/L				Prep Date: 6/20/2015	RunNo: 23095				
Client ID: MW-105	Batch ID: R23095					Analysis Date: 6/20/2015	SeqNo: 437496				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	362	1.00						350.6	3.06	30	E
Toluene	25.8	1.00						23.55	8.92	30	
Ethylbenzene	184	1.00						184.4	0.0610	30	E
m,p-Xylene	115	1.00						117.2	1.58	30	E
o-Xylene	3.79	1.00						3.765	0.593	30	
Surr: Dibromofluoromethane	26.8		25.00		107	77.4	147		0		
Surr: Toluene-d8	29.3		25.00		117	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	26.3		25.00		105	64.2	128		0		

Sample ID: 1506169-001BMS	SampType: MS	Units: µg/L				Prep Date: 6/20/2015	RunNo: 23095				
Client ID: BATCH	Batch ID: R23095					Analysis Date: 6/20/2015	SeqNo: 437498				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	22.6	1.00	20.00	0	113	65.4	138				
Toluene	23.2	1.00	20.00	0	116	64	139				
Ethylbenzene	23.8	1.00	20.00	0	119	64.5	136				
m,p-Xylene	46.9	1.00	40.00	0	117	63.3	135				
o-Xylene	23.1	1.00	20.00	0	115	65.4	134				
Surr: Dibromofluoromethane	27.9		25.00		111	77.4	147				
Surr: Toluene-d8	26.9		25.00		108	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.9		25.00		104	64.2	128				

Sample ID: LCS-R23095	SampType: LCS	Units: µg/L				Prep Date: 6/19/2015	RunNo: 23095				
Client ID: LCSW	Batch ID: R23095					Analysis Date: 6/19/2015	SeqNo: 437517				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.0	1.00	20.00	0	105	69.3	132				
Toluene	20.1	1.00	20.00	0	101	61.3	145				
Ethylbenzene	20.4	1.00	20.00	0	102	72	130				
m,p-Xylene	39.7	1.00	40.00	0	99.2	70.3	134				



Date: 6/22/2015

Work Order: 1506168
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: LCS-R23095	SampType: LCS	Units: µg/L				Prep Date: 6/19/2015	RunNo: 23095				
Client ID: LCSW	Batch ID: R23095					Analysis Date: 6/19/2015	SeqNo: 437517				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	20.0	1.00	20.00	0	99.8	72.1	131				
Surr: Dibromofluoromethane	27.9		25.00		111	77.4	147				
Surr: Toluene-d8	26.5		25.00		106	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.5		25.00		102	64.2	128				

Sample ID: MB-R23095	SampType: MBLK	Units: µg/L				Prep Date: 6/19/2015	RunNo: 23095				
Client ID: MBLKW	Batch ID: R23095					Analysis Date: 6/19/2015	SeqNo: 437518				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	26.1		25.00		105	77.4	147				
Surr: Toluene-d8	26.9		25.00		108	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.2		25.00		101	64.2	128				

Sample ID: CCV-D-R23095	SampType: CCV	Units: µg/L				Prep Date: 6/22/2015	RunNo: 23095				
Client ID: CCV	Batch ID: R23095					Analysis Date: 6/22/2015	SeqNo: 437819				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.8	1.00	20.00	0	104	80	120				
Toluene	21.1	1.00	20.00	0	106	80	120				
Ethylbenzene	21.3	1.00	20.00	0	106	80	120				
m,p-Xylene	43.2	1.00	40.00	0	108	80	120				
o-Xylene	22.2	1.00	20.00	0	111	80	120				
Surr: Dibromofluoromethane	25.8		25.00		103	72.1	122				
Surr: Toluene-d8	27.1		25.00		108	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	25.4		25.00		102	63.3	132				



Work Order: 1506168
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: CCV-D-R23095	SampType: CCV	Units: µg/L	Prep Date: 6/22/2015	RunNo: 23095							
Client ID: CCV	Batch ID: R23095		Analysis Date: 6/22/2015	SeqNo: 437819							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual



Sample Log-In Check List

Client Name: GEI1	Work Order Number: 1506168
Logged by: Clare Griggs	Date Received: 6/15/2015 2:48:00 PM

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
- Unknown prior to receipt.**
7. Were all items received at a temperature of >0°C to 10.0°C* Yes No NA
- Please refer to item information.**
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is there headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	21.1
Sample	17.5
Temp Blank	17.0

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



Fremont

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/15/15

Page: 1 of 1

Laboratory Project No (Internal):

Chain of Custody Record
1500108

Client: GEI
Address: Redmond
City, State, Zip: _____
Tel: _____
Fax: _____

Project Name: SUN Marriott
Project No: 31770-003-00
Location: 339 gm Ave N, Seattle
Reports To (PM): Jessica Smith
Email: jsmith@geerangers.com

*Matrix Codes: A = Air, AQ = Aqueduct, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Wash Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8160)	SVX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HK-ID)	Disse/Heavy Oil Large Organics (DL)	SEMI-VOL (EPA 8270)	PAH (EPA 8270)	PCBs (EPA 8062)	Metals ** (6020 / 200.8)	Total (T) Dissolved (D)	Anions (C) ***	(T) Bar BCL	EPA BCL	Comments/Depth
1 MW-4	10/15	0730	GW	X			X	X	X	X	X	X	X					
2 MW-5		0833		X			X	X	X	X	X	X	X					
3 MW-10		0902		X			X	X	X	X	X	X	X					
4 MW-7		0950		X			X	X	X	X	X	X	X					
5 MW-101		1150		X			X	X	X	X	X	X	X					
6 MW-105		1350		X			X	X	X	X	X	X	X					
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): MTCA-5 RCM-6 Priority Pollutants TAL Individual: Ag Al As B Ba Ca Cd Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide D-Phosphate Fluoride Nitrate+Nitrite
Turn-around times for samples received after 4:00pm will begin on the following business day.

Sample Disposal: Return to Client Disposed by Lab (A fee may be assessed if samples are returned after 30 days.)
Reinquired: _____ Date/Time: _____ Received: _____ Date/Time: _____
Relinquished: _____ Date/Time: _____ Received: _____ Date/Time: _____

TAT -> SameDay NextDay 2 Day 3 Day STD
*Please coordinate with the lab in advance



Fremont

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 6/15/15

Page: 1 of 1

Laboratory Project No (Internal):

Chain of Custody Record

1500108

Client: GEI
Address: Redmond
City, State, Zip:
Tel:
Fax:
Email:
Reports To (PM):

Project Name: SLV Mammot
Project No: 20710-103-02
Location: 329 pm Ave N, Seattle
Reports To (PM): Jessica Smith
Email: jsmith@geosurvey.com

Collected by: Ari Arhane

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, CW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	Analytes											Comments/Depth			
				VOC (EPA 8260)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DH)	SCM VOCs (EPA 8270 - SIM)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) / Dissolved (D)		Anions (IC)** (110)	ECG (R01)	
1 MW-4	6/15	0750	GW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2 MW-5		0833		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3 MW-6		0902		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4 MW-7		0950		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5 MW-101		1150		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6 MW-105		1350		X	X	X	X	X	X	X	X	X	X	X	X	X	X	Hold per A. Cochran 6/15/15 JAS
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): MTCA-5 RCB-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Cr Cu Fe Hg K (Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Iodide Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (a fee may be assessed if samples are returned after 90 days)

Reinformed: Date/Time 6/15/15 1448 Received: Date/Time 6/15/15 1448

Relinquished: Date/Time 6/15/15 1448 Received: Date/Time 6/15/15 1448

TAT -> Sameday^ NextDay^ 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com



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Seattle, WA 98103

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info@fremontanalytical.com

GeoEngineers, Inc. - Redmond

Jessica Smith
8410 154th Ave. NE
Redmond, WA 98052

RE: SLU Marriott

Lab ID: 1506203

June 25, 2015

Attention Jessica Smith:

Fremont Analytical, Inc. received 2 sample(s) on 6/18/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Gasoline by NWTPH-Gx

Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Ridgeway".

Mike Ridgeway
President



CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1506203

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1506203-001	MW-101	06/18/2015 10:55 AM	06/18/2015 1:30 PM
1506203-002	Trip Blank	06/17/2015 10:15 AM	06/18/2015 1:30 PM

CLIENT: GeoEngineers, Inc. - Redmond**Project:** SLU Marriott

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below LOQ
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Analytical Report

WO#: 1506203

Date Reported: 6/25/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/18/2015 10:55:00 AM

Project: SLU Marriott

Lab ID: 1506203-001

Matrix: Groundwater

Client Sample ID: MW-101

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11080

Analyst: EC

Diesel (Fuel Oil)	ND	50.0		µg/L	1	6/19/2015 5:28:00 PM
Diesel Range Organics (C12-C24)	157	50.0		µg/L	1	6/19/2015 5:28:00 PM
Heavy Oil	ND	99.9		µg/L	1	6/19/2015 5:28:00 PM
Surr: 2-Fluorobiphenyl	85.1	50-150		%REC	1	6/19/2015 5:28:00 PM
Surr: o-Terphenyl	62.3	50-150		%REC	1	6/19/2015 5:28:00 PM

NOTES:

DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (C12-C24).

Gasoline by NWTPH-Gx

Batch ID: R23135

Analyst: BC

Gasoline	3,900	500	D	µg/L	10	6/24/2015 5:15:00 PM
Surr: 4-Bromofluorobenzene	104	65-135		%REC	1	6/23/2015 11:18:00 PM
Surr: Toluene-d8	97.8	65-135		%REC	1	6/23/2015 11:18:00 PM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R23136

Analyst: BC

Benzene	30.7	1.00		µg/L	1	6/23/2015 11:18:00 PM
Toluene	2.13	1.00		µg/L	1	6/23/2015 11:18:00 PM
Ethylbenzene	27.6	1.00		µg/L	1	6/23/2015 11:18:00 PM
m,p-Xylene	5.14	1.00		µg/L	1	6/23/2015 11:18:00 PM
o-Xylene	1.14	1.00		µg/L	1	6/23/2015 11:18:00 PM
Surr: Dibromofluoromethane	93.9	77.4-147		%REC	1	6/23/2015 11:18:00 PM
Surr: Toluene-d8	95.4	40.1-139		%REC	1	6/23/2015 11:18:00 PM
Surr: 1-Bromo-4-fluorobenzene	102	64.2-128		%REC	1	6/23/2015 11:18:00 PM



Work Order: 1506203
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID: 1506194-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 6/18/2015	RunNo: 23092					
Client ID: BATCH	Batch ID: 11080				Analysis Date: 6/19/2015	SeqNo: 437448					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	2,490	50.0						2,250	10.3	30	
Heavy Oil	ND	100						0		30	
Surr: 2-Fluorobiphenyl	75.6		79.97		94.5	50	150		0		
Surr: o-Terphenyl	42.6		79.97		53.3	50	150		0		

Sample ID: LCS-11080	SampType: LCS	Units: µg/L			Prep Date: 6/18/2015	RunNo: 23092					
Client ID: LCSW	Batch ID: 11080				Analysis Date: 6/19/2015	SeqNo: 437456					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	835	50.0	999.8	0	83.5	65	135				
Surr: 2-Fluorobiphenyl	68.1		79.98		85.1	50	150				
Surr: o-Terphenyl	60.7		79.98		75.9	50	150				

Sample ID: MB-11080	SampType: MBLK	Units: µg/L			Prep Date: 6/18/2015	RunNo: 23092					
Client ID: MBLKW	Batch ID: 11080				Analysis Date: 6/19/2015	SeqNo: 437457					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	99.9									
Surr: 2-Fluorobiphenyl	46.5		79.93		58.2	50	150				
Surr: o-Terphenyl	52.7		79.93		66.0	50	150				



Work Order: 1506203
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID: 1506209-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 6/23/2015	RunNo: 23135					
Client ID: BATCH	Batch ID: R23135				Analysis Date: 6/23/2015	SeqNo: 438707					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	24.0		25.00		96.0	65	135		0	0	
Surr: 4-Bromofluorobenzene	25.6		25.00		103	65	135		0	0	

Sample ID: LCS-R23135	SampType: LCS	Units: µg/L			Prep Date: 6/23/2015	RunNo: 23135					
Client ID: LCSW	Batch ID: R23135				Analysis Date: 6/23/2015	SeqNo: 438717					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	407	50.0	500.0	0	81.3	65	135				
Surr: Toluene-d8	24.0		25.00		95.9	65	135				
Surr: 4-Bromofluorobenzene	25.6		25.00		102	65	135				

Sample ID: MB-R23135	SampType: MBLK	Units: µg/L			Prep Date: 6/23/2015	RunNo: 23135					
Client ID: MBLKW	Batch ID: R23135				Analysis Date: 6/23/2015	SeqNo: 438718					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	24.2		25.00		96.6	65	135				
Surr: 4-Bromofluorobenzene	26.4		25.00		105	65	135				



Work Order: 1506203
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: 1506209-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 6/23/2015	RunNo: 23136					
Client ID: BATCH	Batch ID: R23136				Analysis Date: 6/23/2015	SeqNo: 438679					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	24.1		25.00		96.5	77.4	147		0		
Surr: Toluene-d8	23.5		25.00		93.9	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	25.4		25.00		102	64.2	128		0		

Sample ID: LCS-R23136	SampType: LCS	Units: µg/L			Prep Date: 6/23/2015	RunNo: 23136					
Client ID: LCSW	Batch ID: R23136				Analysis Date: 6/23/2015	SeqNo: 438687					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	19.2	1.00	20.00	0	96.0	69.3	132				
Toluene	19.8	1.00	20.00	0	99.2	61.3	145				
Ethylbenzene	19.9	1.00	20.00	0	99.4	72	130				
m,p-Xylene	41.1	1.00	40.00	0	103	70.3	134				
o-Xylene	20.2	1.00	20.00	0	101	72.1	131				
Surr: Dibromofluoromethane	24.6		25.00		98.4	77.4	147				
Surr: Toluene-d8	24.3		25.00		97.2	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.6		25.00		103	64.2	128				

Sample ID: MB-R23136	SampType: MBLK	Units: µg/L			Prep Date: 6/23/2015	RunNo: 23136					
Client ID: MBLKW	Batch ID: R23136				Analysis Date: 6/23/2015	SeqNo: 438688					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									

Work Order: 1506203
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID: MB-R23136	SampType: MBLK	Units: µg/L	Prep Date: 6/23/2015	RunNo: 23136							
Client ID: MBLKW	Batch ID: R23136		Analysis Date: 6/23/2015	SeqNo: 438688							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	24.1		25.00		96.2	77.4	147				
Surr: Toluene-d8	23.8		25.00		95.2	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	26.0		25.00		104	64.2	128				

Sample ID: 1506234-002BMS	SampType: MS	Units: µg/L	Prep Date: 6/24/2015	RunNo: 23136							
Client ID: BATCH	Batch ID: R23136		Analysis Date: 6/24/2015	SeqNo: 438740							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Benzene	18.6	1.00	20.00	0	93.0	65.4	138				
Toluene	18.8	1.00	20.00	0	94.1	64	139				
Ethylbenzene	20.9	1.00	20.00	0	105	64.5	136				
m,p-Xylene	41.7	1.00	40.00	0	104	63.3	135				
o-Xylene	19.9	1.00	20.00	0	99.4	65.4	134				
Surr: Dibromofluoromethane	24.2		25.00		96.9	77.4	147				
Surr: Toluene-d8	23.9		25.00		95.4	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.7		25.00		103	64.2	128				

Client Name: **GEI1**
 Logged by: **Erica Silva**

Work Order Number: **1506203**
 Date Received: **6/18/2015 1:30:00 PM**

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
 2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
 4. Shipping container/cooler in good condition? Yes No
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes No Not Required
 6. Was an attempt made to cool the samples? Yes No NA
 7. Were all items received at a temperature of >0°C to 10.0°C * Yes No NA
Sample received straight from field
 8. Sample(s) in proper container(s)? Yes No
 9. Sufficient sample volume for indicated test(s)? Yes No
 10. Are samples properly preserved? Yes No
 11. Was preservative added to bottles? Yes No NA
 12. Is there headspace in the VOA vials? Yes No NA
 13. Did all samples containers arrive in good condition(unbroken)? Yes No
 14. Does paperwork match bottle labels? Yes No
 15. Are matrices correctly identified on Chain of Custody? Yes No
 16. Is it clear what analyses were requested? Yes No
 17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	14.3
Sample	17.6
Temp Blank	19.1



Fremont

3600 Fremont Ave N.
Seattle, WA 98103

Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/18/15

Laboratory Project No (Internal): 15010203

Chain of Custody Record

Client: Geo Engineers
Address: _____
City, State, Zip: Redmond

Project Name: SLM Marriott
Project No: 03710-003-00 collected by: AL Buchanan
Location: 739 gm AUN
Reports To (PM): Jessica Smith

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, D = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Waste, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type [Matrix]	VOC (EPA 8260)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	HydroCarbon Identification (HCD)	Distillation Oil Range Organics (DO)	SEMI VOL (EPA 8270 - SIM)	PAH (EPA 8270)	PCBs (EPA 8082)	Metals** (6020 / 200.6)	Total (T) Dissolved (D)	Anions (A)***	ECB (8013)	Comments/Depth
1. MW-101	10/18/15	05:00 AM	GM	X													
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

**Metal Analysis (Circle): NITCA-5 RCPA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sr Se Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Turn-around times for samples received after 4:00pm will begin on the following business day.

Sample Disposal: Return to Client Disposal by Lab (a fee may be assessed if samples are impaled after 30 days)

Relinquished: [Signature] Date/Time: 10/18/15 1330 Received: [Signature] Date/Time: 10/18/15 1330

TAT -> SameDay, NextDay, 2 Day, 3 Day, STD



3600 Fremont Ave. N.

Seattle, WA 98103

T: (206) 352-3790

F: (206) 352-7178

info@fremontanalytical.com

GeoEngineers, Inc. - Redmond

Jessica Smith
8410 154th Ave. NE
Redmond, WA 98052

RE: SLU Marriott

Lab ID: 1506304

June 30, 2015

Attention Jessica Smith:

Fremont Analytical, Inc. received 2 sample(s) on 6/26/2015 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Gasoline by NWTPH-Gx

Volatile Organic Compounds by EPA Method 8260

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
President



Date: 06/30/2015

CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott
Lab Order: 1506304

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1506304-001	MW-2-150626	06/26/2015 12:56 PM	06/26/2015 2:41 PM
1506304-002	Trip Blank	06/26/2015 9:34 AM	06/26/2015 2:41 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

CLIENT: GeoEngineers, Inc. - Redmond**Project:** SLU Marriott

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

- * - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below LOQ
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit

Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



Analytical Report

WO#: 1506304

Date Reported: 6/30/2015

Client: GeoEngineers, Inc. - Redmond

Collection Date: 6/26/2015 12:56:00 PM

Project: SLU Marriott

Lab ID: 1506304-001

Matrix: Groundwater

Client Sample ID: MW-2-150626

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Batch ID: 11169

Analyst: EC

Diesel (Fuel Oil)	280	49.9		µg/L	1	6/29/2015 8:39:00 PM
Heavy Oil	ND	99.8		µg/L	1	6/29/2015 8:39:00 PM
Surr: 2-Fluorobiphenyl	66.1	50-150		%REC	1	6/29/2015 8:39:00 PM
Surr: o-Terphenyl	66.8	50-150		%REC	1	6/29/2015 8:39:00 PM

Gasoline by NWTPH-Gx

Batch ID: R23276

Analyst: BC

Gasoline	ND	50.0		µg/L	1	6/28/2015 1:40:00 AM
Surr: 4-Bromofluorobenzene	89.8	65-135		%REC	1	6/28/2015 1:40:00 AM
Surr: Toluene-d8	94.0	65-135		%REC	1	6/28/2015 1:40:00 AM

Volatile Organic Compounds by EPA Method 8260

Batch ID: R23274

Analyst: BC

Benzene	ND	1.00		µg/L	1	6/28/2015 1:40:00 AM
Toluene	ND	1.00		µg/L	1	6/28/2015 1:40:00 AM
Ethylbenzene	ND	1.00		µg/L	1	6/28/2015 1:40:00 AM
m,p-Xylene	ND	1.00		µg/L	1	6/28/2015 1:40:00 AM
o-Xylene	ND	1.00		µg/L	1	6/28/2015 1:40:00 AM
Surr: Dibromofluoromethane	101	77.4-147		%REC	1	6/28/2015 1:40:00 AM
Surr: Toluene-d8	96.6	40.1-139		%REC	1	6/28/2015 1:40:00 AM
Surr: 1-Bromo-4-fluorobenzene	92.4	64.2-128		%REC	1	6/28/2015 1:40:00 AM



Work Order: 1506304
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID 1506304-001BDUP	SampType: DUP	Units: µg/L				Prep Date: 6/26/2015	RunNo: 23292				
Client ID: MW-2-150626	Batch ID: 11169					Analysis Date: 6/29/2015	SeqNo: 441185				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	307	49.7						279.5	9.27	30	
Heavy Oil	ND	99.5						0		30	
Surr: 2-Fluorobiphenyl	55.5		79.58		69.7	50	150		0		
Surr: o-Terphenyl	55.8		79.58		70.1	50	150		0		

Sample ID LCS-11169	SampType: LCS	Units: µg/L				Prep Date: 6/26/2015	RunNo: 23292				
Client ID: LCSW	Batch ID: 11169					Analysis Date: 6/29/2015	SeqNo: 441190				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	768	49.7	994.6	0	77.2	65	135				
Surr: 2-Fluorobiphenyl	63.7		79.57		80.1	50	150				
Surr: o-Terphenyl	57.9		79.57		72.7	50	150				

Sample ID MB-11169	SampType: MBLK	Units: µg/L				Prep Date: 6/26/2015	RunNo: 23292				
Client ID: MBLKW	Batch ID: 11169					Analysis Date: 6/29/2015	SeqNo: 441191				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Surr: 2-Fluorobiphenyl	55.2		80.00		69.0	50	150				
Surr: o-Terphenyl	56.4		80.00		70.5	50	150				



Work Order: 1506304
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Gasoline by NWTPH-Gx

Sample ID	LCS-R23276	SampType:	LCS	Units:	µg/L	Prep Date:	6/27/2015	RunNo:	23276		
Client ID:	LCSW	Batch ID:	R23276			Analysis Date:	6/27/2015	SeqNo:	440921		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	479	50.0	500.0	0	95.7	65	135				
Surr: Toluene-d8	27.0		25.00		108	65	135				
Surr: 4-Bromofluorobenzene	24.7		25.00		99.0	65	135				

Sample ID	1506307-001ADUP	SampType:	DUP	Units:	µg/L	Prep Date:	6/28/2015	RunNo:	23276		
Client ID:	BATCH	Batch ID:	R23276			Analysis Date:	6/28/2015	SeqNo:	440923		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0						0		30	
Surr: Toluene-d8	25.4		25.00		102	65	135		0	0	
Surr: 4-Bromofluorobenzene	25.5		25.00		102	65	135		0	0	

Sample ID	MB-R23276	SampType:	MBLK	Units:	µg/L	Prep Date:	6/27/2015	RunNo:	23276		
Client ID:	MBLKW	Batch ID:	R23276			Analysis Date:	6/27/2015	SeqNo:	440925		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Gasoline	ND	50.0									
Surr: Toluene-d8	28.5		25.00		114	65	135				
Surr: 4-Bromofluorobenzene	23.4		25.00		93.7	65	135				



Work Order: 1506304
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID 1506293-003AMS		SampType: MS		Units: µg/L		Prep Date: 6/28/2015		RunNo: 23274			
Client ID: BATCH		Batch ID: R23274				Analysis Date: 6/28/2015		SeqNo: 440888			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.2	1.00	20.00	0	106	65.4	138				
Toluene	18.0	1.00	20.00	0.05210	89.6	64	139				
Ethylbenzene	21.1	1.00	20.00	0	105	64.5	136				
m,p-Xylene	40.6	1.00	40.00	0	102	63.3	135				
o-Xylene	21.1	1.00	20.00	0.9915	101	65.4	134				
Surr: Dibromofluoromethane	26.4		25.00		106	77.4	147				
Surr: Toluene-d8	22.8		25.00		91.1	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.4		25.00		101	64.2	128				

Sample ID LCS-R23274		SampType: LCS		Units: µg/L		Prep Date: 6/27/2015		RunNo: 23274			
Client ID: LCSW		Batch ID: R23274				Analysis Date: 6/27/2015		SeqNo: 440901			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	20.5	1.00	20.00	0	102	69.3	132				
Toluene	19.7	1.00	20.00	0	98.7	61.3	145				
Ethylbenzene	20.2	1.00	20.00	0	101	72	130				
m,p-Xylene	37.2	1.00	40.00	0	93.0	70.3	134				
o-Xylene	18.6	1.00	20.00	0	93.0	72.1	131				
Surr: Dibromofluoromethane	26.7		25.00		107	77.4	147				
Surr: Toluene-d8	25.0		25.00		100	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	24.6		25.00		98.5	64.2	128				

Sample ID MB-R23274		SampType: MBLK		Units: µg/L		Prep Date: 6/27/2015		RunNo: 23274			
Client ID: MBLKW		Batch ID: R23274				Analysis Date: 6/27/2015		SeqNo: 440902			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00									
Toluene	ND	1.00									
Ethylbenzene	ND	1.00									
m,p-Xylene	ND	1.00									



Work Order: 1506304
CLIENT: GeoEngineers, Inc. - Redmond
Project: SLU Marriott

QC SUMMARY REPORT
Volatile Organic Compounds by EPA Method 8260

Sample ID MB-R23274	SampType: MBLK	Units: µg/L			Prep Date: 6/27/2015	RunNo: 23274					
Client ID: MBLKW	Batch ID: R23274				Analysis Date: 6/27/2015	SeqNo: 440902					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	1.00									
Surr: Dibromofluoromethane	25.6		25.00		102	77.4	147				
Surr: Toluene-d8	27.4		25.00		110	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	24.2		25.00		96.8	64.2	128				

Sample ID 1506307-001ADUP	SampType: DUP	Units: µg/L			Prep Date: 6/28/2015	RunNo: 23274					
Client ID: BATCH	Batch ID: R23274				Analysis Date: 6/28/2015	SeqNo: 440904					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0		30	
Toluene	ND	1.00						0		30	
Ethylbenzene	ND	1.00						0		30	
m,p-Xylene	ND	1.00						0		30	
o-Xylene	ND	1.00						0		30	
Surr: Dibromofluoromethane	25.3		25.00		101	77.4	147		0		
Surr: Toluene-d8	23.9		25.00		95.6	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	26.3		25.00		105	64.2	128		0		



Sample Log-In Check List

Client Name: GEI1	Work Order Number: 1506304
Logged by: Clare Griggs	Date Received: 6/26/2015 2:41:00 PM

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Client

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody Seals present on shipping container/cooler?
(Refer to comments for Custody Seals not intact) Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
7. Were all items received at a temperature of >0°C to 10.0°C * Yes No NA
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is there headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler	1.6
Sample	8.6
Temp Blank	7.9

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



Fremont Analytical

Chain of Custody Record

Laboratory Project No (Internal):

150D10304

3600 Fremont Ave N, Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 6/26/15

Page: 1 of 1

Client: GEI
Address: Redmond
City, State, Zip: _____
Tel: _____ Fax: _____

Project Name: Self Marriott
Project No: 207HE-003-00 collected by: Bill Cochran
Location: 339 gm Ave N
Reports to (PM): Jessica Smith
Email: jasm@thegreeninners.com

*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, D = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Waste, DW = Drinking Water, GW = Ground Water, WW = Waste Water, SW = Storm Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	OX/BTEX	BTEX	Gasoline Range Organics (GRO)	Hydrocarbon Identification (HCID)	Distill/heavy Oil Range Organics (DOR)	SCM VOC (EPA 8270)	PAH (EPA 8270 - 514)	PCBs (EPA 8082)	Metals** (6020 / 200.8)	Total (T) Dissolved (D)	Anions (IC)**	EDS (8011)	Comments/Depth
1. MW-2-15D102U	6/20	1250	GW	X													
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

** Metals Analysis (Circle): MTCA-5 RCA-8 Priority Pollutants TML Individual: Ag Al As B Ba Be Ca Cd Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sn Se Sr Ti Tl U V Zn

*** Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (a fee may be assessed if samples are returned after 90 days)

Special Remarks:

Relinquished: [Signature] Date/Time: 6/26/15 14:41
Received: [Signature] Date/Time: 6-26-15 14:41
Reference: _____ Date/Time: _____

TAT -> SameDay* NextDay* 2 Day 3 Day STD
*Please coordinate with the lab in advance