Cleanup Action and UST Closure Report

Rufus 2.0 Development
Block 21
Seattle, Washington

for
Acorn Development, LLC

August 6, 2020

GeoEngineers
Earth Science + Technology

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2101 Fourth Avenue, Suite 950
Seattle, Washington 98121
206.728.2674

Cleanup Action Report

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Seattle, Washington

File No. 20434-001-30

August 6, 2020

Prepared for:

Acorn Development, LLC
c/o Seneca Group
1191 Second Avenue, Suite 1500
Seattle, Washington 98101

Attention: Ian Kell

Prepared by:

GeoEngineers, Inc.
2101 Fourth Avenue, Suite 950
Seattle, Washington 98121
206.728.2674

Chris Brown
Project Manager

8/6/2020

Tony Orme, PE
Associate

CTB:TNO:lw

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EXECUTIVE SUMMARY

This report summarizes previous site characterization and documents the Cleanup Action completed for the Block 21 project site (Property) in the Denny Triangle Neighborhood of Seattle, Washington. Block 21 is the full block bounded by 8th Avenue to the north, Blanchard Street to the east, 7th Avenue to the south and Bell Street to the west.

Previous studies for Block 21 include a Phase I Environmental Site Assessment (ESA) (June 2012) for the subject property and a Phase II ESA subsurface assessment (November 2012), including 19 borings, three of which were completed as monitoring wells. The Phase II ESA did not identify contaminants in soil or groundwater at the site above natural background concentrations. However, contaminants of concern, including polycyclic aromatic hydrocarbons (PAHs) and petroleum hydrocarbons, were encountered at concentrations greater than Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels at two areas at the site (Area A and Area B) during the property redevelopment construction project.

During property redevelopment activities, contaminated soil was identified beneath the former hotel building at the north half of the site, in the vicinity of the former elevator jack (Area A). Heavy oil-range petroleum hydrocarbons were identified at concentrations greater than the MTCA Method A cleanup levels at Area A. Additionally, three underground storage tanks (USTs) were encountered. These unregistered tanks were noted in the Phase I ESA, but had not been located and confirmed prior to excavation activities. The three tanks were less than 800 gallons in capacity each. Product samples from each of the tanks indicated that the tanks contained heating oil. One of the three tanks (UST-2) had released heating oil to the surrounding soil in the southeast corner of the site (Area B).

The removal of PAH and petroleum contaminated soil was completed between September 2017 and January 2018 as part of the mass excavation activities for the property redevelopment. Approximately 5,832 tons of contaminated soil was disposed of at Waste Management's Subtitle D Columbia Ridge Landfill in Arlington, Oregon. Additionally, 17,048 tons of impacted soil (soil with contaminants detected less than MTCA Method A or B cleanup levels) was disposed of at Cadman's treatment and disposal facility in Everett, Washington.

This report documents the characterization, removal and proper off-site disposal of contaminated soil identified at the Block 21 property during redevelopment and construction project. Based on the results of the site characterization and cleanup confirmation sampling activities, no further remedial action is necessary for the Block 21 property.

This Executive Summary should be used only in the context of the full report for which it is intended.

1.0 REMEDIAL INVESTIGATION AND SITE CHARACTERIZATION

1.1. Introduction

This report summarizes the site characterization and cleanup action conducted to address soil contaminated with petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) at the Rufus 2.0, Block 21 Property redevelopment project located in the Denny Triangle neighborhood of Seattle, Washington ("Property"). The cleanup action was conducted in accordance with the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) (Chapter 173-340 Washington Administrative Code [WAC]). General Property information is summarized in Table I below.

TABLE I. GENERAL PROPERTY INFORMATION

Project Contacts	
Property Owner	Acorn Development, LLC
Environmental Consultant	GeoEngineers – Tony Orme, P.E. (Associate) and Chris Brown (Project Manager)
Property Information and Location	
Site Address	Blanchard Street, Bell Street, 7th Avenue and 8th Avenue in the Denny Triangle neighborhood, Seattle, Washington
Approximate Surface Elevation	Existing site grades slope down to the northeast, ranging from approximately Elevation 105 feet in the southwest corner of the site to approximately Elevation 85 feet in the northeast corner of the site
General Description	Full city block located between Bell and Blanchard Streets, and 7th and 8th Avenues
Parcel Numbers	066000-0325, 066000-0335, 066000-0340, 066000-0345, 066000-0355 and 066000-0375
GPS Coordinates	47.6169°N, 122.3403°W
Quarter, Section, Township and Range	NE quarter of Section 31, Township 25, Range 4 West, Willamette Meridian
Geologic Setting and Subsurface Conditions	
Geologic Setting	Puget Sound Lowlands
Nearest Surface Water Body	Elliot Bay located approximately 0.5 miles to the southwest; Lake Union located approximately 0.75 miles to the north
Soil and Geologic Conditions	Fill overlying glacially-deposited sediments
Depth to Groundwater	Based on monitoring well data, conditions observed during drilling and data from monitoring wells in the project vicinity, we anticipate that the regional groundwater table is below Elevation 20 feet (approximately 80 feet below ground surface). Perched groundwater was not encountered during excavation activities.
Inferred Direction of Groundwater Flow	To the east or northeast, based on our understanding of groundwater flow direction from other explorations in the project area

The 1.98-acre Property (King County parcel number 066000-0335) encompass the full city block bounded by 8th Avenue to the north, Blanchard Street to the east, 7th Avenue to the south and Bell Street to the west. The Property is shown relative to surrounding physical features on the Vicinity Map (Figure 1) and Site Plan (Figure 2). Prior to construction excavation associated with the redevelopment of the property beginning in 2017, existing site grades slope down to the northeast, ranging from approximate Elevation 105 feet in the southwest corner of the site to approximate Elevation 85 feet in the northeast corner of the site. The Property is in the Denny Triangle, an area with on-going development activities in downtown Seattle.

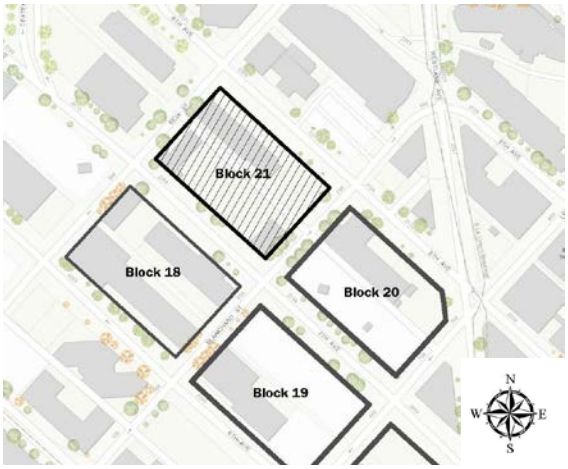


Figure 1.1 Rufus 2.0 Development. Block 21 (Property) is indicated with hatch lines.

1.1.1. Site History

GeoEngineers, Inc. (GeoEngineers) completed a Phase I Environmental Site Assessment (ESA) for the entire Rufus 2.0 redevelopment (Blocks 14, 19, 20, 21) as well as a Phase I ESA for Lot 3 on the Property (GeoEngineers, 2012b and 2012c).

The Property is located within the Denny Triangle neighborhood of Seattle, which was subject to extensive earthmoving activities known as the Denny Regrade in the 1910s and 1920s. In general, by the late 1920s, areas west of the subject property and portions of the subject property were cut in elevation of at least 20 feet, and the subject property vicinity and areas to the east were filled with up to approximately 25 feet of fill soils from nearby hills and/or other sources. Subsurface investigation at the subject property confirmed the presence of shallow fill material widespread in the area. Some isolated fill soil samples from nearby excavations contained detectable concentrations of petroleum hydrocarbons and PAHs. Therefore, fill soils on Block 21 were identified as potentially impacted by similar contaminants.

Previous site uses included residential buildings, vehicle maintenance and/or repair, retail and restaurant and hotel uses since the site was graded and redeveloped in the 1920's and 30's.

1.1.2. Current Site Use

The Property is currently developed as a 24 story and an 8 story office tower with four levels of underground parking. Redevelopment activities on Block 21 make up one phase of a multi-office-tower redevelopment project that will span five contiguous city blocks, known as the Rufus 2.0 Development.

1.2. Field Investigations

1.2.1. Previous Environmental Investigations

Based on the Phase I ESA findings described in Section 1.1.1 above, GeoEngineers completed a Phase II ESA for Block 21, as part of the larger Rufus 2.0 redevelopment (Blocks 14, 18, 19, 20, and 21) (GeoEngineers, 2012d). The Phase II environmental investigation at the Property was conducted to assess the potential presence of contamination in soil and/or groundwater. The Phase II explorations, completed in October 2012, were executed in two parts as described below.

- Part 1: Five hollow-stem auger (HSA) borings (MW21-1 through MW21-3 and B21-1 and B21-2) were advanced to depths of up to 110 feet below ground surface (bgs). Three of the borings (MW21-1 through MW21-3) were completed as monitoring wells. Groundwater samples were collected from the monitoring wells for chemical analysis. The borings were widely spaced, but were located to provide information for geotechnical engineering purposes as well as in areas of potential recognized environmental conditions
- Part 2: Fourteen direct-push technology (DPT) borings (B21-3 through B21-16) were advanced to depths of up to 20 feet bgs. These borings were widely spaced to provide further information about environmental conditions on the property and to provide information for geotechnical engineering purposes.

In August and September of 2017, near the beginning of mass excavation activities, 10 test pits (TP21-1 through TP21-10) were completed on the Property to characterize fill soil in unexplored areas prior to construction excavation and off-site disposal. Test pits were completed using an excavator to depths of up to 10 feet bgs. The approximate locations of the 2012 borings and the 2017 test pits are shown on Figure 2.

Based on the results of the preconstruction subsurface investigations completed at the Property, contaminants of potential concern were not detected, detected at concentrations similar background conditions (metals) or detected at concentrations less than corresponding MTCA cleanup levels. However, as will be discussed in this report, undocumented petroleum hydrocarbon- and/or PAH-contaminated soil was discovered during construction excavation at two localized areas.

The approaches for characterizing soil and groundwater for potential cleanup and disposal at the Property were based on the results of the 2012 environmental drilling and soil and groundwater sampling, the 2017 test pit explorations and soil sampling conducted during construction mass excavation. A summary of the soil and groundwater results from the environmental characterization is provided in the subsequent sections, and analytical data are summarized on Tables 1 through 3. The laboratory reports and our review of the laboratory quality control data are presented in Appendix C.

1.2.2. Soil Conditions

Soil encountered at the Property consists of imported fill overlying native material including recent deposits and competent glacially consolidated soils. Up to three soil units were observed including:

- **Fill** generally consists of silty sand and silt with variable gravel and cobble content and occasional charred wooden debris, brick, and rubble. The thickness of fill encountered in the explorations generally increased across the site about 2 to 10 feet along the south edge of the block to about 13 feet along the northern edge of the block.
- **Recent deposits** generally consist of silt and clay with occasional sand interbeds and variable gravel content or sand with variable silt and gravel content. The recent deposits were typically observed below the fill. Where observed, the recent deposits typically ranged in thickness from 4 to 9 ½ feet.
- **Glacially consolidated soils** were encountered below the fill and recent deposits, where present. Three glacially consolidated units were encountered in the explorations: cohesive silt and clay, cohesionless sand and gravel, and till-like deposits. Additionally, while not encountered during our drilling activities, occasional cobbles and boulders were observed in glacially consolidated soils.

1.2.2.1. Groundwater Conditions

Three monitoring wells (MW21-1 through MW21-3) were installed at the northwest, northeast and southwest corners of the Property, respectively, to investigate deep regional groundwater conditions for construction planning purposes. These wells were completed approximately 96 feet bgs to 111 feet bgs to allow for fluctuations in the elevation of the deep regional groundwater and were equipped with automated dataloggers to provide continuous groundwater level measurements over time.

Groundwater was sampled from each of the three wells on October 15, 2012 during the Phase II ESA investigation. The depth to groundwater during the March monitoring event was approximately 65 to 85 feet below ground surface in the three wells. Contaminants of concern were not detected at concentrations greater than the laboratory reporting limits or were detected at concentrations that represent background conditions in groundwater from MW21-1 through MW21-3. Chemical analytical results for the groundwater samples are summarized in Table 3. The boring logs and well construction details are presented in Appendix B. These wells were decommissioned by a licensed driller prior to the beginning of construction excavation.

1.2.2.2. Contaminants of Concern

The Remedial Action Areas were identified as those areas on the Property where hazardous substances had come to be located due to prior building use or previous automotive repair and fueling activities.

Based on the results of soil sampling conducted during construction mass excavation petroleum hydrocarbon and PAH contamination present within the Property is potentially due historical operation of a hydraulic elevator jack and heating oil USTs.

Based on the chemical analytical results (Tables 4 and 5) for the characterization soil samples obtained during our investigations and construction mass excavation, the contaminants of concern for the Property are the diesel and heavy oil petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) that were detected at concentrations greater than the MTCA Method A or B cleanup levels.

1.2.3. Terrestrial Ecological Evaluation

GeoEngineers completed a Terrestrial Ecological Evaluation (TEE) for the Property in accordance with MTCA. The Property qualifies for an exclusion from the TEE because contaminated soil was identified at least six feet below ground surface, all contamination was covered by a building or concrete sidewalk that will prevent plants and wildlife from being exposed and there is less than 0.25 acres of undeveloped land within 500 feet of the site. Additionally, all soil was removed from the site to a total depth of approximately 70 feet to accommodate the underground parking garage which extends from property line to property line.

1.3. Preferred Cleanup Remedy

The redevelopment plan for the Property included property-wide soil excavation to a maximum depth of approximately 70 feet bgs. Because the contaminated soil identified beneath the Property was located within the construction boundary, soil excavation and appropriate off-site disposal as part of construction for Property redevelopment was identified as the most effective and permanent remedy to address the contaminated soil at the Property. Therefore, soil excavation and off-site disposal were selected as the cleanup remedy in compliance with applicable MTCA requirements, for the following reasons:

- The selected alternative meets the "minimum requirements for cleanup actions" (WAC 173-340-360(2)). Specifically, the alternative: (1) could be completed within a relatively short period of time, (2) meets threshold requirements described by MTCA (e.g. protects human health and the environment, complies with the cleanup standards, complies with state and federal laws and provides for compliance monitoring), (3) is expected to be more effective than other available methods in achieving concentrations that are protective of human health and the environment, (4) is permanent, and (5) considers public concerns.
- Excavation and off-site disposal of the contaminated soil is considered to be the most permanent and cost-effective cleanup option for the Property.
- Excavation and off-site soil disposal of soil within the Property footprint was necessary for the planned Property redevelopment and allowed for effective integration of the construction and cleanup action activities at the Property.

The soil cleanup action was conducted by the owner concurrent with construction excavation from August 2017 to January 2018. The remaining sections of this report describe the cleanup action plan, remedial excavation activities, cleanup confirmation soil sampling, and off-site permitted disposal of the contaminated soil.

2.0 CLEANUP ACTION

2.1. Purpose and Scope

This section summarizes the successful independent MTCA cleanup action conducted at the Property between August 2017 and January 2018. The cleanup action consisted of the excavation and permitted off-site disposal of contaminated soil with petroleum hydrocarbons and/or PAHs concentrations greater than the MTCA cleanup levels. The remedial excavation areas are shown on Figure 2.

GeoEngineers was on-site to field screen soil, document the removal of contaminated soil from the Property and collect cleanup confirmation soil samples for laboratory analysis. GeoEngineers' scope of services included the following activities:

- Observed soil excavation and the segregation of contaminated soil.
- Obtained characterization and confirmation soil samples from the limits (base and sidewalls) of the remedial excavation and field screened soil from the excavation for evidence of contaminants using visual and water sheen screening methods.
- Submitted selected soil samples obtained from the limits of the remedial excavation to an Ecology-accredited laboratory, Fremont Analytical, for chemical analysis for the contaminants of concern described in Section 1.2.
- Evaluated field and laboratory data relative to the MTCA Method A and B cleanup levels.
- Prepared this cleanup action report documenting the remedial action at the Property.

2.1.1. Remedial Excavation Activities

During mass excavation activities from August 2017 through February 2018, additional soil samples were collected to characterize soil for off-site disposal. Soil samples were collected in areas where soil had not previously been characterized (beneath former buildings), or in areas where incidental soil with field screening evidence of contamination was encountered.

Two remedial excavations (Areas A and B) were completed by the earthwork contractor: Northwest Construction (Northwest) at Block 21 to remove petroleum hydrocarbon and PAH-contamination during mass excavation of soil for property redevelopment. Northwest removed a total of 5,832 tons (according to disposal receipts provided by Waste Management) of contaminated soil concurrent with property redevelopment activities. GeoEngineers performed field screening (visual, headspace and/or water sheen) and collected soil samples to evaluate the potential lateral and vertical extent of contamination. Field screening methods are described in Appendix B. Soil samples were obtained for chemical analysis prior to remedial excavation activities to characterize the contaminated soil encountered and following remedial excavation activities to confirm the final vertical and lateral limits of the contaminated soil. The approximate final limits of the remedial excavations to remove contaminated soil from Areas A and B are shown on Figures 3 and 4.

2.1.1.1. Area A Soil Sampling

A characterization soil sample (N14-elevator-15) was collected below a hydraulic elevator jack where soil had evidence of contamination based on field screening, approximately 15 feet below previous site grades. The approximate location of the characterization soil sample is shown on Figure 4. The characterization sample was obtained prior to the initiation of remedial excavation activities to characterize soil for off-site permitted disposal. The soil sample was submitted to Fremont Analytical for chemical analysis of diesel- and heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx.

Heavy oil-range petroleum hydrocarbons were detected in the characterization sample at concentrations greater than the MTCA Method A cleanup level (2,000 milligrams per kilogram [mg/kg]). Soil represented by the characterization sample was subsequently excavated and removed from the site for permitted disposal.

A total of five discrete soil samples (N14-Elevator-1-13, N14-Elevator-2-13, N14-Elevator-3-13, N14-Elevator-4-13 and N14-Elevator-25) were obtained after the remedial excavation of the contaminated soil encountered. The approximate locations of the cleanup confirmation soil samples are shown in Figure 4. Soil samples obtained from the limits of the remedial excavations were field screened for evidence of petroleum contamination using visual and water sheen screening. Field screening evidence of petroleum hydrocarbon contamination was not observed in any of the confirmation soil samples obtained. Each of the samples were submitted for chemical analysis of heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx.

Heavy oil-range petroleum hydrocarbons were not detected in the confirmation soil samples obtained at the final limits of the remedial excavation. Chemical analytical results are summarized in Table 4.

2.1.1.2. Area B Soil Sampling

A total of 14 discrete and/or composite soil samples were obtained from suspect soil that had evidence of contamination based on field screening. Two adjacent USTs (UST-2 and UST-3) were discovered and described separately below. The characterization samples were obtained prior to the initiation of remedial excavation activities to understand the chemical type and then to characterize soil for off-site permitted disposal. Each of the soil samples were submitted for the following:

- Diesel- and heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx; and
- PAHs by EPA Method 8270D/SIM.

Petroleum hydrocarbons and/or PAHs were detected in three soil samples at concentrations greater than the corresponding MTCA Method A or B cleanup levels. Soil represented by each of the characterization samples were subsequently excavated and removed from the site for permitted disposal. Confirmation soil samples were obtained at the limits of the remedial excavations, as described below.

A total of 28 discrete or composite soil samples were obtained following the remedial excavation of the contaminated soil encountered. The approximate locations of the confirmation soil samples are shown in Figure 5. Soil samples obtained from the limits of the remedial excavation were field screened for evidence of petroleum contamination using visual and water sheen screening. Field screening evidence of petroleum contamination was not observed in any of the confirmation soil samples obtained. Each of the samples were submitted to Fremont Analytical for chemical analysis of the following:

- Diesel- and heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx; and
- PAHs by EPA Method 8270D/SIM.

Contaminants of concern were not detected in the confirmation soil samples obtained at the final limits of the remedial excavation. Chemical analytical results are summarized in Table 4. The laboratory reports and our review of the laboratory quality control data are presented in Appendix B.

2.1.2. Underground Storage Tanks

During mass excavation activities in fall of 2017, three previously unknown and undocumented USTs were discovered in the southwest and southeast quadrants of the Property (Figure 2). These tanks were considered exempt from Ecology UST notification requirements based on their contents (heating oil), capacity (less than 1,000 gallons each), and previous residential site use where the tanks were discovered. USTs were inspected and certified safe for removal by a marine chemist with US Marine Chemists and Engineering of Mukilteo, Washington. A Washington State Site Assessment certified representative of GeoEngineers (Callan Driscoll, ICC ID Number 8452857) was present to observe and document the UST Site Check/Site Assessment. UST information, site assessment observations, and the soil sampling completed during tank removal are described below. The locations of the characterization and confirmation soil samples collected during the initial UST site assessments, and at the extents of the removal areas are shown on Figures 2 and 4. Chemical analytical data for the soil samples collected are shown on Tables 4 through 6. UST removal documentation, and the site assessment checklist are provided in Appendix D.

2.1.2.1. UST-1

UST-1 was discovered in the southwest quadrant of the Property during mass excavation for property redevelopment (Figure 2). The tank was cylindrical, welded steel construction measuring approximately 8 feet long and 4 feet in diameter. The tank was oriented north-to-south at a depth of approximately 6 feet bgs (top of tank). Based on the measured dimensions, the estimated capacity of the tank was approximately 800 gallons. Corrosion was not visible on the outside of the tank and the tank did not appear to have leaked. No piping was observed attached to the tank or in nearby soil, which appeared to be native material consisting of gray fine to coarse sand. At the time of discovery, approximately 500 gallons of product was present in the tank; a product sample (UST-1-PR) was obtained and submitted for chemical analysis of total petroleum hydrocarbon identification using Northwest Method NWTPH-HCID. Chemical analysis confirmed the contents as fuel oil #2 (heating oil). Field screening of soil surrounding the tank did not indicate a potential petroleum release associated with the UST.

UST-1 was removed on October 16, 2017 by Northwest Construction. Groundwater was not observed in the tank excavation, which measured 45 by 30 feet, including sloped sidewalls, and approximately 10 feet deep. Four confirmation soil samples (UST-1-SW-1-6.0, UST-1-SW-2-6.0, UST-1-SW-3-6.0, UST-1-SW-B-8.0) were collected at the extents of the excavation for laboratory analysis: one from the north, east and west sidewalls of the excavation, and one below the base of the tank. Petroleum hydrocarbons and PAHs were not detected at concentrations greater than the laboratory reporting limits in any of the four confirmation samples.

2.1.2.2. UST-2

UST-2 was discovered in the southeast quadrant of the Property. This UST was cylindrical, and welded steel measuring approximately 10 feet long and 3 feet in diameter with an estimated capacity of 530 gallons. The UST was oriented north-to-south at a depth of approximately 17 feet bgs (top of tank). No visible holes were observed during tank removal, although the tank showed signs of corrosion. No piping was observed attached to the tank or in nearby soil, which appeared to be native material consisting of brown, dense silt. At the time of discovery, a product sample (UST-2-PR) was obtained and submitted for chemical analysis of total petroleum hydrocarbon identification using Northwest Method NWTPH-HCID. Chemical analysis confirmed the contents as fuel oil #2 (heating oil). Twelve characterization samples were collected for laboratory analysis. Based on field screening of soil surrounding the tank during the UST site assessment, it was determined that a historic release(s) had occurred. TPHs and/or PAHs were detected at concentrations greater than the MTCA Method A or B cleanup levels from eight characterization soil samples.

UST-2 was removed October 30, 2017. Groundwater was not observed in the tank excavations. The UST and remedial excavation was completed on January 30, 2018 which measured up to 85 by 70 feet and approximately 30 feet deep below the bottom of the UST. Twenty-one confirmation soil samples were collected at the extents of the excavation for laboratory analysis: from sidewalls of the excavation, base samples and one below the base of the tank. Petroleum hydrocarbons and PAHs were not detected at concentrations greater than the laboratory reporting limits in the confirmation samples with one exception: diesel-range petroleum hydrocarbons were detected in sample E21S0-23 (east sidewall of the excavation and east Property boundary) at 8,660 mg/kg, which is greater than the MTCA Method A cleanup level of 2,000 mg/kg. However, an additional composite sample obtained at the same location (E23S0-Composite-23-24) from a 12-inch by 12-inch section indicated that soil represented by sample E21S0-23 is limited in extent. Additionally, because soil characterized by sample E21S0-23 (obtained from a depth of approximately 23 feet bgs) is beneath the direct contact point of compliance of 15 feet bgs the

direct contact exposure pathway is incomplete. Also, groundwater samples obtained as part of the Remedial Investigation (RI) indicated that soil to groundwater pathway is also incomplete. Therefore, soil characterized by E23SO-23 does not exceed MCTA cleanup levels.

UST-2 was removed from the Property for recycling prior to the remedial excavation. All contaminated soil surrounding the USTs was removed and transported off-site. Soil was profiled for permitted disposal based on the characterization soil samples described above for off-site disposal.

2.1.2.3. UST-3

UST-3 was discovered adjacent to UST-2 in the southeast quadrant of the site. The tank was cylindrical, welded steel construction and was approximately 10 feet long and 3 feet in diameter. The tank was oriented north-to-south at a depth of approximately 17 feet bgs (top of tank). Based on the measured dimensions, the estimated capacity of the tank was approximately 750 gallons. The tank exterior appeared to be partially crushed and split open due to contact with construction equipment during discovery. No piping was observed attached to the tank or in nearby soil, which appeared to be native material consisting of brown, dense silt. Field screening of soil surrounding the tank did not indicate a historic petroleum release associated with UST-3. A product sample (UST-3-PR) was obtained and submitted for chemical analysis of total petroleum hydrocarbon identification using Northwest Method NWTPH-HCID. Chemical analysis confirmed the contents as fuel oil #2 (heating oil).

UST-3 was removed on November 3, 2017 by Northwest Construction. Groundwater was not observed in the tank excavation. The excavation was completed on January 30, 2018. Three confirmation soil samples (UST3-Below, E18S8-21 and E19S9-21) were collected adjacent the UST for laboratory analysis: one from the east and west sidewall of the tank, and one below the base of the tank. Petroleum hydrocarbons and PAHs were not detected at concentrations greater than the laboratory reporting limits in the confirmation samples.

UST-3 was removed from the Property for recycling. All soil surrounding the USTs was removed and transported off-site as part of the Block 21 redevelopment activities. Soil was field screened and segregated based on presence of potential contaminants of concern and transported for off-site disposal.

2.1.3. Contaminated Soil Disposal

Contaminated soil removed from the remedial excavation areas was transported off the Property to Waste Management's transfer station in Seattle, Washington for permitted disposal at their Subtitle-D landfill in Arlington, Oregon. Approximately 5,832 tons of soil as documented by weight tickets provided by the owner's general contractor, Northwest Construction, was removed from the Property during remedial excavation.

Fill soil excavated from areas where contaminants of concern were detected at concentrations less than the MTCA Method A or B cleanup levels ("impacted" soil) was transported off the Property to Cadman's treatment and disposal facility for permitted disposal in Everett, Washington. Approximately 17,048 tons of "impacted" soil was removed from the Property during construction excavation. The "impacted" soil was not of regulatory significance, but was managed to facilitate soil handling during the much larger mass construction excavation.

Total soil tonnage weight tickets provided by the disposal facilities are included as Appendix E.

3.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

3.1. Remedial Investigation and Site Characterization

The historic sources for the contamination identified at the Property are from prior building use or historical releases associated with site use between the 1940s and 2016.

Site investigation and characterization completed between 2012 and 2018 evaluated and documented the nature and extent of the contaminated soil resulting from the sources listed above. Based on the results of the drilling and soil and groundwater sampling and analysis, concentrations of petroleum hydrocarbons and/or PAHs greater than the MTCA Method A cleanup levels was identified in soil at depths between approximately 21 to 29 feet below previous site grade. One leaking heating oil UST was discovered at the location of a former commercial building along with associated localized petroleum and PAH-contaminated soil. Two other heating oil USTs were discovered but did not appear to have had a release based on visual inspection of the tanks and characterization soil samples collected around the tanks. Petroleum contaminated soil identified in the northwest quarter of the property likely was related to historic building use from a hydraulic elevator jack.

Groundwater at the Property was evaluated based on the laboratory analysis of samples collected from three groundwater monitoring wells (MW21-1 through MW21-3) installed on the property. The depth to regional groundwater in wells MW21-1 through MW21-3 was approximately 70 to 85 feet bgs in October 2012. The contaminants of concern were not detected at concentrations greater than the MTCA Method A cleanup levels in the groundwater samples from the three wells. Refer to Figure 3 for the monitoring well locations.

3.2. Cleanup Action

A cleanup action consisting of excavation and off-site disposal was conducted to remove contaminated soil between August 2017 and January 2018 concurrent with Property redevelopment. A total of 5,832 tons of petroleum hydrocarbons and PAH contaminated soil was removed from the Property and transported to Waste Management's transfer station in Seattle, Washington for permitted disposal at their Subtitle D landfill in Arlington, Oregon.

Based on the chemical analytical results for the soil samples obtained at the final limits of the remedial excavations, the soil with contaminants of concern at concentrations greater than the MTCA cleanup levels was successfully removed from the Property.

4.0 CONCLUSION

The excavation of the contaminated soil on Block 21 was conducted as part of the property-wide larger construction mass excavation of soil for construction associated with the Property redevelopment project that includes an office tower with underground parking. The excavation for project construction included removal of soil from the entire Property to a depth of up to 70 feet below ground surface; therefore, focused soil excavation and permitted transport and off-site disposal was selected as the most cost-effective and permanent remedy to address the contaminated soil at the Property. The laboratory analytical results for soil samples collected at the limits of the excavations indicate that the soil with concentrations of the contaminants of concern, including petroleum hydrocarbons and PAHs greater than the MTCA cleanup levels has been removed from the Property. The laboratory analysis of groundwater samples collected from

the on-site monitoring wells for the contaminants of concern indicate that groundwater has not been impacted. The results of the cleanup action indicate that the cleanup is complete, that the MTCA cleanup requirements have been met, that conditions at the property are protective of human health and the environment, and that no further action is warranted for the Property.

5.0 REFERENCES

GeoEngineers, 2012a. Geotechnical Master Use Permit Report, Rufus 2.0 Development, Seattle, Washington, dated May 11, 2012

GeoEngineers, 2012b. Phase I Environmental Site Assessment, Rufus 2.0, Denny Triangle, Blocks 14, 19, 20, 18 and 21, Seattle, Washington dated June 7, 2012.

GeoEngineers, 2012c. Phase I Environmental Site Assessment, 2210 7th Avenue (Lot 3), Seattle, Washington dated November 2, 2012.

GeoEngineers, 2012d. Phase II Environmental Site Assessment, Rufus 2.0, Block 21, Denny Triangle, Seattle, Washington 98101, dated November 21, 2012.

GeoEngineers, 2017a. Geotechnical Engineering Services, Rufus 2.0, Block 21, Denny Triangle, Seattle, Washington 98101, dated March 17, 2017.

GeoEngineers, 2017b. Block 21 Environmental Construction Contingency Plan, Soil and Groundwater Management, Rufus 2.0 Development, Block 20 Denny Triangle, Seattle, Washington, 98101, dated October 3, 2017.

Washington State Department of Ecology (Ecology). 1994. Natural Background Soil Metals Concentrations in Washington State. Toxics Cleanup Program, Department of Ecology. Publication #94-115. October 1994.

TABLES

GeoEngineers

Table 1

Pre-Construction Phase Soil Field Screening and Chemical Analytical Data (Petroleum Hydrocarbons and PAHs)

Project Rufus 2.0

Block 21, Denny Triangle, Seattle, Washington

GeoEngineers File No. 20434-001-30

Area Description	Sample ID[1]	Sample Date	Sample Depth (feet bgs)	Soil Type	Field Screening[2]	Petroleum Hydrocarbons (mg/kg)			Non-Carcinogenic PAHs[5] (µg/kg)										Total cPAHs[6] (µg/kg)
					Sheen	Gasoline Range[3]	Diesel Range[4]	Heavy Oil Range[4]	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	TEQ
Hollow-Stem Auger Borings Completed October 4 through 11, 2012																			
MW21-1	MW21-1-5.0	10/10/12	5	Native	NS	<6.72	<18.4	<46.1	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	<45.7	34.5
	MW21-1-17.5	10/10/12	17.5	Native	NS	<8.68	<20.2	<50.6	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	39.3
MW21-2	MW21-2-7.5	10/08/12	7.5	Fill	NS	<4.22	<21.2	<53.1	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	40.3
	MW21-2-20.0	10/08/12	20	Native	NS	<5.62	<21.2	<53.1	--	--	--	--	--	--	--	--	--	--	--
MW21-3	MW21-3-2.5	10/09/12	2.5	Native	NS	<7.79	<23.8	<59.4	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	41.6
	MW21-3-25.0	10/09/12	25	Native	NS	<4.90	<19.9	<49.8	--	--	--	--	--	--	--	--	--	--	--
B21-1	B21-1-7.5	10/04/12	7.5	Fill	NS	<4.36	<19.6	<49.1	<51.8	<51.8	<51.8	<51.8	<51.8	<51.8	<51.8	<51.8	<51.8	<51.8	39.1
	B21-1-25.0	10/04/12	25	Native	NS	<5.49	<19.7	<49.3	--	--	--	--	--	--	--	--	--	--	--
B21-2	B21-2-5.0	10/11/12	5	Fill	NS	<5.88	<25.2	<63.0	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	<56.4	42.6
	B21-2-20.0	10/11/12	20	Native	NS	<5.56	<17.6	<44.1	--	--	--	--	--	--	--	--	--	--	--
Direct-Push Borings Completed October 5 through 8, 2012																			
B21-3	B21-3-7.5	10/05/12	7.5	Native	NS	<5.92	<25.7	<64.2	<61.5	<61.5	<61.5	<61.5	<61.5	<61.5	<61.5	<61.5	<61.5	<61.5	46.4
B21-4	B21-4-5.0	10/05/12	5	Native	NS	<5.02	<22.4	<55.9	<52.6	<52.6	<52.6	<52.6	<52.6	<52.6	<52.6	<52.6	<52.6	<52.6	39.7
B21-5	B21-5-7.5	10/05/12	7.5	Native	NS	<5.31	<23.6	<59.0	<55.0	<55.0	<55.0	<55.0	<55.0	<55.0	<55.0	<55.0	<55.0	<55.0	41.5
B21-6	B21-6-7.5	10/05/12	7.5	Fill	NS	<5.95	<24.0	<60.0	<58.3	<58.3	<58.3	<58.3	<58.3	<58.3	<58.3	<58.3	<58.3	<58.3	44.0
	B21-6-12.5	10/05/12	12.5	Native	NS	<4.98	<22.8	<57.1	--	--	--	--	--	--	--	--	--	--	--
B21-7	B21-7-5.0	10/05/12	5	Fill	NS	<5.60	<25.2	<63.1	<57.6	<57.6	<57.6	<57.6	<57.6	<57.6	<57.6	<57.6	<57.6	<57.6	43.5
	B21-7-12.5	10/05/12	12.5	Native	NS	<5.07	<21.9	<54.7	--	--	--	--	--	--	--	--	--	--	--
B21-8	B21-8-5.0	10/05/12	5	Fill	NS	<5.94	<24.6	<61.6	<57.2	<57.2	<57.2	<57.2	<57.2	<57.2	<57.2	<57.2	<57.2	<57.2	43.2
B21-9	B21-9-2.5	10/05/12	2.5	Fill	NS	<4.65	<22.1	<55.2	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	39.9
	B21-9-10.0	10/05/12	10	Native	NS	<5.21	<22.8	<56.9	--	--	--	--	--	--	--	--	--	--	--
B21-10	B21-10-2.5	10/08/12	2.5	Fill	NS	<5.25	<23.0	<57.5	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	<53.4	40.3
	B21-10-17.5	10/08/12	17.5	Native	NS	<7.30	<18.6	<46.5	--	--	--	--	--	--	--	--	--	--	--
B21-11	B21-11-2.5	10/08/12	2.5	Fill	NS	<4.82	<21.9	<54.8	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	<52.0	39.3
	B21-11-10.0	10/08/12	10	Native	NS	<6.21	<27.8	<69.4	<61.8	<61.8	<61.8	<61.8	<61.8	<61.8	<61.8	<61.8	<61.8	<61.8	46.7
B21-12	B21-12-5.0	10/08/12	5	Fill	NS	<5.65	<23.4	<58.4	<55.5	<55.5	<55.5	<55.5	<55.5	<55.5	<55.5	<55.5	<55.5	<55.5	41.9
	B21-12-17.5	10/08/12	17.5	Native	NS	<4.80	<20.2	<50.4	<51.0	<51.0	<51.0	<51.0	<51.0	<51.0	<51.0	<51.0	<51.0	<51.0	38.5
B21-13	B21-13-2.5	10/08/12	2.5	Fill	NS	<5.29	<24.6	<61.5	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	<55.1	41.6
	B21-13-15.0	10/08/12	15	Native	NS	<6.10	<19.1	<47.7	--	--	--	--	--	--	--	--	--	--	--
B21-14	B21-14-2.5	10/08/12	2.5	Fill	NS	<4.90	<22.3	<55.8	<52.8	<52.8	<52.8	<52.8	<52.8	<52.8	<52.8	<52.8	<52.8	<52.8	39.9
	B21-14-12.5	10/08/12	12.5	Native	NS	<5.15	<21.4	<53.5	--	--	--	--	--	--	--	--	--	--	--
B21-15	B21-15-5.0	10/08/12	5	Fill	NS	<5.11	<20.6	<51.5	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	<52.9	39.9
	B21-15-12.5	10/08/12	12.5	Native	NS	<6.07	<19.1	<47.7	--	--	--	--	--	--	--	--	--	--	--
B21-16	B21-16-2.5	10/08/12	2.5	Fill	NS	<5.05	<22.1	<55.3	<55.2	<55.2	<55.2	<55.2	<55.2	<55.2	<55.2	<55.2	<55.2	<55.2	41.7
	B21-16-10.0	10/08/12	10	Native	NS	<6.73	<19.5	<48.7	--	--	--	--	--	--	--	--	--	--	--
Test Pits Completed August 18 through September 27, 2017																			
TP21-1	TP21-1-5.0	08/17/17	5.0	Native	ns	<5.35	<18.7	<46.7	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	<38.8	29.3
TP21-2	TP21-2-2.5	08/17/17	2.5	Native	ns	<5.04	<22.2	<55.5	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	29.9
TP21-3	TP21-3-7.5	08/17/17	7.5	Native	ss	<4.89	<20.8	<52.1	<45.9	<45.9	<45.9	<45.9	<45.9	<45.9	<45.9	<45.9	<45.9	<45.9	34.7
TP21-4	TP21-4-5.0	08/17/17	5.0	Native	ss	<6.11	<22.1	<55.2	<46.6	<46.6	<46.6	<46.6	<46.6	<46.6	**49.8**	<46.6	**76.4**	**97.8**	35.2
	TP21-4-7.0	08/17/17	7.0	Native	ns	--	--	--	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	30.2
TP21-5	TP21-5-2.5	08/17/17	2.5	Native	ms	<5.54	<21.5	<53.8	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	30.8
TP21-6	TP21-6-2.5	09/27/17	Fill	Fill	ns	<5.00	<20.6	**171**	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	30.8
	TP21-6-6.0	09/27/17	Native	Native	ns	<3.70	<21.5	<53.7	<45.4	<45.4	<45.4	<45.4	<45.4	<45.4	<45.4	<45.4	<45.4	**66.5**	34.3
TP21-7	TP21-7-2.5	09/27/17	2.5	Fill	ns	<6.78	<25.1	<62.7	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	37.8
	TP21-7-5.5	09/27/17	5.5	Native	ns	<10.7	<29.2	<72.9	<57.8	<57.8	<57.8	<57.8	<57.8	<57.8	<57.8	<57.8	<57.8	<57.8	43.6
TP21-8	TP21-8-2.5	08/17/17	2.5	Fill	ns	<5.98	<23.7	<59.2	<51.2	<51.2	<51.2	<51.2	<51.2	<51.2	<51.2	<51.2	<51.2	<51.2	38.7
TP21-9	TP21-9-2.5	08/17/17	2.5	Fill	ns	<5.14	<22.4	<56.0	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	**86.3**	<46.2	**146**	**125**	**74.7**
	TP21-9-5.0	08/17/17	5.0	Native	ns	--	--	--	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	30.7
TP21-10	TP21-10-3.0	09/27/17	3.0	Fill	ns	<5.23	<18.8	<47.1	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	30.4
MTCA Method A or B Cleanup Level for Unrestricted Land Use[7]						30/100[8]	2,000		5,000[9]			320	4,800	3,200	NE	24,000	3,200	2,400	100

Notes:

[1]Soil samples were obtained between August 2017 through January 2018. Approximate sample locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

[2]Field screening methods are described in Appendix B.

[3]Gasoline-range hydrocarbons analyzed by petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

[4]Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx Extended with a silica gel cleanup.

[5]Polycyclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270D/SIM. See the laboratory report for the full list of compounds analyzed.

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

[7]Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Use. MTCA B Soil Cleanup Levels are used when no Method A Cleanup Level exists.

[8]When 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.

[9]MTCA Method A cleanup level for the sum of all naphthalenes.

mg/kg = milligrams per kilogram

mg/kg = micrograms per kilogram

bgs = below ground surface

-- = not tested

ne=not established

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

Bolding indicates analyte was detected. Shading indicates that detected concentration is greater than the applicable cleanup level.

Table 2

Pre-Construction Phase Soil Chemical Analytical Data (Metals and VOCs)

Project Rufus 2.0

Block 21, Denny Triangle, Seattle, Washington

GeoEngineers File No. 20434-001-30

Area Description	Sample ID[1]	Sample Date	Sample Depth (feet bgs)	Soil Type	Total Metals[2]						VOCs[3] (mg/kg)											
					Arsenic	Barium	Chromium	Lead	Selenium	Silver	Benzene	Toluene	Ethylbenzene	Total Xylenes	Isopropylbenzene	n-Propylbenzene	1,3,5-Trimethylbenzene	sec-Butylbenzene	4-Isopropyltoluene	n-Butylbenzene	1,2,4-Trimethylbenzene	Other VOCs
Hollow-Stem Auger Borings Completed October 4 through 11, 2012																						
MW21-1	MW21-1-5.0	10/10/12	5	Native	**0.891**	**43**	**31.9**	**1.32**	<0.450	<0.0900	**<0.0269**	**<0.0269**	**<0.0403**	**<0.0538**	**<0.108**	**<0.0269**	**<0.0269**	**<0.0269**	**<0.0269**	**<0.0269**	**<0.0269**	ND
	MW21-1-17.5	10/10/12	17.5	Native	**3.97**	**125**	**73.3**	**4.79**	<0.465	<0.0930	**<0.0347**	**<0.0347**	**<0.0521**	**<0.0694**	–	–	–	–	–	–	–	–
MW21-2	MW21-2-7.5	10/08/12	7.5	Fill	**3.09**	**95.4**	**52**	**3.41**	<0.396	<0.0793	**<0.0169**	**<0.0169**	**<0.0253**	**<0.0338**	**<0.0676**	**<0.0169**	**<0.0169**	**<0.0169**	**<0.0169**	**<0.0169**	**<0.0169**	ND
	MW21-2-20.0	10/08/12	20	Native	**2.01**	**80.1**	**29.8**	**1.68**	<0.401	<0.0803	<0.0225	<0.0225	<0.0337	<0.045	–	–	–	–	–	–	–	–
MW21-3	MW21-3-2.5	10/09/12	2.5	Native	**5.11**	**175**	**63.3**	**8.17**	<0.459	<0.0918	<0.0312	<0.0312	<0.0467	<0.0624	<0.125	<0.0312	<0.0312	<0.0312	<0.0312	<0.0312	<0.0312	ND
	MW21-3-25.0	10/09/12	25	Native	**1.34**	**28.5**	**28**	**1.31**	<0.387	<0.0775	<0.0196	<0.0196	<0.0294	<0.0392	–	–	–	–	–	–	–	–
B21-1	B21-1-7.5	10/04/12	7.5	Fill	**2.84**	**75.8**	**42.8**	**2.64**	<0.430	<0.0859	<0.0174	<0.0174	<0.0261	<0.0348	<0.0697	<0.0174	<0.0174	<0.0174	<0.0174	<0.0174	<0.0174	ND
	B21-1-25.0	10/04/12	25	Native	**0.836**	**38**	**27.0**	**1.27**	<0.391	<0.0782	<0.0220	<0.0220	<0.0329	<0.044	–	–	–	–	–	–	–	–
B21-2	B21-2-5.0	10/11/12	5	Fill	**6.37**	**126**	**59.3**	**4.76**	<0.509	<0.102	<0.0235	<0.0235	<0.0353	<0.047	<0.0941	<0.0235	<0.0235	<0.0235	<0.0235	<0.0235	<0.0235	ND
	B21-2-20.0	10/11/12	20	Native	**2.12**	**33.2**	**24.5**	**1.36**	<0.406	<0.0813	<0.0223	<0.0223	<0.0334	<0.0446	–	–	–	–	–	–	–	–
Direct-Push Borings Completed October 5 through 8, 2012																						
B21-3	B21-3-7.5	10/05/12	7.5	Native	**5.04**	**160**	**74.4**	**5.41**	<0.521	<0.0104	<0.0237	<0.0237	<0.0355	<0.0237	<0.0948	<0.0237	<0.0237	<0.0237	<0.0237	<0.0237	<0.0237	ND
B21-4	B21-4-5.0	10/05/12	5	Native	**7.24**	**106**	**49.8**	**3.46**	<0.285	<0.0769	<0.0201	<0.0201	<0.0301	<0.0201	<0.0803	<0.0201	<0.0201	<0.0201	<0.0201	<0.0201	<0.0201	ND
B21-5	B21-5-7.5	10/05/12	7.5	Native	**6.54**	**138**	**50.7**	**4.39**	<0.483	<0.0966	<0.0212	<0.0212	<0.0319	<0.0212	<0.849	<0.0212	<0.0212	<0.0212	<0.0212	<0.0212	<0.0212	ND
B21-6	B21-6-7.5	10/05/12	7.5	Fill	**4.24**	**138**	**66**	**5.4**	<0.472	<0.0945	<0.0238	<0.0238	<0.0357	<0.0238	<0.0952	<0.0238	<0.0238	<0.0238	<0.0238	<0.0238	<0.0238	ND
	B21-6-12.5	10/05/12	12.5	Native	**4.23**	**117**	**62.9**	**4.3**	<0.423	<0.0846	<0.0199	<0.0199	<0.0299	<0.0199	–	–	–	–	–	–	–	–
B21-7	B21-7-5.0	10/05/12	5	Fill	**9.65**	**145**	**79.7**	**5.84**	<0.425	<0.0850	<0.0244	<0.0244	<0.0336	<0.0244	<0.0896	<0.0244	<0.0244	<0.0244	<0.0244	<0.0244	<0.0244	ND
	B21-7-12.5	10/05/12	12.5	Native	**6.87**	**122**	**54.9**	**4.35**	<0.405	<0.0809	<0.0203	<0.0203	<0.0304	<0.0203	–	–	–	–	–	–	–	–
B21-8	B21-8-5.0	10/05/12	5	Fill	**5.47**	**159**	**76.5**	**5.6**	<0.483	<0.0965	<0.0237	<0.0237	<0.0356	<0.0237	<0.0950	<0.0237	<0.0237	<0.0237	<0.0237	<0.0237	<0.0237	ND
B21-9	B21-9-2.5	10/05/12	2.5	Fill	**8.14**	**122**	**47.4**	**3.71**	<0.371	**1.07**	<0.0186	<0.0186	<0.0279	<0.0186	–	–	–	–	–	–	–	–
	B21-9-10.0	10/05/12	10	Native	**3.78**	**88.7**	**44.4**	**3.22**	<0.409	**0.105**	<0.0208	<0.0208	<0.0313	<0.0208	–	–	–	–	–	–	–	–
B21-10	B21-10-2.5	10/08/12	2.5	Fill	**4.54**	**130**	**57.9**	**16.6**	<0.392	**0.109**	<0.0210	<0.0210	<0.0315	<0.0210	<0.0840	<0.0210	<0.0210	<0.0210	<0.0210	<0.0210	<0.0210	ND
	B21-10-17.5	10/08/12	17.5	Native	**3.46**	**21**	**17.2**	**1.25**	<0.335	<0.0669	<0.0292	<0.0292	<0.0438	<0.0292	<0.117	<0.0292	<0.0292	<0.0292	<0.0292	<0.0292	<0.0292	ND
B21-11	B21-11-2.5	10/08/12	2.5	Fill	**4.82**	**118**	**52.7**	**16.2**	<0.387	<0.0775	<0.0193	<0.0193	<0.0289	<0.0193	<0.0771	<0.0193	<0.0193	<0.0193	<0.0193	<0.0193	<0.0193	ND
	B21-11-10.0	10/08/12	10	Native	**4.29**	**180**	**92.7**	**5.77**	<0.482	<0.0965	<0.0248	<0.0248	<0.0373	<0.0248	<0.0994	<0.0248	<0.0248	<0.0248	<0.0248	<0.0248	<0.0248	ND
B21-12	B21-12-5.0	10/08/12	5	Fill	**5.48**	**119**	**49.6**	**4.42**	<0.426	<0.0851	<0.0226	<0.0226	<0.0339	<0.0226	<0.0904	<0.0226	<0.0226	<0.0226	<0.0226	<0.0226	<0.0226	ND
	B21-12-17.5	10/08/12	17.5	Native	**1.45**	**39**	**26.6**	**1.63**	<0.387	<0.0774	<0.0192	<0.0192	<0.0288	<0.0192	<0.0769	<0.0192	<0.0192	<0.0192	<0.0192	<0.0192	<0.0192	ND
B21-13	B21-13-2.5	10/08/12	2.5	Fill	**10.1**	**113**	**60.8**	**10.7**	<0.469	<0.0938	<0.0212	<0.0212	<0.0318	<0.0212	<0.0847	<0.0212	<0.0212	<0.0212	<0.0212	<0.0212	<0.0212	ND
	B21-13-15.0	10/08/12	15	Native	**2.14**	**21.5**	**20.7**	**1.05**	<0.342	<0.0683	<0.0244	<0.0244	<0.0366	<0.0244	<0.0976	<0.0244	<0.0244	<0.0244	<0.0244	<0.0244	<0.0244	ND
B21-14	B21-14-2.5	10/08/12	2.5	Fill	**2.42**	**67.1**	**43.6**	**3.02**	<0.399	<0.0798	<0.0196	<0.0196	<0.0294	<0.0196	<0.0784	<0.0196	<0.0196	<0.0196	<0.0196	<0.0196	<0.0196	ND
	B21-14-12.5	10/08/12	12.5	Native	**3.44**	**90.4**	**48.2**	**3.8**	**0.736**	<0.0114	<0.0206	<0.0206	<0.0309	<0.0206	–	–	–	–	–	–	–	–
B21-15	B21-15-5.0	10/08/12	5	Fill	**3.14**	**71.8**	**41.7**	**2.74**	<0.445	<0.0890	<0.0204	<0.0204	<0.0306	<0.0204	<0.0817	<0.0204	<0.0204	<0.0204	<0.0204	<0.0204	<0.0204	ND
	B21-15-12.5	10/08/12	12.5	Native	**1.39**	**44.1**	**31.3**	**1.47**	<0.427	<0.0855	<0.0243	<0.0243	<0.0364	<0.0243	–	–	–	–	–	–	–	–
B21-16	B21-16-2.5	10/08/12	2.5	Fill	**5.54**	**130**	**61.9**	**11.1**	<0.486	<0.0972	<0.0202	<0.0202	<0.0303	<0.0202	<0.0808	<0.0202	<0.0202	<0.0202	<0.0202	<0.0202	<0.0202	ND
	B21-16-10.0	10/08/12	10	Native	**1.15**	**36.5**	**26.5**	**1.2**	<0.419	<0.0837	<0.0269	<0.0269	<0.0404	<0.0269	<0.108	<0.0269	<0.0269	<0.0269	<0.0269	<0.0269	<0.0269	ND
Test Pits Completed August 18 through September 27, 2017																						
TP21-1	TP21-1-5.0	08/17/17	5.0	Native	**2.64**	**49.4**	**34.5**	**2.31**	**1.06**	<0.0889	<0.0214	<0.0214	<0.0267	<0.0535	<0.0267	<0.0267	<0.0267	<0.0535	<0.0535	<0.0267	<0.0214	ND
TP21-2	TP21-2-2.5	08/17/17	2.5	Native	**4.42**	**72.4**	**41.7**	**4.26**	**1.36**	<0.0897	<0.0202	<0.0202	<0.0252	<0.0504	<0.0252	<0.0252	<0.0252	<0.0504	<0.0504	<0.0252	<0.0202	ND
TP21-3	TP21-3-7.5	08/17/17	7.5	Native	**3.49**	**77.7**	**37.2**	**7.67**	**1.07**	<0.0937	<0.0196	<0.0196	<0.0245	<0.0489	<0.0245	<0.0245	<0.0245	<0.0489	<0.0489	<0.0245	<0.0196	ND
TP21-4	TP21-4-5.0	08/17/17	5.0	Native	**3.16**	**73.4**	**44.9**	**5.25**	**1.12**	<0.0898	<0.0244	<0.0244	<0.0305	<0.0611	<0.0305	<0.0305	<0.0305	<0.0611	<0.0611	<0.0305	<0.0244	ND
	TP21-4-7.0	08/17/17	7.0	Native	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP21-5	TP21-5-2.5	08/17/17	2.5	Native	**4.33**	**65.6**	**40.2**	**4.73**	**1.16**	<0.0873	<0.0222	<0.0222	<0.0277	<0.0554	<0.0277	<0.0277	<0.0277	<0.0554	<0.0554	<0.0277	<0.0222	ND
TP21-6	TP21-6-2.5	43005	Fill	Fill	**3.39**	**56.2**	**26.9**	**5.93**	**0.711**	<0.0813	<0.0200	<0.0200	<0.0250	<0.0500	<0.0250	<0.0250	<0.0250	<0.0500	<0.0500	<0.0250	<0.0200	ND
	TP21-6-6.0	43005	Native	Native	**2.00**	**44.1**	**26.9**	**3.22**	**0.931**	<0.0904	<0.0148	<0.0148	<0.0185	<0.0370	<0.0185	<0.0185	<0.0185	<0.0370	<0.0370	<0.0185	<0.0148	ND
TP21-7	TP21-7-2.5	43005	2.5	Fill	**5.99**	**143**	**59.7**	**20.2**	**1.78**	<0.104	<0.0271	<0.0271	<0.0339	<0.0678	<0.0339	<0.0339	<0.0339	<0.0678	<0.0678	<0.0339	<0.0271	ND
	TP21-7-5.5	43005	5.5	Native	**8.05**	**259**	**91.4**	**8.11**	**2.42**	<0.121	<0.0428	<0.0428	<0.0535	<107	<0.0535	<0.0535	<0.0535	<107	<107	<0.0535	<0.0428	ND
TP21-8	TP21-8-2.5	08/17/17	2.5	Native	**5.97**	**104**	**78.5**	**6.16**	**2.18**	<0.103	<0.0239	<0.0239	<0.0299	<0.0598	<0.0299	<0.0299	<0.0299	<0.0598	<0.0598	<0.0299	<0.0239	ND
TP21-9	TP21-9-2.5	42964	2.5	Fill	**5.95**	**125**	**48.9**	**73.7**	**1.58**	<0.0972	<0.0205	<0.0205	<0.0257	<0.0514	<0.0257	<0.0257	<0.0257	<0.0514	<0.0514	<0.0257	<0.0205	ND
	TP21-9-5.0	42964	5.0	Native	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TP21-10	TP21-10-3.0	09/27/17	3.0	Fill	**5.85**	**74.0**	**40.7**	**5.84**	**0.955**	<0.0885	<0.0209	<0.0209	<0.0261	<0.0523	<0.0261	<0.0261	<0.0261	<0.0523	<0.0523	<0.0261	<0.0209	ND
MTCA Method A or B Cleanup Level for Unrestricted Land Use[4]					20	ne	2,000[5]	250	ne	400	0.030	7	6	9[6]	8,000	8,000	800	8,000	ne	4,800	ne	varies
Puget Sound Natural Background Concentration					7	0.6	48	24	ne													

Notes:

[1]Soil samples were obtained between August 2017 through January 2018. Approximate sample locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

[2]Metals analyzed using EPA Method 6010C/7471B.

[3]Volatile organic compounds (VOCs) were analyzed by EPA Method 8260B. Only detected compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.

[4] Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Use. MTCA B Soil Cleanup Levels are used when no Method A Cleanup Level exists.

[5]Cleanup level for Chromium III. Chromium was not speciated.

[6]MTCA method A cleanup level for the sum of m,p- and o-xylenes (Total Xylenes).

mg/kg = milligrams per kilogram

bgs = below ground surface

-- = not tested

ND=no detection

ne = not established

Bolding indicates analyte was detected. Shading indicates that detected concentration is greater than the applicable cleanup level.

Table 3

Groundwater Chemical Analytical Data (Petroleum Hydrocarbons, VOCs and Metals)

Project Rufus 2.0

Block 21, Denny Triangle

Seattle, Washington

Monitoring Well and Sample ID[1]	Sample Date	Well Screen Depth (feet bgs)	Petroleum Hydrocarbons (µg/L)			VOCs[4] (µg/L)	RCRA 8 Metals[5] (µg/L)							
			Gasoline Range[2]	Diesel Range[3]	Heavy Oil Range[3]		Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury
MW21-1	10/15/12	75.0 - 94.8	<50.0	<50.0	<100	nd	<1.00	**28.3**	<0.200	<0.500	<1.00	**1.30**	**0.444**	<0.100
MW21-2	10/15/12	90.0 - 109.8	<50.0	<50.0	<100	nd	**1.06**	**29.3**	<0.200	<0.500	<1.00	**1.19**	**0.426**	**0.306**
MW21-3	10/15/12	80.0 - 99.8	<50.0	<50.0	<100	nd	<1.00	**32.4**	<0.200	<0.500	<1.00	**2.09**	<0.200	**0.349**
MTCA Method A or B Cleanup Level for Unrestricted Land Use			800/1000[6]	500	500	varies	5	3,200	5	50	15	80	80	2

Notes:

[1]Approximate exploration locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

[2]Gasoline-range hydrocarbons analyzed by petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

[3]Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx Extended with a silica gel cleanup or petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

[4]Volatile organic compounds (VOCs) and benzene (B), ethylbenzene (E), toluene (T) and total xylenes (X) analyzed by EPA Method 8260B. For VOCs, only detected compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.

[5]Total metals analyzed by EPA 6010B/7471A.

[6]When benzene is present, the gasoline range cleanup level is 800 µg/L. When benzene is not present the gasoline range cleanup level is 1000 µg/L.

nd = not detected

bgs = below ground surface

mg/L = micrograms per liter

Bolding indicates analyte was detected.

Table 4

Construction Phase Soil Field Screening and Chemical Analytical Data (Petroleum Hydrocarbons and PAHs)

Project Rufus 2.0

Block 21, Denny Triangle, Seattle, Washington

GeoEngineers File No. 20434-001-30

Remedial Excavation Area	Sample ID[1]	Sample Date	Depth (feet bgs)	Location of Sample Relative to Remedial Excavation	Field Screening[2]	Petroleum Hydrocarbons (mg/kg)					Non-Carcinogenic PAHs[5] (µg/kg)										Total cPAHs[6] (µg/kg)
					Sheen	Gasoline Range[3]	Diesel Range[4]	Heavy Oil Range[4]	Mineral Spirits[4]	Kersone[4]	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	TEQ
Area A	Characterization Sample[7]																				
	N14-elevator-15	11/13/17	15.0	--	HS	--	<21.2	**3,850**	--	--	--	--	--	--	--	--	--	--	--	--	--
	Confirmation Samples																				
	N14-Elevator-1-13	11/13/17	13.0	Sidewall	NS	--	<17.5	<43.7	--	--	--	--	--	--	--	--	--	--	--	--	--
	N14-Elevator-2-13	11/13/17	13.0	Sidewall	NS	--	<19.9	<49.7	--	--	--	--	--	--	--	--	--	--	--	--	--
	N14-Elevator-3-13	11/13/17	13.0	Sidewall	NS	--	<20.0	<50.1	--	--	--	--	--	--	--	--	--	--	--	--	--
	N14-Elevator-4-13	11/13/17	13.0	Sidewall	NS	--	<19.4	<48.5	--	--	--	--	--	--	--	--	--	--	--	--	--
	N14-Elevator-25	11/16/17	25.0	Base	NS	--	<18.6	<46.4	--	--	--	--	--	--	--	--	--	--	--	--	29.7
Area B[9]	Characterization Samples[7]																				
	E19S2-18	11/01/17	18.0	--	MS	--	**8,470**	<55.6	--	--	**2,170**	**8,230**	**6,730**	**194**	**769**	**1,470**	**4,250**	**245**	**130**	**418**	**32.3**
	E21S2-19	11/06/17	19.0	--	SS	--	**123**	<60.7	--	--	**152**	**543**	**567**	<44.6	**95.2**	**144**	**447**	<44.6	<44.6	**49.5**	33.7
	E25S9-18	10/31/17	18.0	--	HS	--	<22.3	**6,260**	**145**	--	--	--	--	--	--	--	--	--	--	--	**94.7**
	E26S7-18	11/01/17	18.0	--	HS	--	<20.6	**725**	**40.3**	--	**956**	**1,330**	**747**	<47.3	<47.3	<47.3	**168**	<47.3	**63.6**	**119**	**36.2**
	E25S5-21	01/09/18	21.0	--	MS	--	<19.3	**297**	**361**	--	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	30.8
	E23S0-23[8]	01/15/18	23.0	Sidewall	HS	--	**8,660**	<57.9	--	--	**3,710**	**15,200**	**13,100**	**270**	**1,170**	**2,380**	**6,180**	**622**	**147**	**619**	**31.1**
	E23S0-Composite-23-24	01/15/18	23.0	Sidewall	MS	--	**212**	<50.9	--	--	**96.7**	**500**	**479**	<46.1	<46.1	**92.1**	**250**	<46.1	<46.1	<46.1	34.8
	SC-E17S0	10/16/17	Stockpile	--	NS	--	<22.0	**74.3**	--	--	<43.9	<43.9	<43.9	<43.9	**80.1**	**85.6**	**388**	**105**	**306**	**424**	**152.1**
	SC-E17[2]	10/25/17	3.0	--	NS	<24.4	<61.0	<122	<36.6	<61.0	**381**	**174**	**141**	<49.1	**383**	**319**	**1,390**	**163**	**636**	**497**	**92.3**
	Confirmation samples																				
	E18S2-20	11/08/17	20.0	Sidewall	NS	--	<21.1	<52.7	--	--	<43.8	<43.8	<43.8	<43.8	<43.8	<43.8	<43.8	<43.8	<43.8	<43.8	33.1
	E18S4-20	11/08/17	20.0	Sidewall	NS	--	<19.3	<48.3	--	--	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	30.2
	E24S5-18	11/02/17	18.0	Sidewall	NS	--	<20.1	<50.2	--	--	<47.7	<47.7	<47.7	<47.7	<47.7	<47.7	<47.7	<47.7	<47.7	<47.7	36.0
	E23S2-29	11/08/17	29.0	Base	NS	--	<24.9	<62.2	--	--	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	35.5
	E28S4-20	11/06/17	20.0	Sidewall	NS	--	<21.4	<53.4	--	--	<43.4	<43.4	<43.4	<43.4	<43.4	<43.4	<43.4	<43.4	<43.4	<43.4	32.8
	E26S4-20	11/06/17	20.0	Sidewall	NS	--	<23.3	<58.2	--	--	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	30.6
	E26S3-20	11/06/17	20.0	Sidewall	NS	--	<25.0	<62.4	--	--	<48.5	<48.5	<48.5	<48.5	<48.5	<48.5	<48.5	<48.5	<48.5	<48.5	36.6
	E28S2-20	11/07/17	20.0	Sidewall	NS	--	<21.7	<54.2	--	--	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	33.6
	E20S0-22	01/15/18	22.0	Sidewall	NS	--	<23.6	<59.0	--	--	<46.5	<46.5	<46.5	<46.5	<46.5	<46.5	<46.5	<46.5	<46.5	<46.5	35.1
	E19S2-29	01/23/18	29.0	Base	NS	--	<20.0	<49.9	--	--	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	30.8
	E20S4-33	01/23/18	33.0	Base	NS	--	<18.4	<46.0	--	--	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	28.5

Remedial Excavation Area	Sample ID[1]	Sample Date	Depth (feet bgs)	Location of Sample Relative to Remedial Excavation	Field Screening[2]	Petroleum Hydrocarbons (mg/kg)					Non-Carcinogenic PAHs[5] (µg/kg)									Total cPAHs[6] (µg/kg)
					Sheen	Gasoline Range[3]	Diesel Range[4]	Heavy Oil Range[4]	Mineral Spirits[4]	Kersone[4]	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	TEQ
Area B[9] (cont)	E21S2-34	01/23/18	34.0	Base	NS	--	<18.7	<46.8	--	--	<42.3	<42.3	<42.3	<42.3	<42.3	<42.3	<42.3	<42.3	<42.3	<42.3	31.9
	E17S0-25	01/23/18	25.0	Base	NS	--	<21.9	<54.7	--	--	<42.9	<42.9	<42.9	<42.9	<42.9	<42.9	<42.9	<42.9	<42.9	<42.9	32.4
	E21S4-45	01/24/18	45.0	Base	NS	--	<20.0	<50.0	--	--	<35.7	<35.7	<35.7	<35.7	<35.7	<35.7	<35.7	<35.7	<35.7	<35.7	27.0
	E26S7-40	01/24/18	40.0	Base	NS	--	<18.7	<46.7	--	--	<38.6	<38.6	<38.6	<38.6	<38.6	<38.6	<38.6	<38.6	<38.6	<38.6	29.1
	E27S7-38	01/24/18	38.0	Sidewall	NS	--	<20.2	<50.6	--	--	<40.3	<40.3	<40.3	<40.3	<40.3	<40.3	<40.3	<40.3	<40.3	<40.3	30.4
	E21S5-45	01/30/18	45.0	Base	NS	--	<20.1	<50.2	--	--	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	30.8
	E19S9-18	11/02/17	18.0	Sidewall	NS	--	<23.0	<57.5	--	--	<47.8	<47.8	<47.8	<47.8	<47.8	<47.8	<47.8	<47.8	<47.8	<47.8	36.1
	E25S7-18	11/02/17	18.0	Sidewall	NS	--	<23.3	<58.3	--	--	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	<44.5	33.6
	SC-E17S2	10/16/17	Stockpile	--	NS	--	<21.8	<54.6	--	--	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	29.1
	E21S11-18	11/07/17	18.0	Sidewall	NS	--	<20.7	<51.8	--	--	<40.1	<40.1	<40.1	<40.1	<40.1	<40.1	<40.1	<40.1	<40.1	<40.1	30.3
	E25S9-21	01/10/18	21.0	Sidewall	NS	--	<22.9	<57.4	--	--	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	<49.3	37.2
	E23S12-19	11/07/17	19.0	Sidewall	NS	--	<24.7	<61.7	--	--	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	34.9
Pile E14	Characterization Sample[7]																				
	SC-E14	10/25/17	Stockpile	--	SS	--	**2,560**	**228**	--	--	**108,000**	--	--	--	--	--	--	--	--	--	--
	Confirmation sample																				
	E14S0-25	01/23/18	25.0	Base	NS	--	<20.7	<51.9	--	--	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	<41.7	31.5
Soil Disposal Characterization Samples[2]																					
Impacted and Non-Regulated Soil Areas	E4N15-2.0	11/10/17	2.0	--	NS	--	<20.3	<50.7	--	--	<44.2	<44.2	<44.2	<44.2	<44.2	<44.2	<44.2	<44.2	**62.4**	**65.8**	**33.6**
	E1N15-3.0	11/14/17	3.0	Sidewall	NS	--	<18.6	<46.5	--	--	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	<39.6	29.9
	E2N14-3.0	11/09/17	3.0	Sidewall	NS	--	<22.1	<55.1	--	--	--	--	--	--	--	--	--	--	--	--	--
	E5N17-3.0	11/09/17	3.0	Base	NS	--	<21.3	<53.2	--	--	--	--	--	--	--	--	--	--	--	--	--
	E6N19-2.0	11/10/17	2.0	Sidewall	NS	--	<27.8	<69.5	--	--	<51.5	<51.5	<51.5	<51.5	<51.5	<51.5	<51.5	<51.5	<51.5	<51.5	38.9
	E2N19-3.0	11/13/17	3.0	Sidewall	NS	--	<20.7	<51.7	--	--	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	<47.0	35.5
	E3N23-2.0	11/10/17	2.0	Sidewall	NS	--	<26.6	<66.6	--	--	<49.6	<49.6	<49.6	<49.6	<49.6	<49.6	<49.6	<49.6	<49.6	<49.6	37.4
	TP21-4-7.0	08/17/17	7.0	Base	NS	--	--	--	--	--	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	30.2
	TP21-11-3.5	10/10/17	3.5	Sidewall	NS	--	--	--	--	--	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	<40.6	30.7
	TP21-11.5.0	10/10/17	5.0	Sidewall	NS	--	--	--	--	--	<42.2	<42.2	<42.2	<42.2	<42.2	<42.2	<42.2	<42.2	<42.2	<42.2	31.9
	W9S42-8.0	10/06/17	8.0	Base	NS	--	--	--	--	--	<39.8	<39.8	<39.8	<39.8	<39.8	<39.8	<39.8	<39.8	<39.8	<39.8	30.0
	TP21-6-1-4.0	11/09/17	4.0	Sidewall	NS	--	--	--	--	--	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	<40.9	30.9
	TP21-6-2-4.0	11/09/17	4.0	Sidewall	NS	--	--	--	--	--	<41.0	<41.0	<41.0	<41.0	<41.0	<41.0	<41.0	<41.0	<41.0	<41.0	31.0
	TP21-6-3-4.0	11/09/17	4.0	Sidewall	NS	--	--	--	--	--	<42.5	<42.5	<42.5	<42.5	<42.5	<42.5	<42.5	<42.5	<42.5	<42.5	32.1
	TP21-6-4-4.0	11/09/17	4.0	Sidewall	NS	--	--	--	--	--	<39.7	<39.7	<39.7	<39.7	<39.7	<39.7	<39.7	<39.7	<39.7	<39.7	30.0
	TP21-6-B-6.0	11/09/17	6.0	Base	NS	--	--	--	--	--	<38.9	<38.9	<38.9	<38.9	<38.9	<38.9	<38.9	<38.9	<38.9	<38.9	29.4
	TP21-9-1-3.0	11/02/17	3.0	Sidewall	NS	--	--	--	--	--	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	34.1
	TP21-9-2-3.0	11/02/17	3.0	Sidewall	NS	--	--	--	--	--	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	32.5
	TP21-9-3-3.0	11/02/17	3.0	Sidewall	NS	--	--	--	--	--	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	31.1
	TP21-9-4-3.0	11/02/17	3.0	Sidewall	NS	--	--	--	--	--	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	<42.4	32.0
	TP21-9-B-5.0	11/02/17	5.0	Base	NS	--	--	--	--	--	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	<38.5	29.1
	SC-W9S38	09/26/17	Stockpile	--	NS	<5.36	<20.6	<51.5	--	**30.3**	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	**31.6**

Remedial Excavation Area	Sample ID[1]	Sample Date	Depth (feet bgs)	Location of Sample Relative to Remedial Excavation	Field Screening[2]	Petroleum Hydrocarbons (mg/kg)					Non-Carcinogenic PAHs[5] (µg/kg)									Total cPAHs[6] (µg/kg)
					Sheen	Gasoline Range[3]	Diesel Range[4]	Heavy Oil Range[4]	Mineral Spirits[4]	Kersone[4]	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	TEQ
Impacted and Non-Regulated Soil Areas (cont)	SC-W10S40	09/26/17	Stockpile	--	NS	<5.35	<21.2	<53.0	--	--	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	<40.2	**52.2**	**60.2**	**30.4**
	SC-W9S40	10/04/17	Stockpile	--	NS	--	<21.9	<54.8	--	--	<42.7	<42.7	<42.7	<42.7	<42.7	<42.7	<42.7	<42.7	<42.7	<42.7	32.2
	SC-N19E3	10/16/17	Stockpile	--	SS	--	<20.4	**94.6**	--	--	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	<41.8	**77.2**	**61.9**	**31.9**
	SC-E3N20	11/07/17	Stockpile	--	SS		<22.3	**252**	--	--	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	<45.1	**75.4**	**75.1**	**34.5**
	W6S43-7.5	10/04/17	7.5	--	NS	--	<21.8	<54.6	--	--	<45.8	<45.8	<45.8	<45.8	<45.8	<45.8	<45.8	<45.8	**122**	**123**	**77.9**
	SC-E17-6.0	10/26/17	6	--	NS	--	--	--	--	--	<52.3	<52.3	<52.3	<52.3	<52.3	<52.3	<52.3	<52.3	<52.3	<52.3	39.5
	SC-E21S0	10/19/17	Stockpile	--	NS	--	<20.2	<50.5	--	--	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A or B Cleanup Level for Unrestricted Land Use[10]						30/100[11]	2,000				5,000[12]			320	4,800	3,200	NE	24,000	3,200	2,400	100

Notes:

[1]Soil samples were obtained between August 2017 through January 2018. Approximate sample locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

[2]Field screening methods are described in Appendix B.

[3]Gasoline-range hydrocarbons analyzed by petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

[4]Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx Extended with a silica gel cleanup.

[5]Polycyclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270D/SIM. See the laboratory report for the full list of compounds analyzed.

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

[7]Soil represented by these samples was excavated and removed from the site for permitted disposal.

[8]This sample is representative of a very discrete area in the sidewall of the excavation. An additional soil sample (E23S0-Composite-23-24) was collected to characterize the actual soil conditions in the sidewall.

[9] See Table 6 for UST closure samples.

[10]Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Use. MTCA B Soil Cleanup Levels are used when no Method A Cleanup Level exists.

[11]When 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.

[12]MTCA Method A cleanup level for the sum of all naphthalenes.

mg/kg = milligrams per kilogram

mg/kg = micrograms per kilogram

bgs = below ground surface

'-- = not tested

ne=not established

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

Bolding indicates analyte was detected. Shading indicates that detected concentration is greater than the applicable cleanup level.

Table 5

Soil Disposal Characterization Chemical Analytical Data (Metals and VOCs)

Project Rufus 2.0

Block 21, Denny Triangle, Seattle, Washington

GeoEngineers File No. 20434-001-30

Remedial Excavation Area	Sample ID[1]	Sample Date	Depth (feet bgs)	Metals[2]						VOCs[3]											
				Arsenic	Barium	Chromium	Lead	Selenium	Silver	Benzene	Toluene	Ethylbenzene	Total Xylenes	Isopropylbenzene	n-Propylbenzene	1,3,5-Trimethylbenzene	sec-Butylbenzene	4-Isopropyltoluene	n-Butylbenzene	1,2,4-Trimethylbenzene	Other VOCs
Soil Disposal Characterization Samples																					
Impacted soil Areas	SC-W9S38	09/26/17	--	**4.66**	**69.5**	**45.1**	**13.0**	**1.04**	<0.0880	<0.0215	<0.0215	<0.0268	<0.0536	--	--	--	--	--	--	--	ND
	SC-W10S40	09/26/17	--	**2.68**	**54.8**	**30.2**	**21.7**	**0.0691**	<0.0797	<0.0214	<0.0214	<0.0268	<0.0535	--	--	--	--	--	--	--	ND
	SC-W9S40	10/04/17	--	--	--	--	--	--	--	<0.0217	<0.0217	<0.0217	<0.0597	<0.0271	<0.0271	<0.0271	<0.0543	<0.0543	<0.0271	<0.0217	--
	W6S43-7.5	10/04/17	7.5	--	--	--	--	--	--	<0.0228	<0.0228	<0.0285	<0.0570	<0.0285	<0.0285	<0.0285	<0.0570	<0.0570	<0.0285	<0.0228	ND
Area B	SC-E14	10/25/17	4	--	--	--	--	--	--	<0.464	<0.464	**2.17**	**11.47**	**2.88**	**14.9**	**45.5**	**4.26**	**3.76**	**30.7**	**229**	ND
	SC-E17	10/25/17	--	--	--	--	--	--	--	<0.0254	<0.0254	<0.0318	<0.0636	<0.0318	<0.0318	<0.0318	<0.0636	<0.0636	<0.0318	<0.0254	ND
MTCA Method A or B Cleanup Level for Unrestricted Land Use[4]				20	ne	2,000[5]	250	ne	400	0.030	7	6	16,000[6]	8,000	8,000	800	8,000	ne	4,800	ne	varies
Puget Sound Natural Background Concentration				7	0.6	48	24	ne													

Notes:

[1]Soil samples were obtained between August 2017 through January 2018. Approximate sample locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington. Only samples that were analyzed for total metals and VOC analysis are presented on this table.

[2]Metals analyzed using EPA Method 6010C/7471B.

[3]Volatile organic compounds (VOCs) were analyzed by EPA Method 8260B. For VOCs, only detected compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.

[4] Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Use. MTCA B Soil Cleanup Levels are used when no Method A Cleanup Level exists or when conditions and sample locations are protective of groundwater.

[5]Cleanup level for Chromium III. Chromium was not speciated and previous site uses are not generators of hexavalent chromium.

[6]MTCA Method B direct contact cleanup level for the sum of m,p- and o-xylenes (Total Xylenes). Direct contact cleanup level is being used since pathway to groundwater is incomplete and xylenes were not detected in groundwater samples at the subject property.

mg/kg = milligrams per kilogram

bgs = below ground surface

-- = not tested

ND=no detection

ne = not established

Bolding indicates analyte was detected. Shading indicates that detected concentration is greater than the applicable cleanup level.

Table 6

UST Site Assessment Analytical Data (Petroleum and PAHs)

Project Rufus 2.0

Block 21, Denny Triangle, Seattle, Washington

GeoEngineers File No. 20434-001-30

Sample ID[1]	Sample Date	Depth (feet bgs)	Location of Sample Relative to UST	Field Screening[2]	Petroleum Hydrocarbons (mg/kg)			Non-Carcinogenic PAHs[5] (µg/kg)										Total cPAHs[6] (µg/kg)	VOCs[7] (mg/kg)				Total Metals[8] (mg/kg)
				Sheen	Gasoline Range[3]	Diesel Range[4]	Heavy Oil Range[4]	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	TEQ	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
UST-1[9]																							
UST-1-SW-1-6.0	10/12/17	6.0	Sidewall	NS	--	<19.4	<48.6	<38.3	<38.3	<38.3	<38.3	<38.3	<38.3	<38.3	<38.3	<38.3	<38.3	28.9	--	--	--	--	--
UST-1-SW-2-6.0	10/12/17	6.0	Sidewall	NS	--	<20.3	<50.6	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	<40.8	30.8	--	--	--	--	--
UST-1-SW-3-6.0	10/12/17	6.0	Sidewall	NS	--	<20.5	<51.4	<41.4	<41.4	<41.4	<41.4	<41.4	<41.4	<41.4	<41.4	<41.4	<41.4	31.3	--	--	--	--	--
UST-1-SW-B-8.0	10/16/17	8.0	Base	NS	--	<18.8	<47.1	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	<40.5	30.6	--	--	--	--	--
UST-2[10]																							
E20S4-18	10/31/17	18.0	Base	HS	--	**21,700**	<58.0	--	--	--	--	--	--	--	--	--	--	**37.0**	**0.178**	**3.02**	**5.33**	**26.91**	--
E20S4-33	01/23/18	33.0	Base	NS	--	<18.4	<46.0	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	<37.7	28.5	--	--	--	--	--
E18S7-21	01/10/18	21.0	Sidewall	NS	--	<22.7	<56.7	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	<46.2	34.9	--	--	--	--	--
E19S2-18	11/01/17	18.0	Sidewall	MS	--	**8,470**	<55.6	**2,170**	**8,230**	**6,730**	**194**	**769**	**1,470**	**4,250**	**245**	**130**	**418**	**32.3**	--	--	--	--	--
UST-3[11]																							
UST3-Below	11/03/17	19.0	Base	NS	<5.85	<23.8	<59.5	<46.0	<46.0	<46.0	<46.0	<46.0	<46.0	<46.0	<46.0	<46.0	<46.0	34.7	<0.0234	<0.0234	<0.0293	<0.0585	**3.54**
E18S9-21	01/10/18	21.0	Sidewall	NS	--	<20.6	<51.5	<47.2	<47.2	<47.2	<47.2	<47.2	<47.2	<47.2	<47.2	<47.2	<47.2	35.6	--	--	--	--	--
E19S9-21	01/10/18	21.0	Sidewall	NS	--	<21.1	<52.8	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	<43.0	32.5	--	--	--	--	--
MTCA Method A or B Cleanup Level for Unrestricted Land Use[12]					30/100[13]	2,000		5,000[14]			320	4,800	3,200	NE	24,000	3,200	2,400	100	18[15]	7	6	9[16]	250

Notes:

[1]Soil samples were obtained between October 2017 through January 2018. Approximate sample locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

[2]Field screening methods are described in Appendix B.

[3]Gasoline-range hydrocarbons analyzed by petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

[4]Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx Extended with a silica gel cleanup.

[5]Polycyclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270D/SIM. See the laboratory report for the full list of compounds analyzed.

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

[7]Volatile organic compounds (VOCs) were analyzed by EPA Method 8260B. For VOCs, only detected compounds are presented in the table. See the laboratory report for the full list of compounds analyzed and detection limits.

[8]Metals analyzed using EPA Method 6010c.

[9]Product sample (UST-1-PR) was analyzed for Total Petroleum Hydrocarbons Identification by Ecology Method NWTPH-HCID. Diesel (fuel oil) range petroleum hydrocarbons were detected.

[10]Product sample (UST-2-PR) was analyzed for Total Petroleum Hydrocarbons Identification by Ecology Method NWTPH-HCID. Diesel (fuel oil) range petroleum hydrocarbons were detected.

[11]Product sample (UST-3-PR) was analyzed for Total Petroleum Hydrocarbons Identification by Ecology Method NWTPH-HCID. Diesel (fuel oil) range petroleum hydrocarbons and mineral spirits were detected.

[12]Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Use. MTCA B Soil Cleanup Levels are used when no Method A Cleanup Level exists.

[13]When 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.

[14]MTCA Method A cleanup level for the sum of all naphthalenes.

[15]MTCA Method B direct contact cleanup level for Benzene. Direct contact cleanup level is being used since pathway to groundwater is incomplete and benzene were not detected in groundwater samples at the subject property.

[16]MTCA method A cleanup level for the sum of m,p- and o-xylenes (Total Xylenes).

mg/kg = milligrams per kilogram

µg/kg = micrograms per kilogram

bgs = below ground surface

-- = not tested

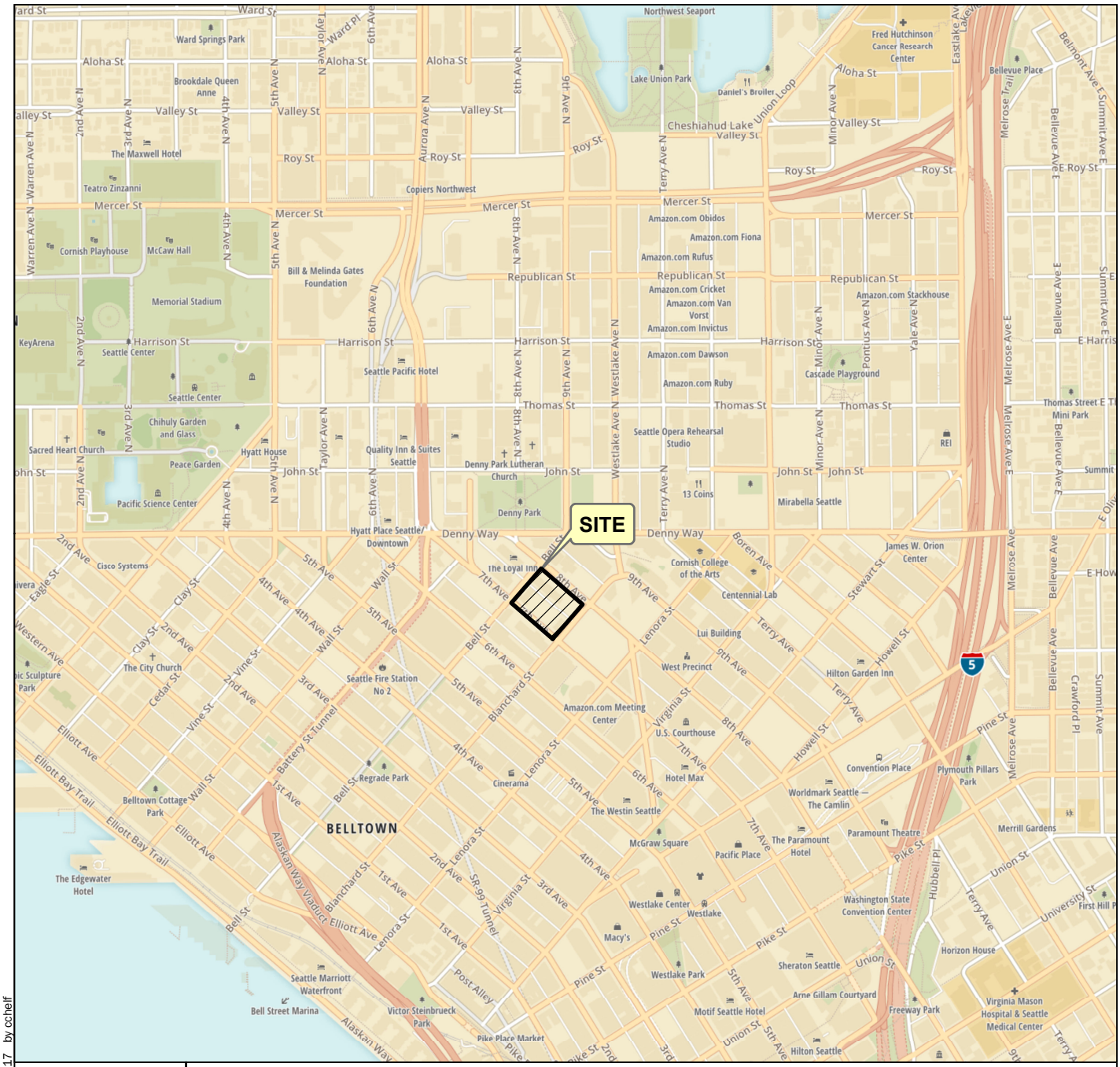
ne=not established

NS = no sheen, HS = heavy sheen

Bolding indicates analyte was detected. Shading indicates that detected concentration is greater than the applicable cleanup level.

FIGURES

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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, 2016

Projection: NAD 1983 UTM Zone 10N

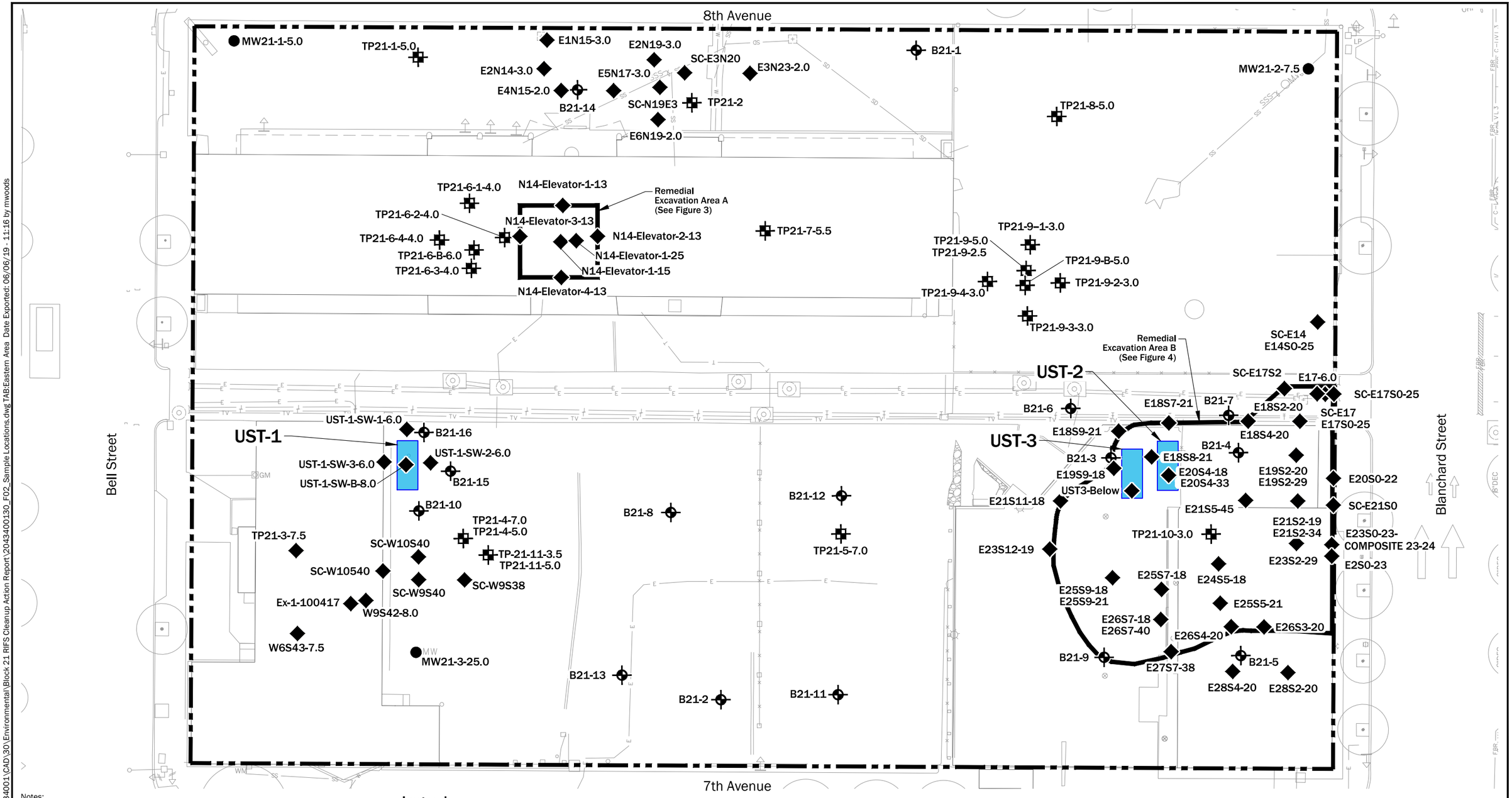
Vicinity Map

Rufus 2.0 Development - Block 21
Seattle, Washington

GeoEngineers

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: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Aerial photo from Aerial Express, 2009. Contour data from Puget Sound LIDAR Consortium, 2000.

Projection: NAD83 WA State Planes, N Zone, US Foot

Legend

- Subject Property Boundary
- Historic Underground Storage Tank (UST) Locations
- E27S7-38 — Characterization or Confirmation Soil Sample - Obtained in 2017 or 2018; Approximate Depth Below Previous Ground Surface; Sample ID
- TP21-1 — Test Pit (GeoEngineers)
- MW21-1 — Monitoring Well (GeoEngineers)
- B21-1 — Boring (GeoEngineers)

True North

Project North

30 0 30
Feet

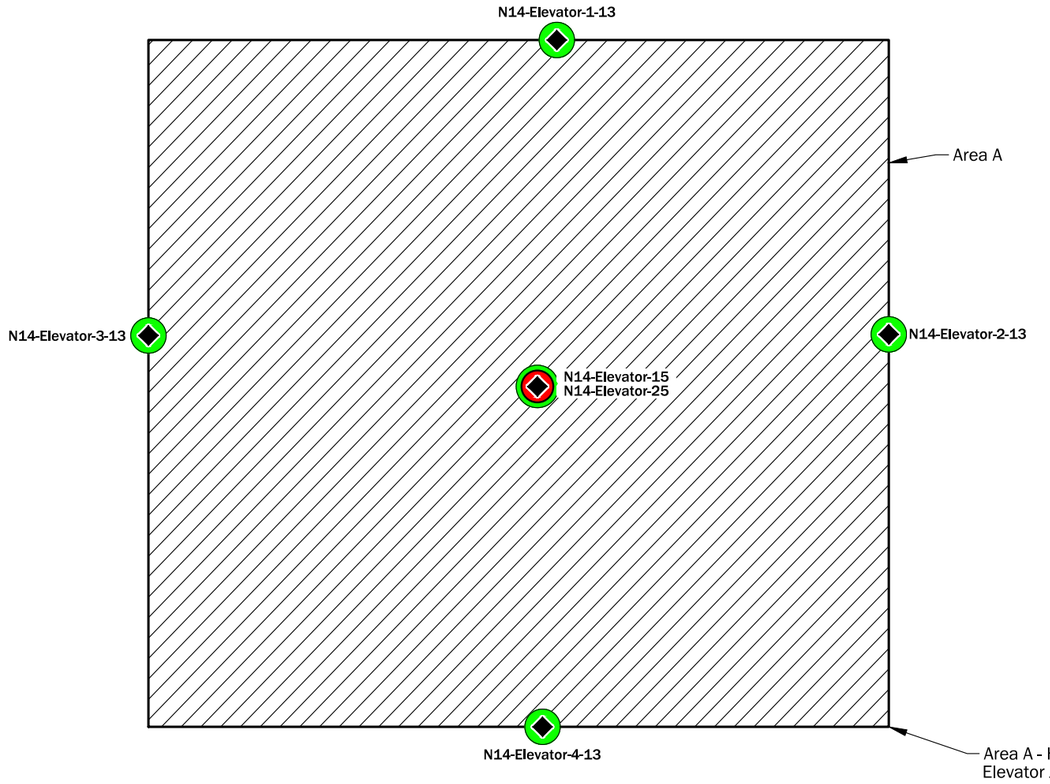
Characterization and Confirmation Sample Locations

Rufus 2.0 Development - Block 21
Seattle, Washington

GeoEngineers

Figure 2

\\geoengineers.com\WAN\Projects\20\20434001\CAD\30\Environmental\Block 21 RIFS Cleanup Action Report\20434001300130_F02_SampleLocations.dwg TAB:Eastern Area Date Exported: 06/06/19 - 11:16 by mwoods



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: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Aerial photo from Aerial Express, 2009. Contour data from Puget Sound LIDAR Consortium, 2000.

Projection: NAD83 WA State Planes, N Zone, US Foot

Legend

Approximate Remedial Excavation Area

N14-Elevator-3-13 — Characterization or Confirmation Soil Sample - Obtained in 2017 or 2018
Approximate Depth Below Previous Ground Surface
Sample ID

TP21-1 — Exploration (GeoEngineers)

Contaminants of concern detected at concentrations greater than the corresponding MTCA cleanup levels

Contaminants of concern were not detected

True North

Project North

5 0 5
Feet

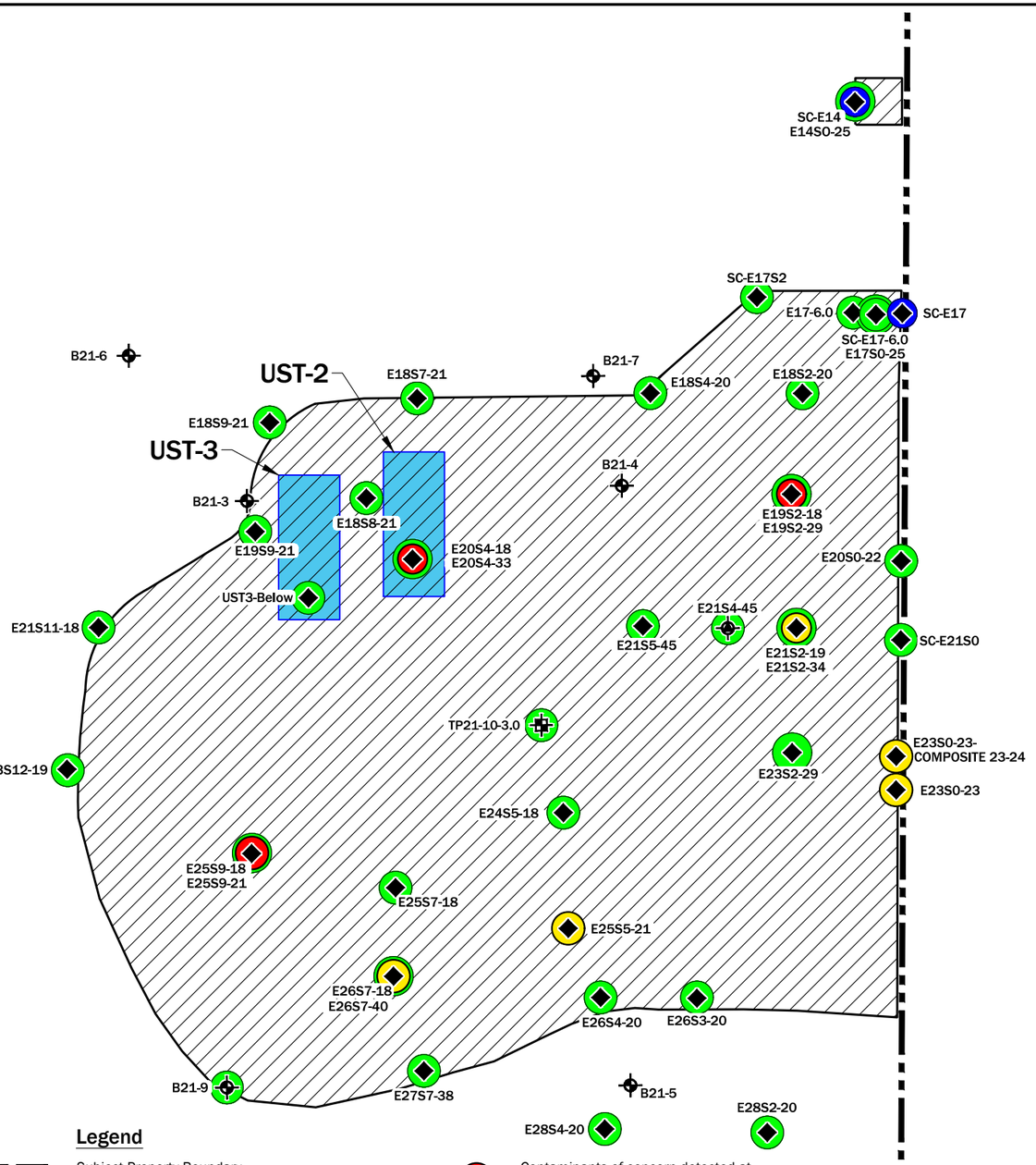
Remedial Excavation Area A

Rufus 2.0 Development - Block 21
Seattle, Washington

GeoEngineers

Figure 3

\\geoengineers.com\WAN\Projects\20\20434001\CAD\30\Environmental\Block 21 RIFS Cleanup Action Report\20434001130_F03 RE Area A.dwg TAB:North Area Date Exported: 06/06/19 - 10:44 by mwoods



Legend

- Subject Property Boundary
- Approximate Remedial Excavation Area
- E27S7-38 — Characterization or Confirmation Soil Sample - Obtained in 2017 or 2018; Approximate Depth Below Previous Ground Surface; Sample ID
- TP21-1 — Test Pit (GeoEngineers)
- B21-1 — Boring (GeoEngineers)
- Historic Underground Storage Tank (UST) Locations (removed)
- Contaminants of concern detected at concentrations greater than the corresponding MTCA cleanup levels
- Contaminants of concern detected at concentrations less than the corresponding MTCA cleanup levels
- Contaminants of concern were not detected, or detected at background conditions
- Soil within the shored perimeter of the subject property characterized by this stockpile sample was excavated and transported off site for permitted disposal.

True North

Project North

15 0 15
Feet

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

Data Source: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Aerial photo from Aerial Express, 2009. Contour data from Puget Sound LIDAR Consortium, 2000.

Projection: NAD83 WA State Planes, N Zone, US Foot

Remedial Excavation Area B

Rufus 2.0 Development - Block 21
Seattle, Washington

GeoEngineers

Figure 4

\\geoengineers.com\WAN\Projects\20\20434001\CAD\30\Environmental\Block 21 RIFS Cleanup Action Report\20434001130_F04 RE Area B.dwg TAB:Eastern Area Date Exported: 07/11/19 - 17:57 by mwoods

APPENDICES

GeoEngineers

APPENDIX A
Limitations and Guidelines for Use

APPENDIX A
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This Appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of Acorn Development, LLC their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment or remedial action study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except Acorn Development, LLC should rely on this plan without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

This Environmental Report Is Based on a Unique Set of Project-Specific Factors

This report applies to Block 21 in the Denny Triangle neighborhood of Seattle, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this remedial action plan, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

Reliance Conditions for Third Parties

No third party may rely on the product of our services unless GeoEngineers agrees in advance, and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Environmental Regulations Are Always Evolving

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain after Completion of Remedial Activities

Remediation activity completed in a portion of a site cannot wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Geotechnical, Geologic and Geoenvironmental Reports Should Not Be Interchanged

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.

If the client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

APPENDIX B
Field Procedures and Boring Logs

APPENDIX B
FIELD PROCEDURES AND BORING LOGS

Characterization Soil Collection and Handling

Subsurface conditions at the Property were evaluated by completing direct push explorations using equipment owned and operated by Cascade Drilling of Woodinville, Washington and; hollow-stem auger explorations were also completed using equipment owned and operated by Geologic Drill of Spokane, Washington. Geologic Drill and Cascade Drilling are both Washington state-licensed drilling companies.

Direct-push drilling was conducted using track-mounted direct-push drilling equipment. Continuous soil cores were obtained from the direct-push borings using 2¼-inch diameter, 4-foot long stainless-steel sampler rods driven with a pneumatic hammer. Soil samples were collected in clean, plastic 1½-inch diameter disposable liners. The liners were placed inside the sampling rod and then hydraulically driven or pushed into the soil at the selected sampling depth. Soil samples obtained from the direct push borings were collected from the sampler with a stainless-steel knife or new gloves. The direct push sampler was driven a maximum of 48 inches using a pneumatic hammer. A portion of each sample was placed in laboratory-prepared sample jars for possible chemical analysis. The remaining portion of each sample was used for field screening. The sampling equipment was decontaminated prior to each use with an Alconox® wash and a clean water rinse. The direct-push borings extended to a maximum depth of approximately 20 feet bgs. The sampling equipment was decontaminated before each sampling attempt with an Alconox® wash and a clean water rinse. Soil samples were obtained from continuous cores for field screening and possible chemical analysis.

Hollow-stem auger drilling was conducted in general accordance with Washington Administrative Code (WAC) 173-760. Soil samples were obtained from the borings at 2.5- to 5-foot depth intervals for field screening and possible chemical analysis. Soil samples from the borings were obtained using a 2.5-inch diameter, split barrel sampler. The sampler was driven a maximum of 18 inches by a 140-pound weight falling a vertical distance of approximately 30 inches. The number of blows needed to advance the sampler the final 12 inches or other specified distance is indicated to the left of the corresponding sample notation on the boring logs. Using new disposable gloves, soil from the spit-barrel sampler was placed in laboratory-prepared sample jars for possible chemical analysis. The remaining portion of the sample was placed in a plastic bag for field screening. The hollow-stem auger borings extended to a maximum depth of approximately 110 feet bgs. The drilling equipment was decontaminated by steam cleaning prior to drilling each boring. The three hollow-stem auger borings were completed as monitoring wells (described below).

A representative from our staff classified the soil encountered in each of the borings. Soil in the explorations was visually classified in general accordance with ASTM International (ASTM) D 2488-94. The boring logs are presented in Figures B-2 through B-20.

Samples from each boring were selected for chemical analysis based the sample location relative to potential sources of contamination. Samples submitted for chemical analysis are shown on the logs. The soil samples were placed in a cooler with ice for transport to the laboratory. Standard chain-of-custody procedures were followed in transporting the soil samples to the laboratory.

Construction Confirmation Sample Collection and Handling

Soil samples were obtained from the excavation area using a clean nitrile-gloved hand from the excavator bucket. Each sample was placed in a 4-ounce laboratory-prepared jar filled to minimize headspace. New gloves were used before collecting each sample to prevent cross-contamination. The samples were placed in an iced cooler pending transport to the analytical laboratory.

Each sample submitted for chemical analysis was identified by a unique sample designation that corresponded to its mapped sample location and depth. Chain-of-custody procedures were followed in transporting the samples to the laboratory.

Field Screening of Soil Samples

A representative from our staff performed field screening of soil samples obtained from the excavation. Field screening results are used as a general guideline to delineate areas with possible petroleum hydrocarbons. In addition, screening results are used to aid in the selection of soil samples for chemical analysis. The screening methods used included visual screening water sheen screening, and photoionization detector (PID).

Visual screening consists of inspecting the soil for stains indicative of petroleum hydrocarbons. Visual screening is generally more effective when hydrocarbons are heavier, such as motor oil, or when hydrocarbon concentrations are high. Water sheen screening is a more sensitive method that can be effective in detecting contamination at concentrations less than regulatory cleanup levels. However, field screening results are site-specific. The effectiveness of field screening varies with temperature, moisture content, organic content, soil type and age of contaminant. The presence or absence of a sheen does not necessarily indicate the presence or absence of petroleum hydrocarbons.

Water sheen screening involves placing soil in water and observing the water surface for signs of sheen. Sheen screening may detect both volatile and nonvolatile petroleum hydrocarbons. Sheen classifications are as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil may produce a slight sheen.
Moderate Sheen (MS)	Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted in the bag and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in ppm (parts per million) and is calibrated to isobutylene. The PID is designed to quantify combustible gas and organic vapor concentrations up to 2,500 ppm with a lower threshold of significance of 1 ppm in this application. Field screening results are site-specific and vary with soil type, soil moisture content, temperature and type of contaminant.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Groundwater Contact

- **Measured groundwater level in exploration, well, or piezometer**
- **Groundwater observed at time of exploration**
- **Perched water observed at time of exploration**
- **Measured free product in well or piezometer**

Graphic Log Contact

- **Distinct contact between soil strata or geologic units**
- **Approximate location of soil strata change within a geologic soil unit**

Material Description Contact

- **Distinct contact between soil strata or geologic units**
- **Approximate location of soil strata change within a geologic soil unit**

Sampler Symbol Descriptions

- **2.4-inch I.D. split barrel**
- **Standard Penetration Test (SPT)**
- **Shelby tube**
- **Piston**
- **Direct-Push**
- **Bulk or grab**

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PP	Pocket penetrometer
PPM	Parts per million
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GeoEngineers

FIGURE B-1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	10/10/2012	10/10/2012	96	SLG	LCF	Geologic Drill Exploration, Inc.	Hollow-Stem Auger

Hammer Data	Automatic Hammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D50
Surface Elevation (ft) Vertical Datum	88.5 NAVD88	Top of Casing Elevation (ft)	88.1
Easting (X) Northing (Y)		Horizontal Datum	

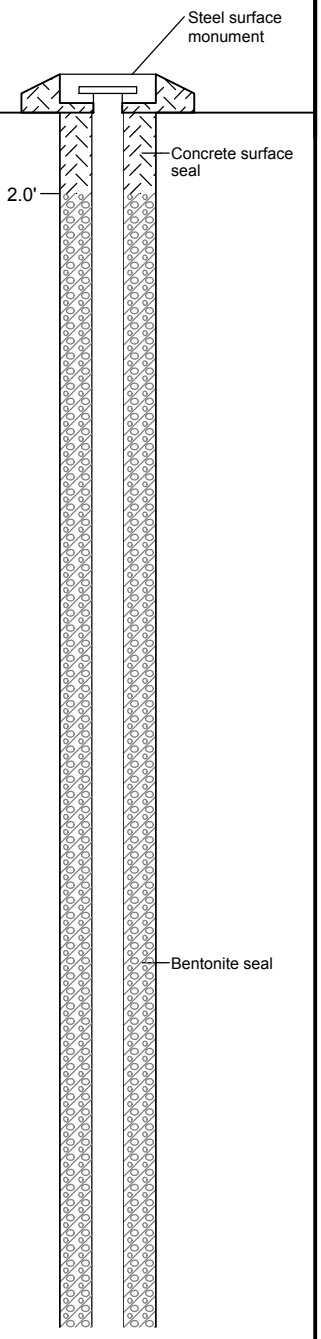
DOE Well I.D.: BHM 358
A 2 (in) well was installed on 10/10/2012 to a depth of 95 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
10/15/2012	71.7	16.8

Notes: Field screening completed for each sample to a depth of 30 feet. No sheen or contaminated odor was observed, and headspace vapor was less than 1 ppm.

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0							AC	5 inches asphalt concrete		
		12			1			SP-SM	Brownish-gray fine to medium sand with silt and occasional silt pockets (medium dense to dense, moist) (recent deposits)		
									%F = 9		
85		18	23		2						
	5	18	33		3 CA						
		18	44		4				%F = 11		
80											
	10	12	64		5 SA			SP	Gray fine to coarse sand with gravel (very dense, moist) (cohesionless sand and gravel)		
									%F = 5		
		12	50/6"		6			SP-SM	Gray fine to medium sand with silt and occasional gravel (very dense, moist)		
75											
	15	18	36		7 AL			CL	Gray sandy clay with gravel and occasional cobbles (hard, moist) (till-like deposits)		
									%F = 57		
		18	40		8 CA				Driller encountered 2- to 3-inch gravel		
70											
	20	16	91/11"		9			SM	Gray silty fine to medium sand with gravel (very dense, moist)		
65											
	25	18	83/12"		10 SA				%F = 17		
60											
	30										

WELL LOG



Note: See Figure A-1 for explanation of symbols.

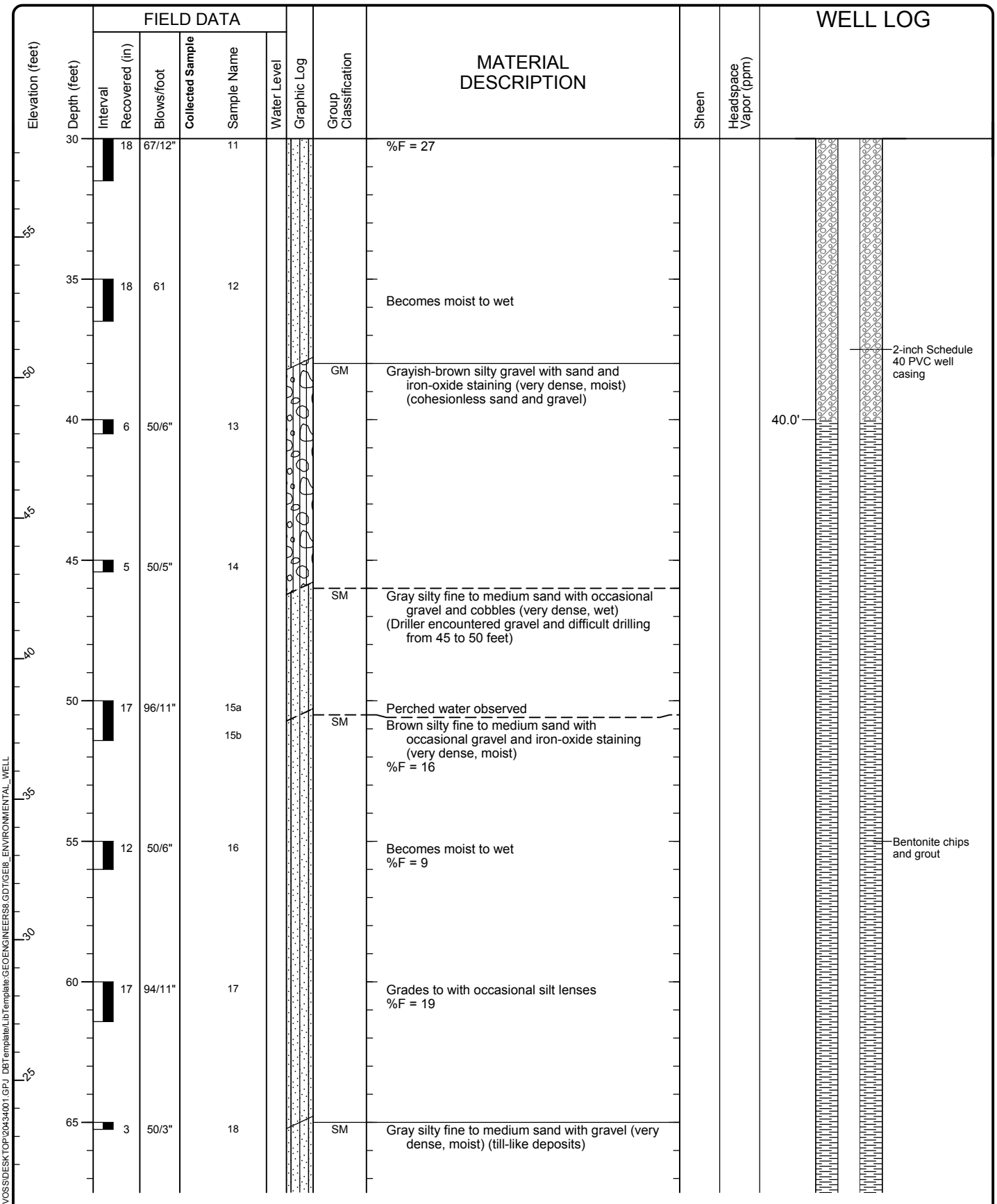
Log of Monitoring Well MW21-1

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-2
Sheet 1 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL



Note: See Figure A-1 for explanation of symbols.

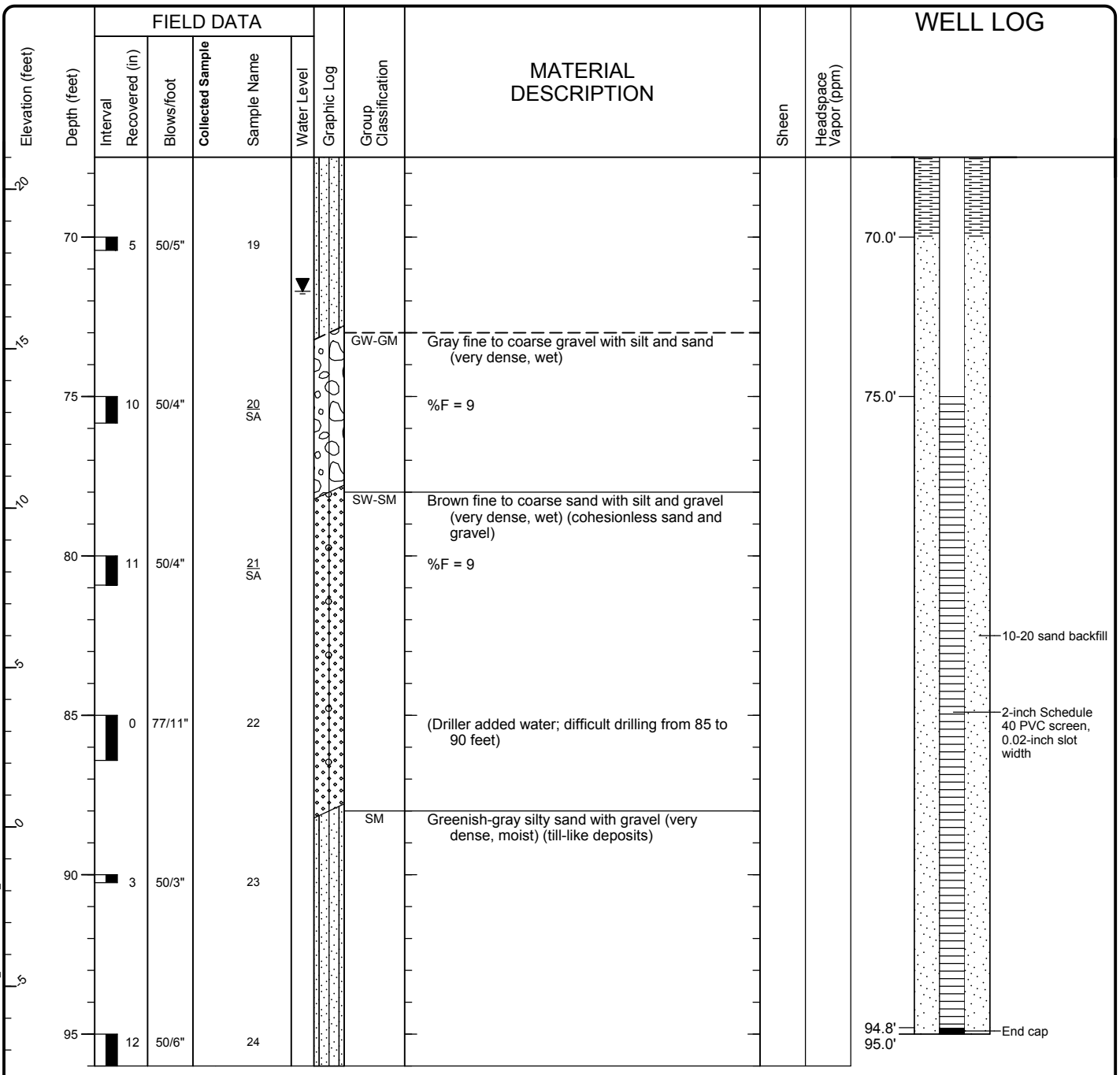
Log of Monitoring Well MW21-1 (continued)

GeoEngineers

Project:	Rufus 2.0 Development Block 21
Project Location:	Seattle, Washington
Project Number:	20434-001-11

Figure B-2
Sheet 2 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW21-1 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-2
Sheet 3 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	10/8/2012	10/8/2012	111	SLG LCF	Geologic Drill Exploration, Inc.	Hollow-Stem Auger

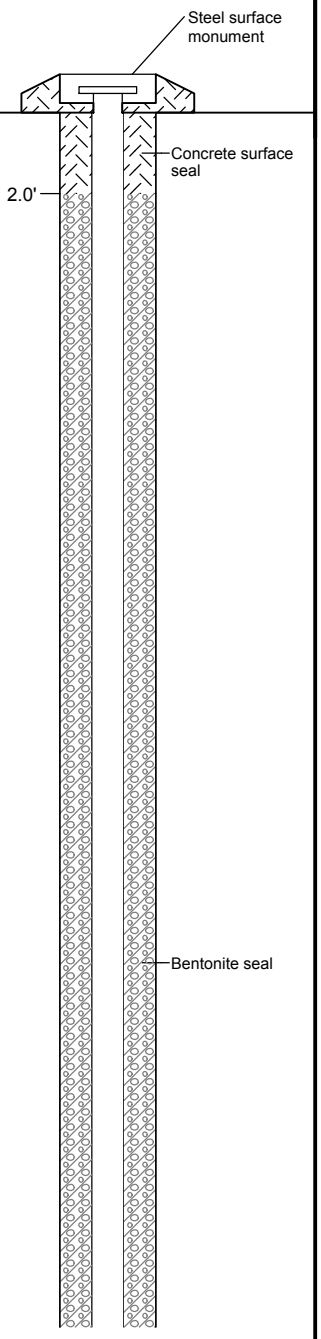
Hammer Data	Automatic Hammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D50
Surface Elevation (ft) Vertical Datum	85.5 NAVD88	Top of Casing Elevation (ft)	85.1
Easting (X) Northing (Y)		Horizontal Datum	

DOE Well I.D.: BHM 356
A 2 (in) well was installed on 10/8/2012 to a depth of 110 (ft).

Groundwater		
Date Measured	Depth to Water (ft)	Elevation (ft)
10/15/2012	69.6	15.9

Notes: Field screening completed for each sample to a depth of 30 feet. No sheen or contaminated odor was observed, and headspace vapor was less than 1 ppm.

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
85	0							AC	1.5 inches asphalt concrete		
								CR	5 inches crushed rock base course		
		6			1			ML	Brown silt with sand and occasional gravel (stiff to very stiff, moist) (fill)		
		8	16		2				With orange mottling (stiff to very stiff, moist)		
80	5	18	18		3 AL			CL	Brown clay with sand (very stiff, moist) (recent deposits)		
		18	21		4 CA			SM	Brown silty fine to medium sand with occasional gravel and trace organics		
75	10	18	54		5 SA			SM	Grayish-brown silty fine to medium sand with gravel and occasional cobbles (very dense, moist) (till-like deposits) %F = 29		
		10	50/6"		6						
70	15	3	50/3"		7				(Rock in bottom of sampler shoe) %F = 12		
		11	50/5"		8				(Sampler bounces on rock at 17.5 feet)		
65	20	10	50/4"		9 CA						
		12	50/6"		10						
60	25	18	45		11			SP-SM	Grayish-brown fine to medium sand with silt (dense, moist) (cohesionless sand and gravel) %F = 6		
		18	56		12				Grades to very dense %F = 10		
	30										



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW21-2

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-3
Sheet 1 of 4

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	WELL LOG
	30									%F = 11			
-15		15	54			13							
	35								SM	Grayish-brown silty fine to medium sand (very dense, moist) %F = 14			
-20		18	51			14							
	40								SP	Grayish-brown fine to medium sand (very dense, moist) %F = 5			40.0'
-25		18	53			15							
	45								SM	Dark gray silty sand with gravel and occasional cobbles (very dense, moist) (till-like deposits) (Driller noted gravel at 43.5 feet)			2-inch Schedule 40 PVC well casing
-30		11	50/5"			16							
	50									(Sampler bouncing on rock)			
-35		12	50/2"			17							
	55								SM	Orange-brown silty fine to medium sand (very dense, moist) (cohesionless sand and gravel) %F = 13 Small amount of wood fragments in cuttings from 55 to 60 feet			
-40		4	50/5"			18							Bentonite and grout
	60								SM	Orange-brown silty fine to medium sand with iron-oxide staining (very dense, moist to wet)			
-45		17	50/5"			19							
									SM	Gray silty fine to medium sand (very dense, moist to wet) %F = 13			
-50	65	18	74			20a							
						20b			SM	Orange-brown fine to medium sand (very dense, moist to wet)			

Note: See Figure A-1 for explanation of symbols.

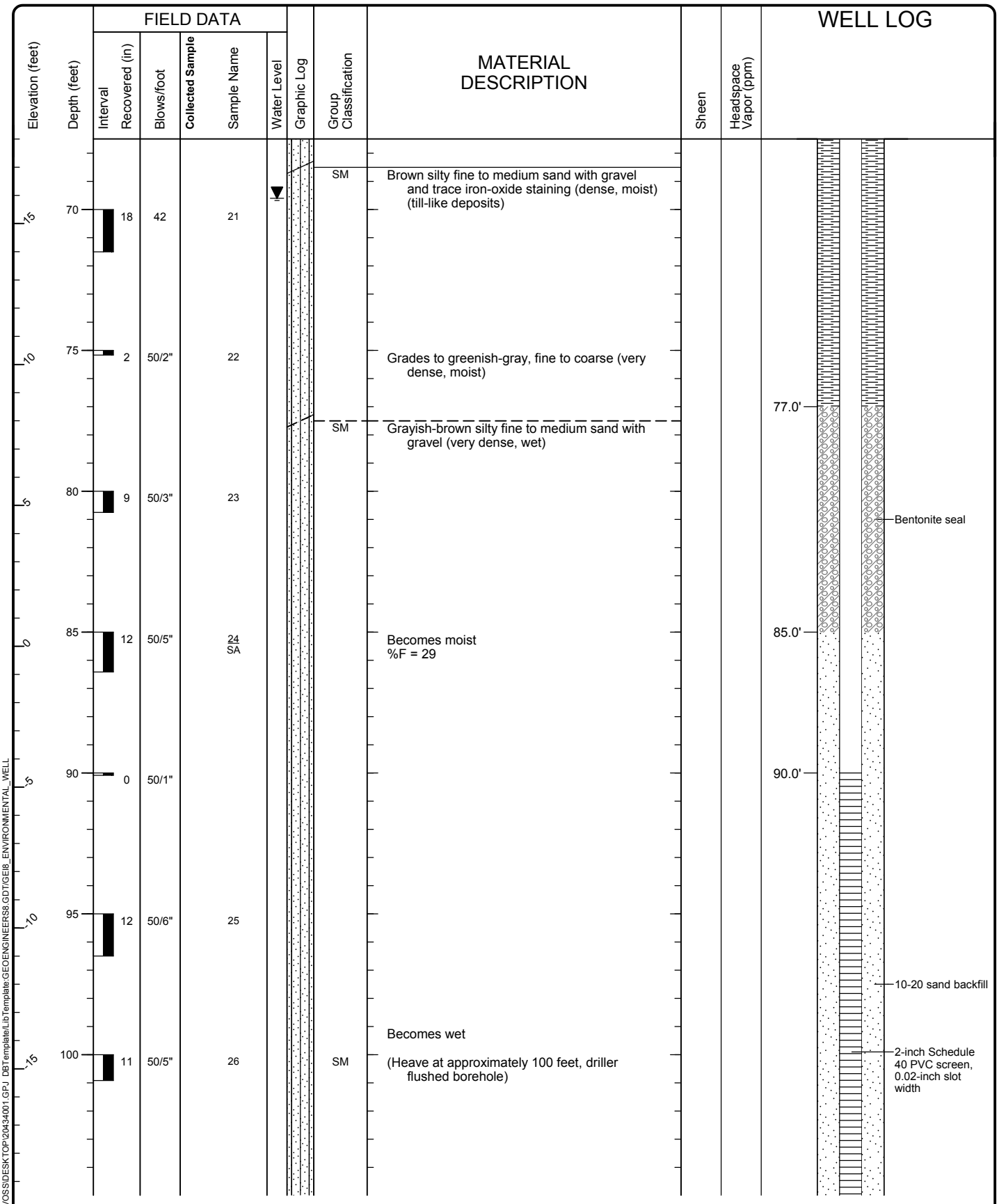
Log of Monitoring Well MW21-2 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-3
Sheet 2 of 4

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL



Note: See Figure A-1 for explanation of symbols.

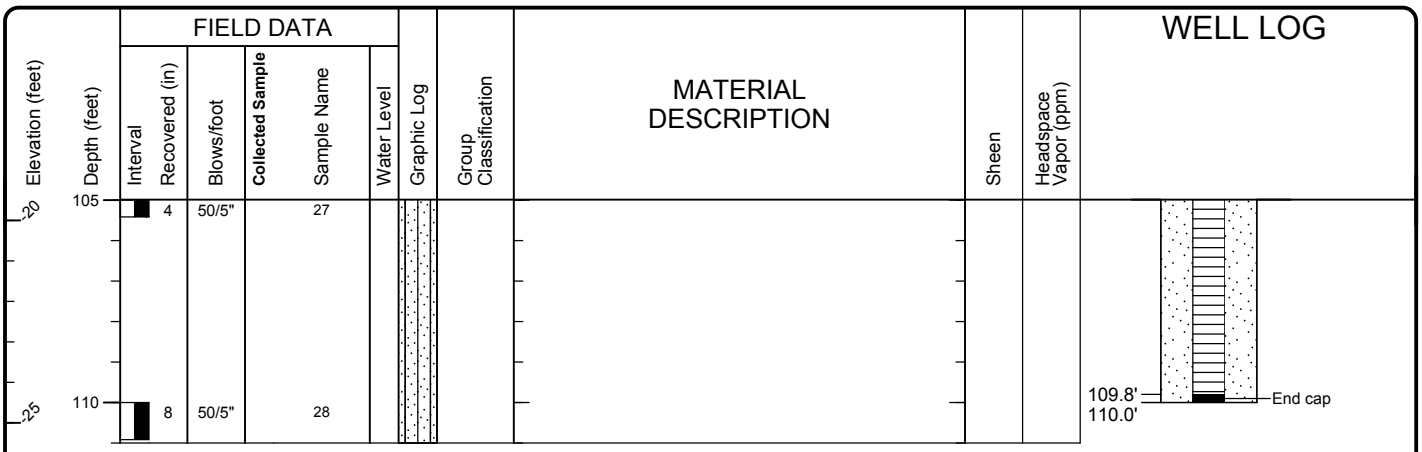
Log of Monitoring Well MW21-2 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-3
Sheet 3 of 4

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW21-2 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-3
Sheet 4 of 4

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
10/9/2012	10/9/2012	100.5	SLG / LCF	Geologic Drill Exploration, Inc.	Hollow-Stem Auger

Hammer Data	Automatic Hammer 140 (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D50
Surface Elevation (ft) / Vertical Datum	102.8 NAVD88	Top of Casing Elevation (ft)	102.2
Easting (X) / Northing (Y)		Horizontal Datum	

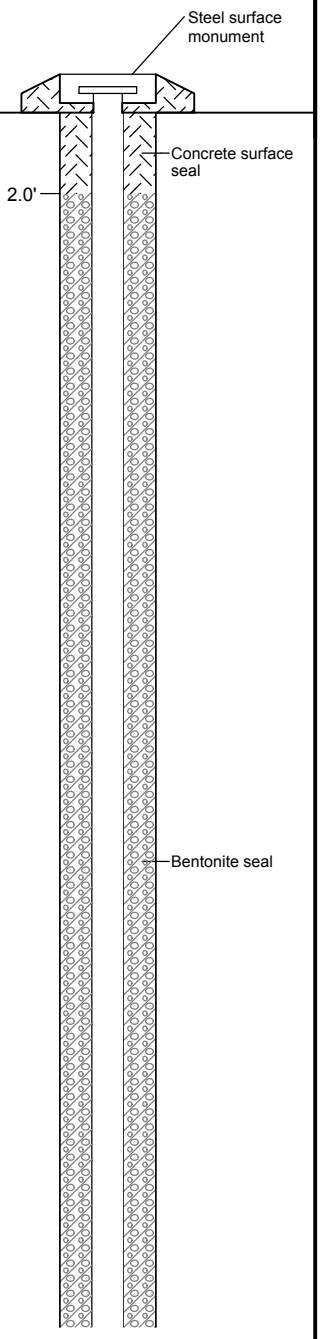
DOE Well I.D.: BHM 357
A 2 (in) well was installed on 10/9/2012 to a depth of 100 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
10/9/2012	84.2	18.6

Notes: Field screening completed for each sample to a depth of 30 feet. No sheen or contaminated odor was observed, and headspace vapor was less than 1 ppm.

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0								AC	6 inches asphalt concrete		
			12			1			ML	Grayish-brown sandy silt with occasional gravel (stiff, moist) (fill)		
100			18	10		2 CA						
	5		18	49		3			SM	Brownish-gray silty fine to coarse sand with occasional gravel (dense, moist) (till-like deposits)		
95			12	52		4			SP-SM	Gray fine sand with silt (very dense, moist) (cohesionless sand and gravel) %F = 8		
	10		12	51		5				Grades to with occasional silt lenses		
90			12	39		6				Becomes dense		
	15		18	57		7			SM	Grayish-brown silty fine to medium sand with occasional gravel (very dense, moist) (till-like deposits)		
85			12	50/6"		8						
	20		18	90/12"		9 SA			SM	Brownish-gray silty fine to medium sand with gravel (very dense, moist) %F = 30		
80			6	50/6"		10						
	25		18	80		11 CA						
75									SM	Gray silty fine to coarse sand with gravel (very dense, moist) (cohesionless sand and gravel)		
	30											

WELL LOG



Note: See Figure A-1 for explanation of symbols.

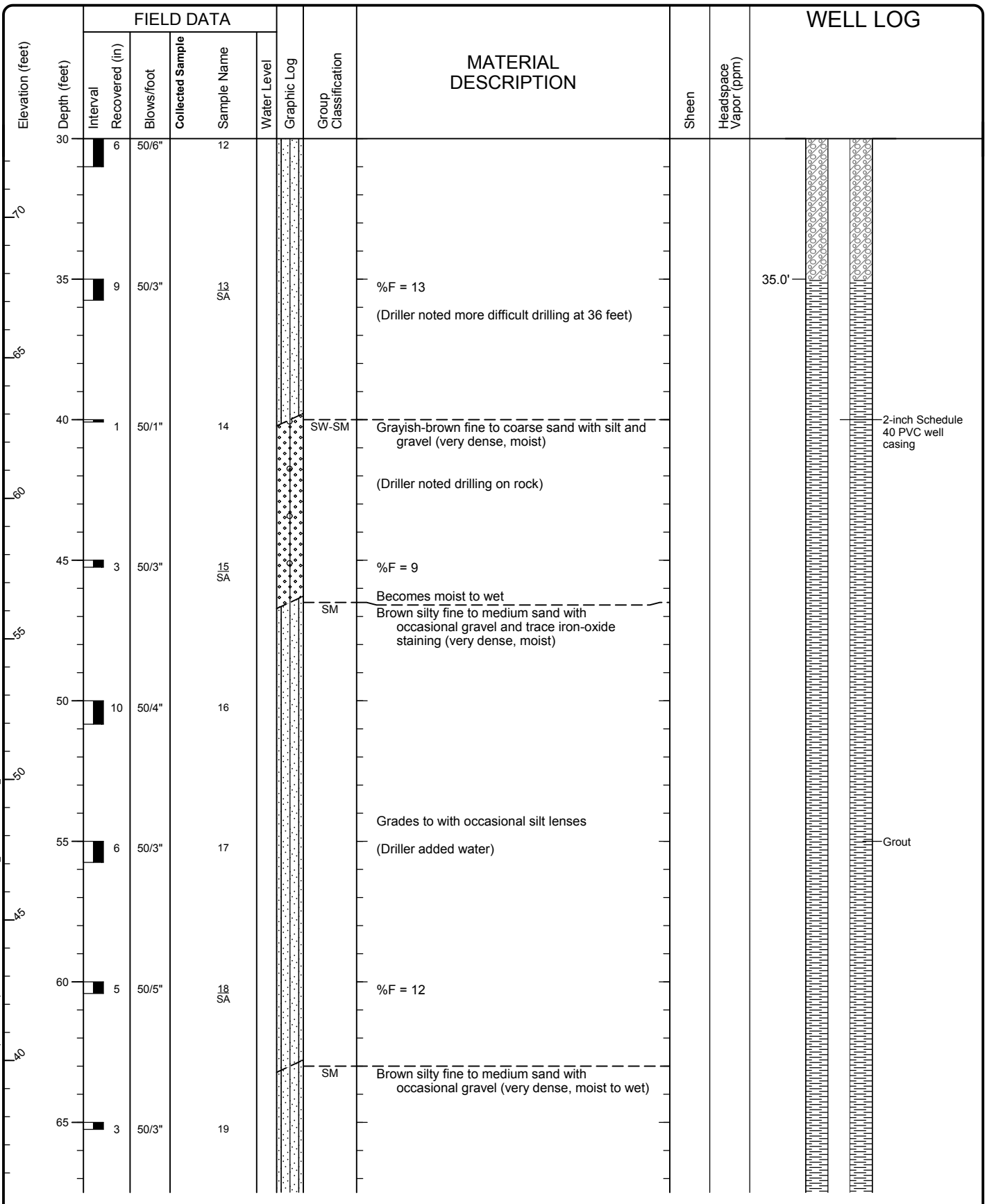
Log of Monitoring Well MW21-3

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-4
Sheet 1 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL



Note: See Figure A-1 for explanation of symbols.

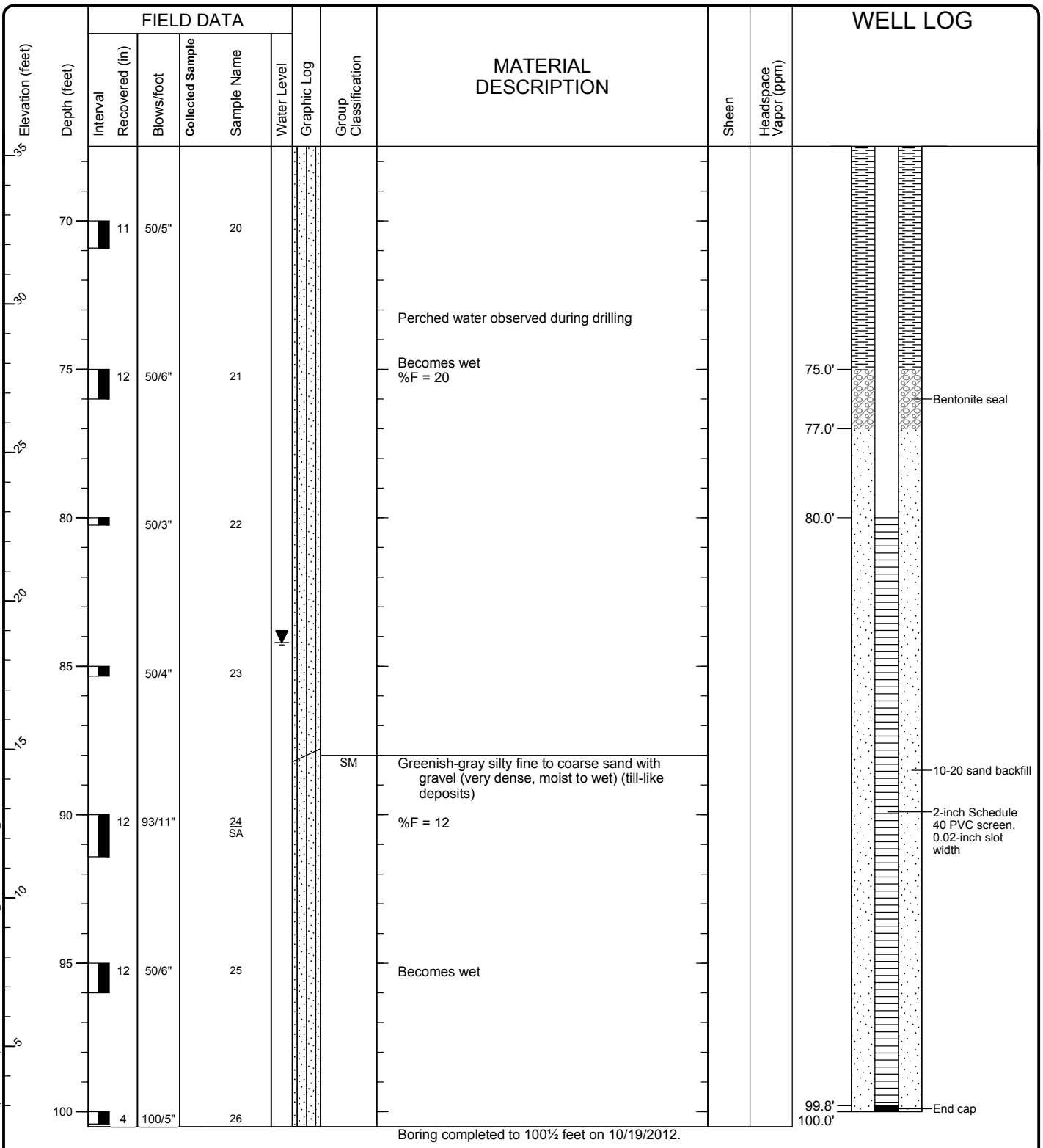
Log of Monitoring Well MW21-3 (continued)

GeoEngineers

Project:	Rufus 2.0 Development Block 21
Project Location:	Seattle, Washington
Project Number:	20434-001-11

Figure B-4
Sheet 2 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well MW21-3 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-4
Sheet 3 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Drilled	Start 10/4/2012	End 10/4/2012	Total Depth (ft) 100.25	Logged By SLG / Checked By LCF	Driller Geologic Drill Exploration, Inc.	Drilling Method Hollow-Stem Auger
Surface Elevation (ft) 87 / Vertical Datum NAVD88			Hammer Data Automatic Hammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D50	
Easting (X) / Northing (Y)			System Datum		Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)	

Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0								AC	3 inches asphalt concrete pavement			
									CR	Approximately 3 inches crushed rock			
85			6			1			CH	Grayish-brown clay (medium stiff, moist) (fill)			
			10	5		2 AL					NS	<1	
	5		15	5		3					NS	<1	
80			18	17		4 CA			SM	Brown silty sand with occasional gravel and oxidation staining (medium dense, moist)	NS	<1	
	10		12	14		5					NS	<1	Trace gravel at 11 feet per driller Charcoal fragments
75			18	15		6			ML	Brown silt with interbedded sandy silt layers (stiff, moist) (recent deposits)	NS	<1	
	15		18	22		7a			SM	Brown silty fine to medium sand (medium dense, moist)	NS	<1	
						7b			SP-SM	Gray fine to medium sand with silt (medium dense, moist)			
70			18	35		8 CA			SM	Grayish-brown silty fine to medium sand (dense, moist)	NS	<1	
	20		18	21		9a				%F = 30	NS	<1	
						9b			SP-SM	Brown fine to medium sand with trace silt (medium dense, moist)			
65			18	48		10			SP-SM	Grayish-brown fine to medium sand with silt (dense, moist) (cohesionless sand and gravel)	NS	<1	
	25		12	60		11 SA			SM	Grayish-brown silty fine sand (dense, moist) %F = 15	NS	<1	
60			18	81		12					NS	<1	
	30								SP-SM	Grayish-brown fine to medium sand with silt and gravel (very dense, moist)			

Note: See Figure A-1 for explanation of symbols.

Log of Boring B21-1

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-5
Sheet 1 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	30	12	50/6"	13					NS	<1	Driller noted easier drilling between 30 and 35 feet
55											
	35	18	62	14				Grades to with occasional gravel	NS	<1	
50							SM	Dark gray silty fine sand with occasional gravel and occasional cobbles (very dense, moist) (till-like deposits)			
	40	3	50/3"	15				%F = 38	NS	<1	Sampling on cobble
45							SM	Grayish-brown silty fine to medium sand with gravel and oxidation staining (very dense, moist)			
	45		50/6"	16					NS	<1	
40							GW-GM	Grayish-brown fine to coarse gravel with silt, sand, occasional cobbles and trace oxidation staining (very dense, moist to wet) (cohesionless sand and gravel)			
	50	6	50/6"	17 / SA				%F = 9	NS	<1	
35							SP-SM	Grayish-brown fine to coarse sand with silt and gravel and fine oxidized silty sand lenses (very dense, wet)			
	55	18	70	18 / SA				%F = 11	NS	<1	Perched water observed during drilling
30							SM	Brown silty fine to medium sand with oxidation staining (very dense, moist)			
	60	18	82/12"	19					NS	<1	
25							SP-SM	Brown fine sand with silt and oxidation staining (very dense, moist)			
	65		85/11"	20 / SA				%F = 12	NS	<1	

Note: See Figure A-1 for explanation of symbols.

Log of Boring B21-1 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-5
Sheet 2 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Depth (feet)	Elevation (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
									GM	Brown silty fine to coarse gravel with sand and occasional cobbles (very dense, moist to wet)			
70	-20		3	50/3"		21					NS	<1	Gravels noted by driller at approximately 69½ feet
									ML	Brown silt with sand and heavy oxidation staining (hard, moist) (till-like deposits)			
75	-15		18	58		22					NS	<1	Driller began adding mud at 75 feet
									SM	Greenish-gray silty fine sand with occasional gravel (very dense, moist to wet)			
80	-10		9	50/3"		23 SA				%F = 43	NS	<1	
									GM	Greenish-gray silty fine to coarse gravel with sand (very dense, moist to wet)			
85	-5		4	50/6"		24					NS	<1	
									SM	Greenish-gray silty fine to coarse sand with gravel (very dense, moist to wet)			
90	0		8	50/4"		25					NS	<1	Driller had difficulty adding next auger
95	-5		6	50/6"		26 SA				%F = 23	NS	<1	
100	-10		3	50/3"		27					NS	<1	
										Completed to 100¼ feet on 10/4/2012			

Note: See Figure A-1 for explanation of symbols.

Log of Boring B21-1 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-5
Sheet 3 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start 10/11/2012 End 10/11/2012	Total Depth (ft) 100.5	Logged By SLG Checked By LCF	Driller Geologic Drill Exploration, Inc.	Drilling Method Hollow-Stem Auger
Surface Elevation (ft) 103 Vertical Datum NAVD88		Hammer Data Automatic Hammer 140 (lbs) / 30 (in) Drop		Drilling Equipment Diedrich D50
Easting (X) Northing (Y)		System Datum		Groundwater Date Measured / Depth to Water (ft) / Elevation (ft)

Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0								AC	3 inches asphalt concrete			
			12			1			ML	Gray sandy silt with charcoal fragments (stiff, moist) (fill)			
100			18	12		2							
	5		12	30		3 CA							With charcoal fragments
									CL	Grayish-brown clay (very stiff, moist) (recent deposits)			
95			18	29		4 AL							Fissured
	10		12	36		5			SP-SM	Gray fine to medium sand with silt and occasional gravel and cobbles (dense, moist) (cohesionless sand and gravel)			
90			18	48		6				%F = 7			
	15		18	48		7							
85			18	75/9"		8				Becomes very dense			
	20		17	76/11"		9 CA				%F = 7			
80													Driller noted gravel at 23 feet bgs
	25		18	75/12"		10							
75									SP-SM	Gray sand with silt and gravel and occasional cobbles (very dense, moist)			Driller noted rock in sampler shoe at 26 feet bgs
	30												

Note: See Figure A-1 for explanation of symbols.

Log of Boring B21-2

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-6
Sheet 1 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	30	16	94/10"	11							
70											
	35	6	50/6"	12			SM	Gray silty fine to coarse sand with gravel (very dense, moist) (till-like deposits)			
65											
	40	6	50/6"	13							
60							SP-SM	Brown silty fine to medium sand with gravel, occasional cobbles/boulders and iron oxide staining (very dense, moist) (cohesionless sand and gravel)			Driller noted very difficult drilling from 45 to 49 feet Driller hits boulder at 46 feet
	45	2	50/3"	14							
55							SP-SM	Orange-brown fine to medium sand with silt (very dense, moist) %F = 12			
	50	18	94/6"	15							
50								Becomes wet %F = 10			Perched water observed during drilling
	55	12	50/6"	16							
45							SM	Brown silty fine to medium sand with gravel (very dense, moist to wet)			
	60	6	50/6"	17							
40							GP	Brown fine to coarse gravel with sand and occasional cobbles (very dense, moist) %F = 4			Driller noted gravel at 64 feet
	65	3	50/3"	18 / SA							Driller noted bouncing on rock at 65 feet

Note: See Figure A-1 for explanation of symbols.

Log of Boring B21-2 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-6
Sheet 2 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	Blows/foot	Collected Sample: Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
							SP-SM	Brown fine to medium sand with silt (very dense, wet)			
	70	18	85	19				%F = 8			
											Water observed on drill rods
	75	18	50/6"	20							
	80	18		21a				%F = 5			
			78/12"	21b			SM	Gray silty fine to medium sand with occasional gravel (very dense, wet)			
								%F = 14			
								Grades to grayish-brown			
	85	4	50/4"	22							Driller added water at 85 feet
							SP-SM	Gray fine to medium sand with silt (very dense, wet)			
	90	10	50/4"	23				%F = 8			
							SM	Greenish-gray silty fine to medium sand with gravel (very dense, wet) (till-like deposits)			
	95	11	50/5"	24							
	100	6	90/6"	25							
								Boring completed at 100½ feet			

Note: See Figure A-1 for explanation of symbols.

Log of Boring B21-2 (continued)

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-6
Sheet 3 of 3

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
10/5/2012	10/5/2012	8	CDLV / CTB	Cascade Drilling, L.P.	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
83 NAVD88	Not applicable	GeoProbe 54LT

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
			Not encountered	

Notes: Drilled through 2200 7th Ave basement slab. Elevations based of review of 2200 7th Ave as-built plans and an assumed alley Elevation of 95 feet.

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		24						CC	8 inches concrete			
									SP	1 inch sand (loose, moist)			
									SP	Brown sand with gravel (loose, moist)			
80						1			SM	Brown silty fine to medium sand with gravel (medium dense, moist) (fill)	NS	<1	
			48						ML	Brown silt with sand (stiff, moist) (recent deposits)			
	5					2					NS	<1	
75						3 CA					NS	<1	
										Refusal at 8 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-3

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-7
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
	10/5/2012	10/5/2012	8	CDLV / CTB	Cascade Drilling, L.P.	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
83 / NAVD88	Not applicable	GeoProbe 54LT

Easting (X) / Northing (Y)	System Datum	Groundwater
		Date Measured: — Depth to Water (ft): Not encountered — Elevation (ft):

Notes: Drilled through 2200 7th Ave basement slab. Elevations based of review of 2200 7th Ave as-built plans and an assumed alley Elevation of 95 feet.

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48						CC	8 inches concrete			
									SP	1.5 inches sand (loose, moist)			
									SM	Brown silty sand with gravel (loose to medium dense, moist) (fill)			2 inches coarse gravel at 2 feet bgs
80						1					NS	<1	
			48						ML	Brown silt with sand (stiff, moist) (recent deposits)			
	5					2 CA					NS	<1	
75						3					NS	<1	
										Refusal at 8 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-4

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-8
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
10/5/2012	10/5/2012	7.5	CDLV / CTB	Cascade Drilling, L.P.	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
83 NAVD88	Not applicable	GeoProbe 54LT

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
			Not encountered	

Notes: Drilled through 2200 7th Ave basement slab. Elevations based of review of 2200 7th Ave as-built plans and an assumed alley Elevation of 95 feet.

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36						CC	8 inches concrete			
									SP	1 inch sand (loose, moist)			
									SP	Brown-gray fine to coarse sand with gravel (loose, wet) (fill)			
80						1			ML	Brown silt with sand (medium stiff, moist) (recent deposits)	NS	<1	
			42										
	5					2 CA					NS	<1	
						3					NS	<1	

Refusal on rock at 7.5 feet bgs

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-5

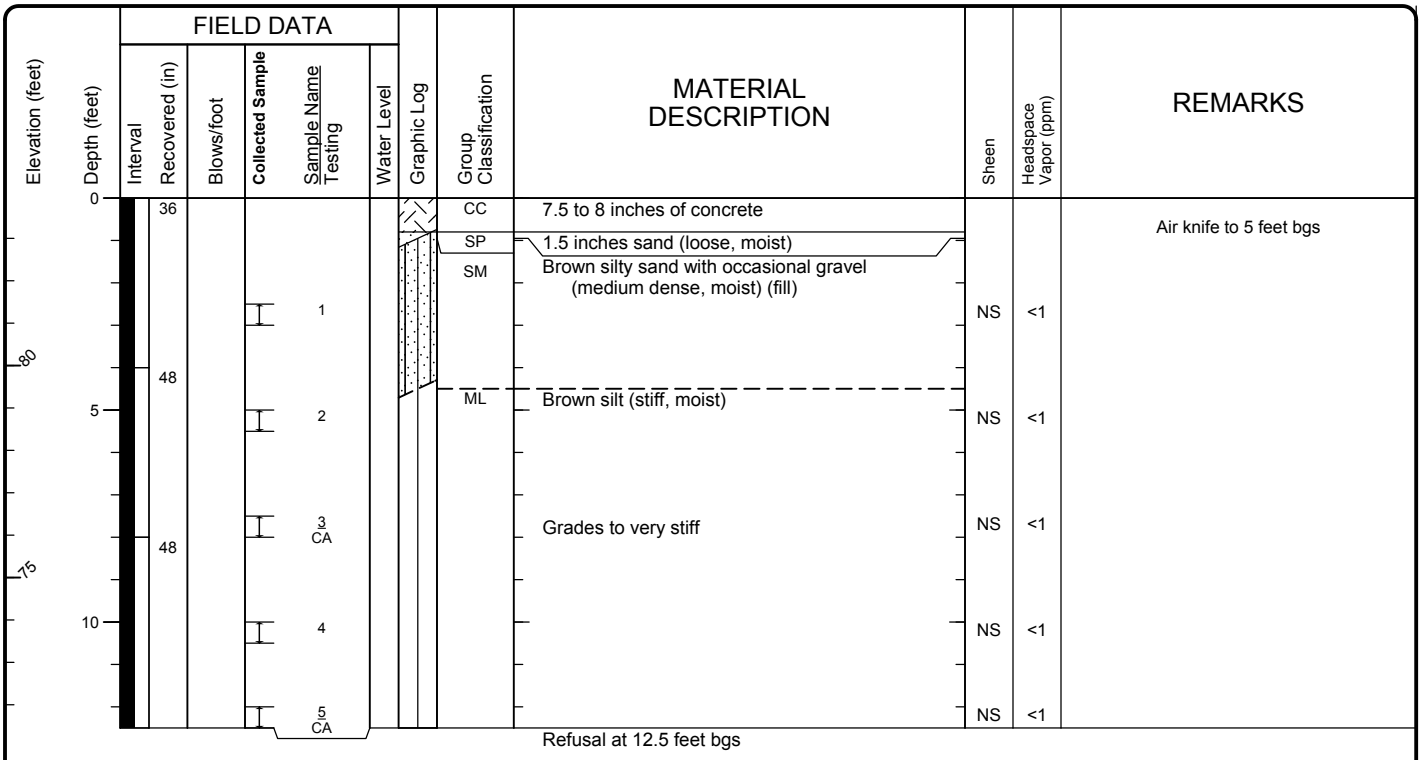
GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-9
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start 10/5/2012 End 10/5/2012	Total Depth (ft) 12.5	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) 83.95 Vertical Datum NAVD88		Hammer Data Not applicable		Drilling Equipment GeoProbe 9060 Pro-D
Easting (X) Northing (Y)		System Datum		Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)
Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009				Not encountered



Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-6

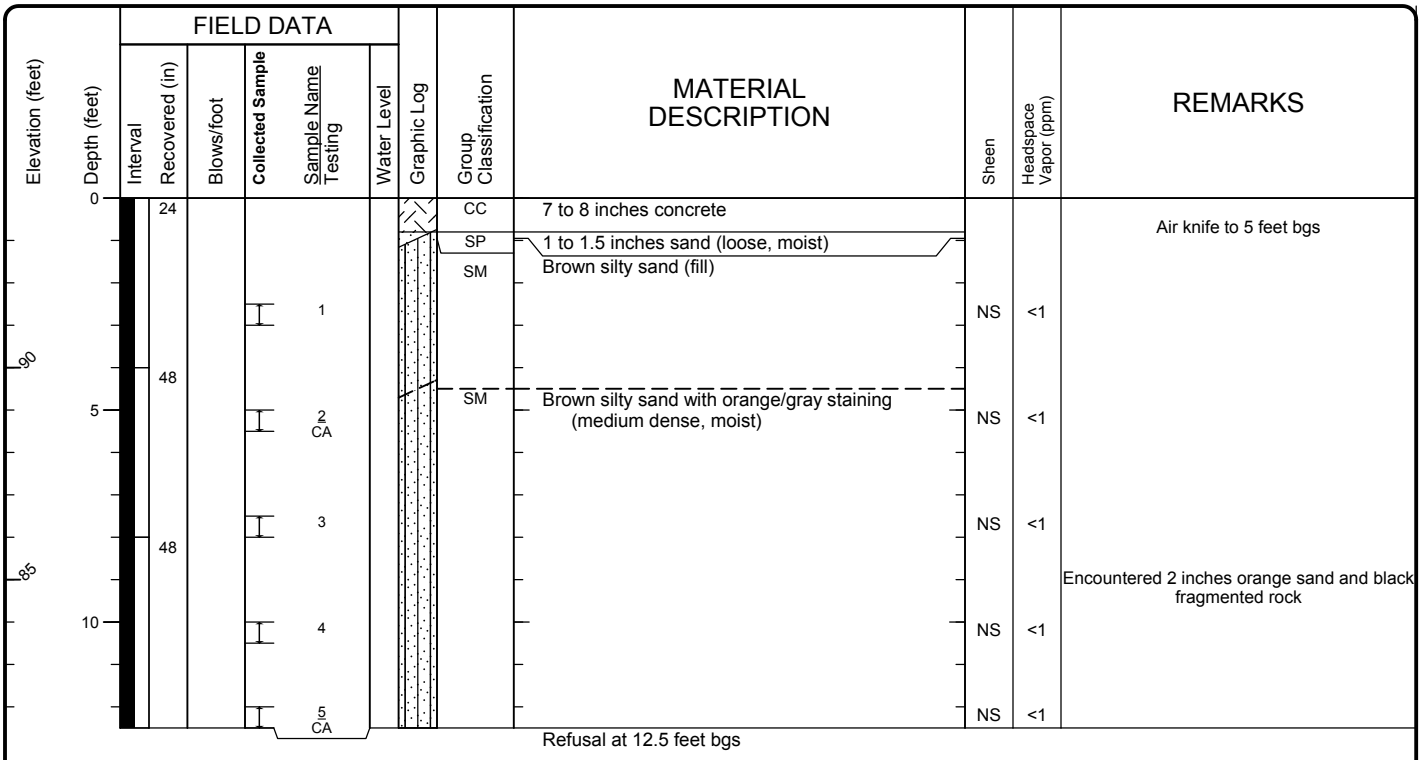
GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-10
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start 10/5/2012 End 10/5/2012	Total Depth (ft) 12.5	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) 94 Vertical Datum NAVD88		Hammer Data Not applicable		Drilling Equipment GeoProbe 9060 Pro-D
Easting (X) Northing (Y)		System Datum		Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)
Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009				Not encountered



Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-7

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-11
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
10/5/2012	10/5/2012	7	CDLV / CTB	Cascade Drilling, L.P.	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
100 NAVD88	Not applicable	GeoProbe 9060 Pro-D

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
			Not encountered	

Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48						AC	1.5 inches asphalt			
									GP/SP	3 inches gravel with sand			
									ML	Gray silty fine to medium sand with gravel (medium dense, moist) (fill)			
						1					NS	<1	
									ML	Gray silt with sand and occasional gravel and iron-oxide staining (stiff, moist) (recent deposits)			
95			36										
	5					2 CA					NS	<1	
						3					NS	<1	
										Refusal at 7 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-8

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-12
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start 10/5/2012	End 10/5/2012	Total Depth (ft)	12	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method	Direct Push
Surface Elevation (ft) Vertical Datum		83 NAVD88	Hammer Data		Not applicable	Drilling Equipment		GeoProbe 54LT
Easting (X) Northing (Y)			System Datum			Groundwater Date Measured	Depth to Water (ft) Not encountered	Elevation (ft)

Notes: Drilled through 2200 7th Ave basement slab. Elevations based of review of 2200 7th Ave as-built plans and an assumed alley Elevation of 95 feet.

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48						CC	7 inches concrete			
									SP	1 inch sand (loose, moist)			
									SM	Brown silty fine to medium sand with occasional gravel (medium dense, moist) (fill)			
80						1 CA							
			48						ML	Brown silt (stiff, moist) (recent deposits)			
	5					2							
75						3							
			48						SM	Brown fine to medium sand with silt (loose, moist)			
	10					4 CA			ML	Brown silt (very stiff, moist)			
						5				Refusal at 12 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-9

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-13
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start 10/8/2012 End 10/8/2012	Total Depth (ft) 20	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) 100 Vertical Datum NAVD88		Hammer Data Not applicable		Drilling Equipment GeoProbe 7730 DT
Easting (X) Northing (Y)		System Datum		Groundwater Date Measured / Depth to Water (ft) / Elevation (ft): Not encountered
Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009				

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48						AC	1 inch asphalt concrete			
									CR	1 inch gravel base			
									ML	Brown sandy silt with trace gravel (moist) (fill)			
						1 CA					NS	<1	
95									SP-SM	Brown-gray sand with silt (medium dense, moist) (recent deposits)			
	5		60			2					NS	<1	
						3					NS	<1	
90	10		60			4					NS	<1	
						5					NS	<1	
85	15		60										
						6 CA			SP-SM	Brown-gray sand with silt and gravel (dense, moist) (cohesionless sand and gravel)	NS	<1	
80	20					7					NS	<1	
										Refusal at 20 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-10

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-14
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	10/8/2012	10/8/2012	20	CDLV	CTB	Cascade Drilling, L.P.	Direct Push

Surface Elevation (ft) / Vertical Datum	Hammer Data	Drilling Equipment
102 NAVD88	Not applicable	GeoProbe 7730 DT

Easting (X) / Northing (Y)	System Datum	Groundwater: Date Measured	Depth to Water (ft)	Elevation (ft)
			Not encountered	

Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0								AC	2 inches asphalt concrete			
									CR	1 inch crushed rock base course			
100			48						SM	Brown silty fine to medium sand with occasional gravel (medium dense, moist) (fill)			
						1 CA					NS	<1	
									ML	Brown silt (stiff, moist) (recent deposits)			
	5		60			2					NS	<1	
95										Occasional gravel			
						3					NS	<1	
	10		60			4 CA				Grades to gray	NS	<1	
90									SM	Gray-brown silty fine to medium sand (medium dense, moist)			
						5					NS	<1	
									ML	Brown-gray silt (very stiff, moist) (orange staining)			
	15		60			6					NS	<1	
85									SM	Gray-brown silty fine to medium sand with occasional gravel (dense, moist) (cohesionless sand and gravel)			
						7					NS	<1	
						8					NS	<1	
	20									Refusal at 20 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-11

GeoEngineers

Project: 2210 7th Avenue (Lot 3)
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-15
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start 10/8/2012	End 10/8/2012	Total Depth (ft)	20	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) Vertical Datum	98 NAVD88		Hammer Data	Not applicable		Drilling Equipment	GeoProbe 7730 DT
Easting (X) Northing (Y)			System Datum			Groundwater Date Measured	Depth to Water (ft) / Elevation (ft): Not encountered

Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
95	0		48			1			AC	2 inches asphalt concrete	NS	<1	
									CR	1 inch crushed rock base course			
									ML	Brown/dark gray silt with sand (stiff, moist) (fill)			
									CC	Concrete from 4 to 4.5 feet			
90	5		60			2 CA			ML	Brown silt with sand (stiff, moist) (recent deposits)	NS	<1	
									SP-SM	Brown fine to medium sand with silt and occasional gravel (medium dense, moist)			
	10		60			3					NS	<1	
85						5			SM	Brown silty fine to medium sand (medium dense, moist)	NS	<1	
	15		60			4					NS	<1	
80						6 CA					NS	<1	
	20					7					NS	<1	

Refusal at 20 feet bgs

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-12

GeoEngineers

Project: 2210 7th Avenue (Lot 3)
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-16
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start 10/8/2012 End 10/8/2012	Total Depth (ft) 20	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) 103 Vertical Datum NAVD88		Hammer Data Not applicable		Drilling Equipment GeoProbe 7730 DT
Easting (X) Northing (Y)		System Datum		Groundwater Date Measured / Depth to Water (ft) / Elevation (ft): Not encountered
Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009				

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48						AC	2 inches asphalt concrete			
									CR	1 inch crushed rock base course			
									ML	Gray silt (stiff, moist) (fill)			
100						1 CA					NS	<1	
									ML	Brown silt with sand (very stiff, moist)			
	5		60			2					NS	<1	
										Grades to stiff at 5.5 to 6 feet			
95									SP-SM	Gray fine to medium sand with silt and occasional gravel (medium dense, moist) (cohesionless sand and gravel)			
	10		60			3					NS	<1	
						4					NS	<1	
90										Grades to with gravel			
	15		60			5 CA					NS	<1	
										Grades to no gravel			
85						6					NS	<1	
						7					NS	<1	
	20									Refusal at 20 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-13

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-17
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start 10/8/2012	End 10/8/2012	Total Depth (ft)	20	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) 89 Vertical Datum NAVD88			Hammer Data	Not applicable		Drilling Equipment	GeoProbe 7730 DT
Easting (X) Northing (Y)			System Datum			Groundwater Date Measured	Depth to Water (ft) / Elevation (ft) Not encountered

Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		54						AC	2 inches asphalt concrete			
									CR	1 inch crushed rock base course			
									SM	Dark brown silty sand (medium dense, moist)			
						1 CA					NS	<1	
85										Grades to with occasional gravel			
	5		60			2					NS	<1	
										Grades to moist to wet, loose			
						3					NS	<1	
80	10		60			4					NS	<1	
						5 CA			SP-SM	Brown-gray fine to medium sand with silt (medium dense, moist) (recent deposits)	NS	<1	
75	15		60			6					NS	<1	
						7				Grades to with fine gravel	NS	<1	
70													
	20					8					NS	<1	
										Refusal at 20 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-14

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-18
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start 10/8/2012	End 10/8/2012	Total Depth (ft)	19	Logged By CDLV Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) 98 Vertical Datum NAVD88			Hammer Data	Not applicable	Drilling Equipment	GeoProbe 7730 DT	
Easting (X) Northing (Y)			System Datum		Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009					Not encountered		

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0								AC	4 inches asphalt concrete			
									CR	1 inch crushed rock base course			
			36						SM	Brown silty sand with gravel (medium dense, moist)			
95						1					NS	<1	Occasional cobbles
	5		60			2 CA					NS	<1	
									SP-SM	Brown-gray fine to medium sand with silt (medium dense, moist) (recent deposits)			
90						3					NS	<1	
	10		60			4					NS	<1	
85						5 CA					NS	<1	
	15		48			6					NS	<1	
						7			SP-SM	Brown-gray fine to medium sand with silt and gravel (dense, moist) (cohesionless sand and gravel)	NS	<1	
80						8					NS	<1	
										Refusal at 19 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-15

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-19
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start 10/5/2012	End 10/5/2012	Total Depth (ft) 20	Logged By CDLV / Checked By CTB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push
Surface Elevation (ft) 98 / Vertical Datum NAVD88			Hammer Data Not applicable		Drilling Equipment GeoProbe 7730 DT	
Easting (X) / Northing (Y)			System Datum		Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)	
Notes: Elevations based on LiDAR contour data from Puget Sound LiDAR Consortium, 2009					Not encountered	

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48						AC	2 inches asphalt concrete			
									CR	1 inch crushed rock base course			
95						1 CA			SM	Brown silty sand with gravel (medium dense, moist) (fill)	NS	<1	
	5		60			2			SP-SM	Brown-gray fine to medium sand with silt (medium dense, moist) (recent deposits)	NS	<1	
90						3					NS	<1	
	10		60			4 CA					NS	<1	
85						5					NS	<1	
	15		60			6			SP-SM	Brown-gray fine to medium sand with silt and gravel (dense, moist) (cohesionless sand and gravel)	NS	<1	
80						7					NS	<1	
	20					8					NS	<1	
										Refusal at 20 feet bgs			

Note: See Figure A-1 for explanation of symbols.

Log of Direct Push B21-16

GeoEngineers

Project: Rufus 2.0 Development Block 21
Project Location: Seattle, Washington
Project Number: 20434-001-11

Figure B-20
Sheet 1 of 1

Seattle: Date:11/14/12 Path:C:\USERS\CVOSS\DESKTOP\20434001.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

APPENDIX C
Chemical Analytical Program

APPENDIX C
CHEMICAL ANALYTICAL PROGRAM

Analytical Methods

Chain-of-custody procedures were followed during the transport of the field samples to the analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results, analytical methods reference and laboratory quality control records are included in this appendix. The analytical results are also summarized in the text and tables of this report.

Analytical Data Review

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the validity of the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report.

Analytical Data Review Summary

Laboratory quality control exceptions were noted by Fremont Analytical for select soil samples in the attached laboratory reports. It is our opinion that the analytical data are of acceptable quality for their intended use in this report.

1311 N. 35th St.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers, Inc. - Redmond
Chris Brown
8410 154th Ave. NE
Redmond, Washington 98052

RE: Rufus 2.0 W011
Lab ID: 1210020

November 15, 2012

Attention Chris Brown:

Fremont Analytical, Inc. received 198 sample(s) on 10/15/2012 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
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,

Michael Dee
Sr. Chemist / Principal

Date: *11/15/2012*

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011
Lab Order: 1210020

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210020-001	B21-3-2.5	10/05/2012 8:37 AM	10/05/2012 4:08 PM
1210020-002	B21-3-5.0	10/05/2012 9:30 AM	10/05/2012 4:08 PM
1210020-003	B21-3-7.5	10/05/2012 9:33 AM	10/05/2012 4:08 PM
1210020-013	B21-4-2.5	10/05/2012 9:40 AM	10/05/2012 4:08 PM
1210020-014	B21-4-5.0	10/05/2012 9:42 AM	10/05/2012 4:08 PM
1210020-015	B21-4-7.5	10/05/2012 9:50 AM	10/05/2012 4:08 PM
1210020-025	B21-5-2.5	10/05/2012 10:05 AM	10/05/2012 4:08 PM
1210020-026	B21-5-5.0	10/05/2012 10:10 AM	10/05/2012 4:08 PM
1210020-027	B21-5-7.5	10/05/2012 10:25 AM	10/05/2012 4:08 PM
1210020-037	B21-6-2.5	10/05/2012 11:30 AM	10/05/2012 4:08 PM
1210020-038	B21-6-5.0	10/05/2012 11:33 AM	10/05/2012 4:08 PM
1210020-039	B21-6-7.5	10/05/2012 11:45 AM	10/05/2012 4:08 PM
1210020-040	B21-6-10.0	10/05/2012 11:50 AM	10/05/2012 4:08 PM
1210020-041	B21-6-12.5	10/05/2012 11:55 AM	10/05/2012 4:08 PM
1210020-049	B21-7-2.5	10/05/2012 12:16 PM	10/05/2012 4:08 PM
1210020-050	B21-7-5.0	10/05/2012 12:20 PM	10/05/2012 4:08 PM
1210020-051	B21-7-7.5	10/05/2012 12:23 PM	10/05/2012 4:08 PM
1210020-052	B21-7-10.0	10/05/2012 12:35 PM	10/05/2012 4:08 PM
1210020-053	B21-7-12.5	10/05/2012 12:40 PM	10/05/2012 4:08 PM
1210020-061	B21-8-2.5	10/05/2012 1:20 PM	10/05/2012 4:08 PM
1210020-062	B21-8-5.0	10/05/2012 1:24 PM	10/05/2012 4:08 PM
1210020-063	B21-8-7.5	10/05/2012 1:30 PM	10/05/2012 4:08 PM
1210020-073	B21-9-2.5	10/05/2012 2:15 PM	10/05/2012 4:08 PM
1210020-074	B21-9-5.0	10/05/2012 2:20 PM	10/05/2012 4:08 PM
1210020-075	B21-9-7.5	10/05/2012 2:30 PM	10/05/2012 4:08 PM
1210020-076	B21-9-10.0	10/05/2012 2:35 PM	10/05/2012 4:08 PM
1210020-077	B21-9-12.5	10/05/2012 2:38 PM	10/05/2012 4:08 PM
1210020-085	B21-10-2.5	10/08/2012 8:55 AM	10/08/2012 5:09 PM
1210020-086	B21-10-5.0	10/08/2012 8:58 AM	10/08/2012 5:09 PM
1210020-087	B21-10-7.5	10/08/2012 9:00 AM	10/08/2012 5:09 PM
1210020-088	B21-10-10.0	10/08/2012 9:05 AM	10/08/2012 5:09 PM
1210020-089	B21-10-12.5	10/08/2012 9:10 AM	10/08/2012 5:09 PM
1210020-090	B21-10-15.0	10/08/2012 9:15 AM	10/08/2012 5:09 PM
1210020-091	B21-10-17.5	10/08/2012 9:20 AM	10/08/2012 5:09 PM
1210020-092	B21-10-20.0	10/08/2012 9:24 AM	10/08/2012 5:09 PM
1210020-097	B21-11-2.5	10/08/2012 9:50 AM	10/08/2012 5:09 PM

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

CLIENT:	GeoEngineers, Inc. - Redmond	**Work Order Sample Summary**	
Project:	Rufus 2.0 W011		
Lab Order:	1210020		

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210020-098	B21-11-5.0	10/08/2012 9:53 AM	10/08/2012 5:09 PM
1210020-099	B21-11-7.5	10/08/2012 9:55 AM	10/08/2012 5:09 PM
1210020-100	B21-11-10.0	10/08/2012 10:00 AM	10/08/2012 5:09 PM
1210020-101	B21-11-12.5	10/08/2012 10:02 AM	10/08/2012 5:09 PM
1210020-102	B21-11-15.0	10/08/2012 10:05 AM	10/08/2012 5:09 PM
1210020-103	B21-11-17.5	10/08/2012 10:10 AM	10/08/2012 5:09 PM
1210020-104	B21-11-20.0	10/08/2012 10:15 AM	10/08/2012 5:09 PM
1210020-109	B21-12-2.5	10/08/2012 10:35 AM	10/08/2012 5:09 PM
1210020-110	B21-12-5.0	10/08/2012 10:40 AM	10/08/2012 5:09 PM
1210020-111	B21-12-7.5	10/08/2012 10:45 AM	10/08/2012 5:09 PM
1210020-112	B21-12-10.0	10/08/2012 10:50 AM	10/08/2012 5:09 PM
1210020-113	B21-12-12.5	10/08/2012 11:00 AM	10/08/2012 5:09 PM
1210020-114	B21-12-15.0	10/08/2012 11:05 AM	10/08/2012 5:09 PM
1210020-115	B21-12-17.5	10/08/2012 11:10 AM	10/08/2012 5:09 PM
1210020-116	B21-12-20.0	10/08/2012 11:15 AM	10/08/2012 5:09 PM
1210020-121	B21-13-2.5	10/08/2012 12:05 PM	10/08/2012 5:09 PM
1210020-122	B21-13-5.0	10/08/2012 12:08 PM	10/08/2012 5:09 PM
1210020-123	B21-13-7.5	10/08/2012 12:10 PM	10/08/2012 5:09 PM
1210020-124	B21-13-10.0	10/08/2012 12:12 PM	10/08/2012 5:09 PM
1210020-125	B21-13-12.5	10/08/2012 12:15 PM	10/08/2012 5:09 PM
1210020-126	B21-13-15.0	10/08/2012 12:18 PM	10/08/2012 5:09 PM
1210020-127	B21-13-17.5	10/08/2012 12:20 PM	10/08/2012 5:09 PM
1210020-128	B21-13-20.0	10/08/2012 12:25 PM	10/08/2012 5:09 PM
1210020-133	B21-14-2.5	10/08/2012 1:25 PM	10/08/2012 5:09 PM
1210020-134	B21-14-5.0	10/08/2012 1:30 PM	10/08/2012 5:09 PM
1210020-135	B21-14-7.5	10/08/2012 1:33 PM	10/08/2012 5:09 PM
1210020-136	B21-14-10.0	10/08/2012 1:35 PM	10/08/2012 5:09 PM
1210020-137	B21-14-12.5	10/08/2012 1:40 PM	10/08/2012 5:09 PM
1210020-138	B21-14-15.0	10/08/2012 1:45 PM	10/08/2012 5:09 PM
1210020-139	B21-14-17.5	10/08/2012 1:47 PM	10/08/2012 5:09 PM
1210020-140	B21-14-20.0	10/08/2012 1:50 PM	10/08/2012 5:09 PM
1210020-145	B21-15-2.5	10/08/2012 2:25 PM	10/08/2012 5:09 PM
1210020-146	B21-15-5.0	10/08/2012 2:30 PM	10/08/2012 5:09 PM
1210020-147	B21-15-7.5	10/08/2012 2:33 PM	10/08/2012 5:09 PM
1210020-148	B21-15-10.0	10/08/2012 2:35 PM	10/08/2012 5:09 PM
1210020-149	B21-15-12.5	10/08/2012 2:40 PM	10/08/2012 5:09 PM
1210020-150	B21-15-15.0	10/08/2012 2:42 PM	10/08/2012 5:09 PM
1210020-151	B21-15-17.5	10/08/2012 2:43 PM	10/08/2012 5:09 PM
1210020-157	B21-16-2.5	10/08/2012 3:15 PM	10/08/2012 5:09 PM
1210020-158	B21-16-5.0	10/08/2012 3:17 PM	10/08/2012 5:09 PM
1210020-159	B21-16-7.5	10/08/2012 3:20 PM	10/08/2012 5:09 PM
1210020-160	B21-16-10.0	10/08/2012 3:25 PM	10/08/2012 5:09 PM

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

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011
Lab Order: 1210020

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210020-161	B21-16-12.5	10/08/2012 3:27 PM	10/08/2012 5:09 PM
1210020-162	B21-16-15.0	10/08/2012 3:30 PM	10/08/2012 5:09 PM
1210020-163	B21-16-17.5	10/08/2012 3:35 PM	10/08/2012 5:09 PM
1210020-164	B21-16-20.0	10/08/2012 3:45 PM	10/08/2012 5:09 PM
1210020-217	MW21-1-2.5	10/10/2012 8:19 AM	10/10/2012 1:05 PM
1210020-218	MW21-1-5.0	10/10/2012 8:25 AM	10/10/2012 1:05 PM
1210020-219	MW21-1-7.5	10/10/2012 8:31 AM	10/10/2012 1:05 PM
1210020-220	MW21-1-10.0	10/10/2012 8:35 AM	10/10/2012 1:05 PM
1210020-221	MW21-1-12.5	10/10/2012 8:42 AM	10/10/2012 1:05 PM
1210020-222	MW21-1-15.0	10/10/2012 8:50 AM	10/10/2012 1:05 PM
1210020-223	MW21-1-17.5	10/10/2012 8:55 AM	10/10/2012 1:05 PM
1210020-224	MW21-1-20.0	10/10/2012 9:04 AM	10/10/2012 1:05 PM
1210020-226	MW21-1-25.0	10/10/2012 9:15 AM	10/10/2012 1:05 PM
1210020-228	MW21-1-30.0	10/10/2012 9:26 AM	10/10/2012 1:05 PM
1210020-229	MW21-2-2.5	10/08/2012 8:20 AM	10/08/2012 5:09 PM
1210020-230	MW21-2-5.0	10/08/2012 8:25 AM	10/08/2012 5:09 PM
1210020-231	MW21-2-7.5	10/08/2012 8:37 AM	10/08/2012 5:09 PM
1210020-232	MW21-2-10.0	10/08/2012 8:41 AM	10/08/2012 5:09 PM
1210020-233	MW21-2-12.5	10/08/2012 8:55 AM	10/08/2012 5:09 PM
1210020-235	MW21-2-17.5	10/08/2012 9:14 AM	10/08/2012 5:09 PM
1210020-236	MW21-2-20.0	10/08/2012 9:23 AM	10/08/2012 5:09 PM
1210020-237	MW21-2-22.5	10/08/2012 9:31 AM	10/08/2012 5:09 PM
1210020-238	MW21-2-25.0	10/08/2012 9:40 AM	10/08/2012 5:09 PM
1210020-239	MW21-2-27.5	10/08/2012 9:45 AM	10/08/2012 5:09 PM
1210020-240	MW21-2-30.0	10/08/2012 9:51 AM	10/08/2012 5:09 PM
1210020-241	MW21-3-2.5	10/09/2012 8:12 AM	10/09/2012 4:37 PM
1210020-242	MW21-3-5.0	10/09/2012 8:19 AM	10/09/2012 4:37 PM
1210020-243	MW21-3-7.5	10/09/2012 8:28 AM	10/09/2012 4:37 PM
1210020-244	MW21-3-10.0	10/09/2012 8:35 AM	10/09/2012 4:37 PM
1210020-245	MW21-3-12.5	10/09/2012 8:40 AM	10/09/2012 4:37 PM
1210020-246	MW21-3-15.0	10/09/2012 8:48 AM	10/09/2012 4:37 PM
1210020-247	MW21-3-17.5	10/09/2012 8:55 AM	10/09/2012 4:37 PM
1210020-248	MW21-3-20.0	10/09/2012 9:02 AM	10/09/2012 4:37 PM
1210020-250	MW21-3-25.0	10/09/2012 9:18 AM	10/09/2012 4:37 PM
1210020-252	MW21-3-30.0	10/09/2012 9:31 AM	10/09/2012 4:37 PM
1210020-253	B21-1-2.5	10/04/2012 8:32 AM	10/04/2012 4:20 PM
1210020-254	B21-1-5.0	10/04/2012 8:37 AM	10/04/2012 4:20 PM
1210020-255	B21-1-7.5	10/04/2012 8:43 AM	10/04/2012 4:20 PM
1210020-256	B21-1-10.0	10/04/2012 8:46 AM	10/04/2012 4:20 PM
1210020-257	B21-1-12.5	10/04/2012 8:50 AM	10/04/2012 4:20 PM
1210020-258	B21-1-15.0	10/04/2012 8:55 AM	10/04/2012 4:20 PM
1210020-259	B21-1-17.5	10/04/2012 9:00 AM	10/04/2012 4:20 PM

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

CLIENT:	GeoEngineers, Inc. - Redmond	**Work Order Sample Summary**	
Project:	Rufus 2.0 W011		
Lab Order:	1210020		

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210020-260	B21-1-20.0	10/04/2012 9:05 AM	10/04/2012 4:20 PM
1210020-261	B21-1-22.5	10/04/2012 9:10 AM	10/04/2012 4:20 PM
1210020-262	B21-1-25.0	10/04/2012 9:11 AM	10/04/2012 4:20 PM
1210020-263	B21-1-27.5	10/04/2012 9:17 AM	10/04/2012 4:20 PM
1210020-264	B21-1-30.0	10/04/2012 9:31 AM	10/04/2012 4:20 PM
1210020-265	B21-2-2.5	10/11/2012 8:05 AM	10/11/2012 2:00 PM
1210020-266	B21-2-5.0	10/11/2012 8:15 AM	10/11/2012 2:00 PM
1210020-267	B21-2-7.5	10/11/2012 8:20 AM	10/11/2012 2:00 PM
1210020-268	B21-2-10.0	10/11/2012 8:25 AM	10/11/2012 2:00 PM
1210020-269	B21-2-12.5	10/11/2012 8:35 AM	10/11/2012 2:00 PM
1210020-270	B21-2-15.0	10/11/2012 8:40 AM	10/11/2012 2:00 PM
1210020-271	B21-2-17.5	10/11/2012 8:45 AM	10/11/2012 2:00 PM
1210020-272	B21-2-20.0	10/11/2012 8:54 AM	10/11/2012 2:00 PM
1210020-274	B21-2-25.0	10/11/2012 9:05 AM	10/11/2012 2:00 PM
1210020-276	B21-2-30.0	10/11/2012 9:12 AM	10/11/2012 2:00 PM
1210020-277	MW21-1-35.0	10/10/2012 9:36 AM	10/10/2012 1:05 PM
1210020-279	MW21-1-45.0	10/10/2012 9:53 AM	10/10/2012 1:05 PM
1210020-280	MW21-1-50.0	10/10/2012 10:10 AM	10/10/2012 1:05 PM
1210020-281	MW21-1-55.0	10/10/2012 10:15 AM	10/10/2012 1:05 PM
1210020-282	MW21-1-60.0	10/10/2012 10:30 AM	10/10/2012 1:05 PM
1210020-284	MW21-1-70.0	10/10/2012 10:50 AM	10/10/2012 1:05 PM
1210020-285	MW21-1-75.0	10/10/2012 10:59 AM	10/10/2012 1:05 PM
1210020-286	MW21-1-80.0	10/10/2012 11:16 AM	10/10/2012 1:05 PM
1210020-287	MW21-1-85.0	10/10/2012 11:33 AM	10/10/2012 1:05 PM
1210020-289	MW21-1-95.0	10/10/2012 12:00 PM	10/10/2012 1:05 PM
1210020-293	MW21-2-35.0	10/08/2012 9:57 AM	10/08/2012 5:09 PM
1210020-294	MW21-2-40.0	10/08/2012 10:04 AM	10/08/2012 5:09 PM
1210020-295	MW21-2-45.0	10/08/2012 10:12 AM	10/08/2012 5:09 PM
1210020-296	MW21-2-50.0	10/08/2012 10:20 AM	10/08/2012 5:09 PM
1210020-297	MW21-2-55.0	10/08/2012 10:33 AM	10/08/2012 5:09 PM
1210020-298	MW21-2-60.0	10/08/2012 10:45 AM	10/08/2012 5:09 PM
1210020-299	MW21-2-65.0	10/08/2012 10:57 AM	10/08/2012 5:09 PM
1210020-300	MW21-2-70.0	10/08/2012 11:06 AM	10/08/2012 5:09 PM
1210020-302	MW21-2-80.0	10/08/2012 11:30 AM	10/08/2012 5:09 PM
1210020-303	MW21-2-85.0	10/08/2012 11:44 AM	10/08/2012 5:09 PM
1210020-304	MW21-2-90.0	10/08/2012 12:00 PM	10/08/2012 5:09 PM
1210020-305	MW21-2-95.0	10/08/2012 12:06 PM	10/08/2012 5:09 PM
1210020-306	MW21-2-100	10/08/2012 12:37 PM	10/08/2012 5:09 PM
1210020-307	MW21-2-105	10/08/2012 12:55 PM	10/08/2012 5:09 PM
1210020-308	MW21-2-110	10/08/2012 1:20 PM	10/08/2012 5:09 PM
1210020-309	MW21-3-35.0	10/09/2012 9:42 AM	10/09/2012 4:37 PM
1210020-311	MW21-3-45.0	10/09/2012 10:25 AM	10/09/2012 4:37 PM

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

CLIENT:	GeoEngineers, Inc. - Redmond	**Work Order Sample Summary**	
Project:	Rufus 2.0 W011		
Lab Order:	1210020		

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210020-312	MW21-3-50.0	10/09/2012 10:40 AM	10/09/2012 4:37 PM
1210020-313	MW21-3-55.0	10/09/2012 11:01 AM	10/09/2012 4:37 PM
1210020-314	MW21-3-60.0	10/09/2012 11:33 AM	10/09/2012 4:37 PM
1210020-315	MW21-3-65.0	10/09/2012 11:44 AM	10/09/2012 4:37 PM
1210020-316	MW21-3-70.0	10/09/2012 12:01 PM	10/09/2012 4:37 PM
1210020-317	MW21-3-75.0	10/09/2012 12:17 PM	10/09/2012 4:37 PM
1210020-318	MW21-3-80.0	10/09/2012 12:30 PM	10/09/2012 4:37 PM
1210020-320	MW21-3-90.0	10/09/2012 12:50 PM	10/09/2012 4:37 PM
1210020-321	MW21-3-95.0	10/09/2012 1:05 PM	10/09/2012 4:37 PM
1210020-322	MW21-3-100	10/09/2012 1:20 PM	10/09/2012 4:37 PM
1210020-325	B21-1-35.0	10/04/2012 9:38 AM	10/04/2012 4:20 PM
1210020-326	B21-1-40.0	10/04/2012 9:50 AM	10/04/2012 4:20 PM
1210020-327	B21-1-45.0	10/04/2012 10:00 AM	10/04/2012 4:20 PM
1210020-328	B21-1-50.0	10/04/2012 10:12 AM	10/04/2012 4:20 PM
1210020-329	B21-1-55.0	10/04/2012 10:24 AM	10/04/2012 4:20 PM
1210020-330	B21-1-60.0	10/04/2012 10:35 AM	10/04/2012 4:20 PM
1210020-331	B21-1-65.0	10/04/2012 10:45 AM	10/04/2012 4:20 PM
1210020-332	B21-1-70.0	10/04/2012 11:00 AM	10/04/2012 4:20 PM
1210020-333	B21-1-75.0	10/04/2012 11:17 AM	10/04/2012 4:20 PM
1210020-334	B21-1-80.0	10/04/2012 11:35 AM	10/04/2012 4:20 PM
1210020-335	B21-1-85.0	10/04/2012 11:52 AM	10/04/2012 4:20 PM
1210020-336	B21-1-90.0	10/04/2012 12:10 PM	10/04/2012 4:20 PM
1210020-337	B21-1-95.0	10/04/2012 12:30 PM	10/04/2012 4:20 PM
1210020-338	B21-1-100	10/04/2012 12:35 PM	10/04/2012 4:20 PM
1210020-341	B21-2-35.0	10/11/2012 9:20 AM	10/11/2012 2:00 PM
1210020-342	B21-2-40.0	10/11/2012 9:26 AM	10/11/2012 2:00 PM
1210020-344	B21-2-50.0	10/11/2012 10:09 AM	10/11/2012 2:00 PM
1210020-345	B21-2-55.0	10/11/2012 10:20 AM	10/11/2012 2:00 PM
1210020-346	B21-2-60.0	10/11/2012 10:30 AM	10/11/2012 2:00 PM
1210020-348	B21-2-70.0	10/11/2012 10:58 AM	10/11/2012 2:00 PM
1210020-349	B21-2-75.0	10/11/2012 11:45 AM	10/11/2012 2:00 PM
1210020-350	B21-2-80.0	10/11/2012 11:56 AM	10/11/2012 2:00 PM
1210020-351	B21-2-85.0	10/11/2012 12:15 PM	10/11/2012 2:00 PM
1210020-352	B21-2-90.0	10/11/2012 12:23 PM	10/11/2012 2:00 PM
1210020-353	B21-2-95.0	10/11/2012 12:30 PM	10/11/2012 2:00 PM
1210020-354	B21-2-100	10/11/2012 12:45 PM	10/11/2012 2:00 PM

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

Case Narrative

WO#: **1210020**
Date: **11/15/2012**

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/5/2012 9:33:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-003 **Matrix:** Soil

Client Sample ID: B21-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	25.7		mg/Kg-dry	1	10/17/2012 5:14:00 AM
Heavy Oil	ND	64.2		mg/Kg-dry	1	10/17/2012 5:14:00 AM
Surr: 2-Fluorobiphenyl	103	50-150		%REC	1	10/17/2012 5:14:00 AM
Surr: o-Terphenyl	104	50-150		%REC	1	10/17/2012 5:14:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
2-Methylnaphthalene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
1-Methylnaphthalene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Acenaphthylene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Acenaphthene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Fluorene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Phenanthrene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Anthracene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Fluoranthene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Pyrene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Benz(a)anthracene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Chrysene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Benzo(b)fluoranthene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Benzo(k)fluoranthene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Benzo(a)pyrene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Indeno(1,2,3-cd)pyrene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Dibenz(a,h)anthracene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Benzo(g,h,i)perylene	ND	61.5		µg/Kg-dry	1	10/18/2012 5:40:00 PM
Surr: 2-Fluorobiphenyl	90.3	50.4-142		%REC	1	10/18/2012 5:40:00 PM
Surr: Terphenyl-d14 (surr)	109	48.8-157		%REC	1	10/18/2012 5:40:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.92		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 3:13:00 AM
Surr: Fluorobenzene	98.8	65-135		%REC	1	10/16/2012 3:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 9:33:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-003
Matrix: Soil
Client Sample ID: B21-3-7.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0711		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Chloromethane	ND	0.0711		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Vinyl chloride	ND	0.00237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Bromomethane	ND	0.107		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0592		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Chloroethane	ND	0.0711		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,1-Dichloroethene	ND	0.0592		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Methylene chloride	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
trans-1,2-Dichloroethene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0592		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,1-Dichloroethane	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
2,2-Dichloropropane	ND	0.0592		mg/Kg-dry	1	10/16/2012 3:13:00 AM
cis-1,2-Dichloroethene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Chloroform	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,1-Dichloropropene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Carbon tetrachloride	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2-Dichloroethane	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Benzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Trichloroethene (TCE)	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2-Dichloropropane	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Bromodichloromethane	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Dibromomethane	ND	0.0474		mg/Kg-dry	1	10/16/2012 3:13:00 AM
cis-1,3-Dichloropropene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Toluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
trans-1,3-Dichloropropene	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,1,2-Trichloroethane	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,3-Dichloropropane	ND	0.0592		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Tetrachloroethene (PCE)	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Dibromochloromethane	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2-Dibromoethane (EDB)	ND	0.00592		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Chlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Ethylbenzene	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
m,p-Xylene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 9:33:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-003
Matrix: Soil
Client Sample ID: B21-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Styrene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Isopropylbenzene	ND	0.0948		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Bromoform	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
n-Propylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Bromobenzene	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,3,5-Trimethylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
2-Chlorotoluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
4-Chlorotoluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
tert-Butylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2,3-Trichloropropane	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2,4-Trichlorobenzene	ND	0.0592		mg/Kg-dry	1	10/16/2012 3:13:00 AM
sec-Butylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
4-Isopropyltoluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,3-Dichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,4-Dichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
n-Butylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2-Dichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2,4-Trimethylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Hexachlorobutadiene	ND	0.118		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Naphthalene	ND	0.0355		mg/Kg-dry	1	10/16/2012 3:13:00 AM
1,2,3-Trichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 3:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/16/2012 3:13:00 AM
Surr: Dibromofluoromethane	98.6	67.6-119		%REC	1	10/16/2012 3:13:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/16/2012 3:13:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	5.04	0.104		mg/Kg-dry	1	10/16/2012 9:15:48 PM
Barium	160	0.521		mg/Kg-dry	1	10/16/2012 9:15:48 PM
Cadmium	ND	0.208		mg/Kg-dry	1	10/16/2012 9:15:48 PM
Chromium	74.4	0.104		mg/Kg-dry	1	10/16/2012 9:15:48 PM
Lead	5.41	0.208		mg/Kg-dry	1	10/16/2012 9:15:48 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 9:33:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-003
Matrix: Soil
Client Sample ID: B21-3-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.521		mg/Kg-dry	1	10/16/2012 9:15:48 PM
Silver	ND	0.104		mg/Kg-dry	1	10/16/2012 9:15:48 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.327		mg/Kg-dry	1	10/16/2012 7:37:13 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	25.0			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 9:42:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-014
Matrix: Soil
Client Sample ID: B21-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	22.4		mg/Kg-dry	1	10/17/2012 6:07:00 AM
Heavy Oil	ND	55.9		mg/Kg-dry	1	10/17/2012 6:07:00 AM
Surr: 2-Fluorobiphenyl	105	50-150		%REC	1	10/17/2012 6:07:00 AM
Surr: o-Terphenyl	106	50-150		%REC	1	10/17/2012 6:07:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
2-Methylnaphthalene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
1-Methylnaphthalene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Acenaphthylene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Acenaphthene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Fluorene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Phenanthrene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Anthracene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Fluoranthene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Pyrene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Benz(a)anthracene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Chrysene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Benzo(b)fluoranthene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Benzo(k)fluoranthene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Benzo(a)pyrene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Dibenz(a,h)anthracene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Benzo(g,h,i)perylene	ND	52.6		µg/Kg-dry	1	10/18/2012 6:31:00 PM
Surr: 2-Fluorobiphenyl	60.9	50.4-142		%REC	1	10/18/2012 6:31:00 PM
Surr: Terphenyl-d14 (surr)	85.3	48.8-157		%REC	1	10/18/2012 6:31:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.02		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 4:13:00 AM
Surr: Fluorobenzene	100	65-135		%REC	1	10/16/2012 4:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 9:42:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-014
Matrix: Soil
Client Sample ID: B21-4-5.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0602		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Chloromethane	ND	0.0602		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Vinyl chloride	ND	0.00201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Bromomethane	ND	0.0903		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0502		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Chloroethane	ND	0.0602		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,1-Dichloroethene	ND	0.0502		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Methylene chloride	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
trans-1,2-Dichloroethene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0502		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,1-Dichloroethane	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
2,2-Dichloropropane	ND	0.0502		mg/Kg-dry	1	10/16/2012 4:13:00 AM
cis-1,2-Dichloroethene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Chloroform	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,1-Dichloropropene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Carbon tetrachloride	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2-Dichloroethane	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Benzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Trichloroethene (TCE)	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2-Dichloropropane	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Bromodichloromethane	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Dibromomethane	ND	0.0401		mg/Kg-dry	1	10/16/2012 4:13:00 AM
cis-1,3-Dichloropropene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Toluene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
trans-1,3-Dichloropropene	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,1,2-Trichloroethane	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,3-Dichloropropane	ND	0.0502		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Tetrachloroethene (PCE)	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Dibromochloromethane	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2-Dibromoethane (EDB)	ND	0.00502		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Chlorobenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Ethylbenzene	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
m,p-Xylene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 9:42:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-014
Matrix: Soil
Client Sample ID: B21-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Styrene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Isopropylbenzene	ND	0.0803		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Bromoform	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
n-Propylbenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Bromobenzene	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,3,5-Trimethylbenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
2-Chlorotoluene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
4-Chlorotoluene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
tert-Butylbenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2,3-Trichloropropane	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2,4-Trichlorobenzene	ND	0.0502		mg/Kg-dry	1	10/16/2012 4:13:00 AM
sec-Butylbenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
4-Isopropyltoluene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,3-Dichlorobenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,4-Dichlorobenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
n-Butylbenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2-Dichlorobenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2,4-Trimethylbenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Hexachlorobutadiene	ND	0.100		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Naphthalene	ND	0.0301		mg/Kg-dry	1	10/16/2012 4:13:00 AM
1,2,3-Trichlorobenzene	ND	0.0201		mg/Kg-dry	1	10/16/2012 4:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.1	63.1-141		%REC	1	10/16/2012 4:13:00 AM
Surr: Dibromofluoromethane	98.0	67.6-119		%REC	1	10/16/2012 4:13:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/16/2012 4:13:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	7.24	0.0769		mg/Kg-dry	1	10/16/2012 10:29:54 PM
Barium	106	0.385		mg/Kg-dry	1	10/16/2012 10:29:54 PM
Cadmium	ND	0.154		mg/Kg-dry	1	10/16/2012 10:29:54 PM
Chromium	49.8	0.0769		mg/Kg-dry	1	10/16/2012 10:29:54 PM
Lead	3.46	0.154		mg/Kg-dry	1	10/16/2012 10:29:54 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 9:42:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-014
Matrix: Soil
Client Sample ID: B21-4-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.385		mg/Kg-dry	1	10/16/2012 10:29:54 PM
Silver	ND	0.0769		mg/Kg-dry	1	10/16/2012 10:29:54 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.290		mg/Kg-dry	1	10/16/2012 7:38:49 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	15.6			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/5/2012 10:25:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-027 **Matrix:** Soil

Client Sample ID: B21-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	23.6		mg/Kg-dry	1	10/17/2012 6:34:00 AM
Heavy Oil	ND	59.0		mg/Kg-dry	1	10/17/2012 6:34:00 AM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	10/17/2012 6:34:00 AM
Surr: o-Terphenyl	106	50-150		%REC	1	10/17/2012 6:34:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
2-Methylnaphthalene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
1-Methylnaphthalene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Acenaphthylene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Acenaphthene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Fluorene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Phenanthrene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Anthracene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Fluoranthene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Pyrene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Benz(a)anthracene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Chrysene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Benzo(b)fluoranthene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Benzo(k)fluoranthene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Benzo(a)pyrene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Indeno(1,2,3-cd)pyrene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Dibenz(a,h)anthracene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Benzo(g,h,i)perylene	ND	55.0		µg/Kg-dry	1	10/18/2012 7:22:00 PM
Surr: 2-Fluorobiphenyl	90.0	50.4-142		%REC	1	10/18/2012 7:22:00 PM
Surr: Terphenyl-d14 (surr)	102	48.8-157		%REC	1	10/18/2012 7:22:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.31		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 5:42:00 AM
Surr: Fluorobenzene	98.5	65-135		%REC	1	10/16/2012 5:42:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 10:25:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-027
Matrix: Soil
Client Sample ID: B21-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0637		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Chloromethane	ND	0.0637		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Vinyl chloride	ND	0.00212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Bromomethane	ND	0.0956		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0531		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Chloroethane	ND	0.0637		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,1-Dichloroethene	ND	0.0531		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Methylene chloride	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
trans-1,2-Dichloroethene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0531		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,1-Dichloroethane	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
2,2-Dichloropropane	ND	0.0531		mg/Kg-dry	1	10/16/2012 5:42:00 AM
cis-1,2-Dichloroethene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Chloroform	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,1-Dichloropropene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Carbon tetrachloride	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2-Dichloroethane	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Benzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Trichloroethene (TCE)	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2-Dichloropropane	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Bromodichloromethane	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Dibromomethane	ND	0.0425		mg/Kg-dry	1	10/16/2012 5:42:00 AM
cis-1,3-Dichloropropene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Toluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
trans-1,3-Dichloropropene	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,1,2-Trichloroethane	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,3-Dichloropropane	ND	0.0531		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Tetrachloroethene (PCE)	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Dibromochloromethane	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2-Dibromoethane (EDB)	ND	0.00531		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Chlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Ethylbenzene	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
m,p-Xylene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 10:25:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-027
Matrix: Soil
Client Sample ID: B21-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Styrene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Isopropylbenzene	ND	0.0849		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Bromoform	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
n-Propylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Bromobenzene	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,3,5-Trimethylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
2-Chlorotoluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
4-Chlorotoluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
tert-Butylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2,3-Trichloropropane	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2,4-Trichlorobenzene	ND	0.0531		mg/Kg-dry	1	10/16/2012 5:42:00 AM
sec-Butylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
4-Isopropyltoluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,3-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,4-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
n-Butylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2,4-Trimethylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Hexachlorobutadiene	ND	0.106		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Naphthalene	ND	0.0319		mg/Kg-dry	1	10/16/2012 5:42:00 AM
1,2,3-Trichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 5:42:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	10/16/2012 5:42:00 AM
Surr: Dibromofluoromethane	98.2	67.6-119		%REC	1	10/16/2012 5:42:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/16/2012 5:42:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	6.54	0.0966		mg/Kg-dry	1	10/16/2012 10:38:57 PM
Barium	138	0.483		mg/Kg-dry	1	10/16/2012 10:38:57 PM
Cadmium	ND	0.193		mg/Kg-dry	1	10/16/2012 10:38:57 PM
Chromium	50.7	0.0966		mg/Kg-dry	1	10/16/2012 10:38:57 PM
Lead	4.39	0.193		mg/Kg-dry	1	10/16/2012 10:38:57 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 10:25:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-027
Matrix: Soil
Client Sample ID: B21-5-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.483		mg/Kg-dry	1	10/16/2012 10:38:57 PM
Silver	ND	0.0966		mg/Kg-dry	1	10/16/2012 10:38:57 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.302		mg/Kg-dry	1	10/16/2012 7:40:26 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	20.4			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 11:45:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-039
Matrix: Soil
Client Sample ID: B21-6-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	24.0		mg/Kg-dry	1	10/17/2012 7:01:00 AM
Heavy Oil	ND	60.0		mg/Kg-dry	1	10/17/2012 7:01:00 AM
Surr: 2-Fluorobiphenyl	102	50-150		%REC	1	10/17/2012 7:01:00 AM
Surr: o-Terphenyl	103	50-150		%REC	1	10/17/2012 7:01:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
2-Methylnaphthalene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
1-Methylnaphthalene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Acenaphthylene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Acenaphthene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Fluorene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Phenanthrene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Anthracene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Fluoranthene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Pyrene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Benz(a)anthracene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Chrysene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Benzo(b)fluoranthene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Benzo(k)fluoranthene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Benzo(a)pyrene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Dibenz(a,h)anthracene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Benzo(g,h,i)perylene	ND	58.3		µg/Kg-dry	1	10/18/2012 7:48:00 PM
Surr: 2-Fluorobiphenyl	64.5	50.4-142		%REC	1	10/18/2012 7:48:00 PM
Surr: Terphenyl-d14 (surr)	74.4	48.8-157		%REC	1	10/18/2012 7:48:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.95		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Surr: 1,2-Dichloroethane-d4	107	65-135		%REC	1	10/16/2012 6:12:00 AM
Surr: Fluorobenzene	100	65-135		%REC	1	10/16/2012 6:12:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 11:45:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-039
Matrix: Soil
Client Sample ID: B21-6-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0714		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Chloromethane	ND	0.0714		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Vinyl chloride	ND	0.00238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Bromomethane	ND	0.107		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0595		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Chloroethane	ND	0.0714		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,1-Dichloroethene	ND	0.0595		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Methylene chloride	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
trans-1,2-Dichloroethene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0595		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,1-Dichloroethane	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
2,2-Dichloropropane	ND	0.0595		mg/Kg-dry	1	10/16/2012 6:12:00 AM
cis-1,2-Dichloroethene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Chloroform	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,1-Dichloropropene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Carbon tetrachloride	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2-Dichloroethane	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Benzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Trichloroethene (TCE)	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2-Dichloropropane	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Bromodichloromethane	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Dibromomethane	ND	0.0476		mg/Kg-dry	1	10/16/2012 6:12:00 AM
cis-1,3-Dichloropropene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Toluene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
trans-1,3-Dichloropropene	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,1,2-Trichloroethane	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,3-Dichloropropane	ND	0.0595		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Tetrachloroethene (PCE)	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Dibromochloromethane	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2-Dibromoethane (EDB)	ND	0.00595		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Chlorobenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Ethylbenzene	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
m,p-Xylene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 11:45:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-039
Matrix: Soil
Client Sample ID: B21-6-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Styrene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Isopropylbenzene	ND	0.0952		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Bromoform	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
n-Propylbenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Bromobenzene	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,3,5-Trimethylbenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
2-Chlorotoluene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
4-Chlorotoluene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
tert-Butylbenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2,3-Trichloropropane	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2,4-Trichlorobenzene	ND	0.0595		mg/Kg-dry	1	10/16/2012 6:12:00 AM
sec-Butylbenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
4-Isopropyltoluene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,3-Dichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,4-Dichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
n-Butylbenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2-Dichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2,4-Trimethylbenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Hexachlorobutadiene	ND	0.119		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Naphthalene	ND	0.0357		mg/Kg-dry	1	10/16/2012 6:12:00 AM
1,2,3-Trichlorobenzene	ND	0.0238		mg/Kg-dry	1	10/16/2012 6:12:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/16/2012 6:12:00 AM
Surr: Dibromofluoromethane	98.7	67.6-119		%REC	1	10/16/2012 6:12:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/16/2012 6:12:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	4.24	0.0945		mg/Kg-dry	1	10/16/2012 10:48:01 PM
Barium	138	0.472		mg/Kg-dry	1	10/16/2012 10:48:01 PM
Cadmium	ND	0.189		mg/Kg-dry	1	10/16/2012 10:48:01 PM
Chromium	66.0	0.0945		mg/Kg-dry	1	10/16/2012 10:48:01 PM
Lead	5.40	0.189		mg/Kg-dry	1	10/16/2012 10:48:01 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 11:45:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-039
Matrix: Soil
Client Sample ID: B21-6-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.472		mg/Kg-dry	1	10/16/2012 10:48:01 PM
Silver	ND	0.0945		mg/Kg-dry	1	10/16/2012 10:48:01 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.311		mg/Kg-dry	1	10/16/2012 7:42:03 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	22.7			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 11:55:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-041
Matrix: Soil
Client Sample ID: B21-6-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	22.8		mg/Kg-dry	1	10/17/2012 7:27:00 AM
Heavy Oil	ND	57.1		mg/Kg-dry	1	10/17/2012 7:27:00 AM
Surr: 2-Fluorobiphenyl	98.5	50-150		%REC	1	10/17/2012 7:27:00 AM
Surr: o-Terphenyl	98.9	50-150		%REC	1	10/17/2012 7:27:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	4.98		mg/Kg-dry	1	10/16/2012 6:41:00 AM
Surr: 1,2-Dichloroethane-d4	107	65-135		%REC	1	10/16/2012 6:41:00 AM
Surr: Fluorobenzene	100	65-135		%REC	1	10/16/2012 6:41:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Benzene	ND	0.0199		mg/Kg-dry	1	10/16/2012 6:41:00 AM
Toluene	ND	0.0199		mg/Kg-dry	1	10/16/2012 6:41:00 AM
Ethylbenzene	ND	0.0299		mg/Kg-dry	1	10/16/2012 6:41:00 AM
m,p-Xylene	ND	0.0199		mg/Kg-dry	1	10/16/2012 6:41:00 AM
o-Xylene	ND	0.0199		mg/Kg-dry	1	10/16/2012 6:41:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/16/2012 6:41:00 AM
Surr: Dibromofluoromethane	97.7	67.6-119		%REC	1	10/16/2012 6:41:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/16/2012 6:41:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	4.23	0.0846		mg/Kg-dry	1	10/16/2012 10:57:03 PM
Barium	117	0.423		mg/Kg-dry	1	10/16/2012 10:57:03 PM
Cadmium	ND	0.169		mg/Kg-dry	1	10/16/2012 10:57:03 PM
Chromium	62.9	0.0846		mg/Kg-dry	1	10/16/2012 10:57:03 PM
Lead	4.30	0.169		mg/Kg-dry	1	10/16/2012 10:57:03 PM
Selenium	ND	0.423		mg/Kg-dry	1	10/16/2012 10:57:03 PM
Silver	ND	0.0846		mg/Kg-dry	1	10/16/2012 10:57:03 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.278		mg/Kg-dry	1	10/16/2012 7:43:40 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 11:55:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-041
Matrix: Soil
Client Sample ID: B21-6-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	19.6			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/5/2012 12:20:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-050 **Matrix:** Soil

Client Sample ID: B21-7-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	25.2		mg/Kg-dry	1	10/17/2012 7:54:00 AM
Heavy Oil	ND	63.1		mg/Kg-dry	1	10/17/2012 7:54:00 AM
Surr: 2-Fluorobiphenyl	97.3	50-150		%REC	1	10/17/2012 7:54:00 AM
Surr: o-Terphenyl	97.7	50-150		%REC	1	10/17/2012 7:54:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
2-Methylnaphthalene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
1-Methylnaphthalene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Acenaphthylene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Acenaphthene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Fluorene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Phenanthrene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Anthracene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Fluoranthene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Pyrene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Benz(a)anthracene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Chrysene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Benzo(b)fluoranthene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Benzo(k)fluoranthene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Benzo(a)pyrene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Dibenz(a,h)anthracene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Benzo(g,h,i)perylene	ND	57.6		µg/Kg-dry	1	10/18/2012 8:13:00 PM
Surr: 2-Fluorobiphenyl	77.0	50.4-142		%REC	1	10/18/2012 8:13:00 PM
Surr: Terphenyl-d14 (surr)	80.9	48.8-157		%REC	1	10/18/2012 8:13:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.60		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Surr: 1,2-Dichloroethane-d4	107	65-135		%REC	1	10/16/2012 7:11:00 AM
Surr: Fluorobenzene	99.3	65-135		%REC	1	10/16/2012 7:11:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 12:20:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-050
Matrix: Soil
Client Sample ID: B21-7-5.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0672		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Chloromethane	ND	0.0672		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Vinyl chloride	ND	0.00224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Bromomethane	ND	0.101		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0560		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Chloroethane	ND	0.0672		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,1-Dichloroethene	ND	0.0560		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Methylene chloride	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
trans-1,2-Dichloroethene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0560		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,1-Dichloroethane	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
2,2-Dichloropropane	ND	0.0560		mg/Kg-dry	1	10/16/2012 7:11:00 AM
cis-1,2-Dichloroethene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Chloroform	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,1-Dichloropropene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Carbon tetrachloride	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2-Dichloroethane	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Benzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Trichloroethene (TCE)	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2-Dichloropropane	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Bromodichloromethane	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Dibromomethane	ND	0.0448		mg/Kg-dry	1	10/16/2012 7:11:00 AM
cis-1,3-Dichloropropene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Toluene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
trans-1,3-Dichloropropene	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,1,2-Trichloroethane	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,3-Dichloropropane	ND	0.0560		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Tetrachloroethene (PCE)	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Dibromochloromethane	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2-Dibromoethane (EDB)	ND	0.00560		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Chlorobenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Ethylbenzene	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
m,p-Xylene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 12:20:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-050
Matrix: Soil
Client Sample ID: B21-7-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Styrene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Isopropylbenzene	ND	0.0896		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Bromoform	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
n-Propylbenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Bromobenzene	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,3,5-Trimethylbenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
2-Chlorotoluene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
4-Chlorotoluene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
tert-Butylbenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2,3-Trichloropropane	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2,4-Trichlorobenzene	ND	0.0560		mg/Kg-dry	1	10/16/2012 7:11:00 AM
sec-Butylbenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
4-Isopropyltoluene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,3-Dichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,4-Dichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
n-Butylbenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2-Dichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2,4-Trimethylbenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Hexachlorobutadiene	ND	0.112		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Naphthalene	ND	0.0336		mg/Kg-dry	1	10/16/2012 7:11:00 AM
1,2,3-Trichlorobenzene	ND	0.0224		mg/Kg-dry	1	10/16/2012 7:11:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.4	63.1-141		%REC	1	10/16/2012 7:11:00 AM
Surr: Dibromofluoromethane	97.2	67.6-119		%REC	1	10/16/2012 7:11:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/16/2012 7:11:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	9.65	0.0850		mg/Kg-dry	1	10/16/2012 11:06:06 PM
Barium	145	0.425		mg/Kg-dry	1	10/16/2012 11:06:06 PM
Cadmium	ND	0.170		mg/Kg-dry	1	10/16/2012 11:06:06 PM
Chromium	79.7	0.0850		mg/Kg-dry	1	10/16/2012 11:06:06 PM
Lead	5.84	0.170		mg/Kg-dry	1	10/16/2012 11:06:06 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 12:20:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-050
Matrix: Soil
Client Sample ID: B21-7-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.425		mg/Kg-dry	1	10/16/2012 11:06:06 PM
Silver	ND	0.0850		mg/Kg-dry	1	10/16/2012 11:06:06 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.287		mg/Kg-dry	1	10/16/2012 7:48:31 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	23.6			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/5/2012 12:40:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-053 **Matrix:** Soil

Client Sample ID: B21-7-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	10/17/2012 8:20:00 AM
Heavy Oil	ND	54.7		mg/Kg-dry	1	10/17/2012 8:20:00 AM
Surr: 2-Fluorobiphenyl	93.2	50-150		%REC	1	10/17/2012 8:20:00 AM
Surr: o-Terphenyl	94.5	50-150		%REC	1	10/17/2012 8:20:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.07		mg/Kg-dry	1	10/16/2012 7:41:00 AM
Surr: 1,2-Dichloroethane-d4	108	65-135		%REC	1	10/16/2012 7:41:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/16/2012 7:41:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Benzene	ND	0.0203		mg/Kg-dry	1	10/16/2012 7:41:00 AM
Toluene	ND	0.0203		mg/Kg-dry	1	10/16/2012 7:41:00 AM
Ethylbenzene	ND	0.0304		mg/Kg-dry	1	10/16/2012 7:41:00 AM
m,p-Xylene	ND	0.0203		mg/Kg-dry	1	10/16/2012 7:41:00 AM
o-Xylene	ND	0.0203		mg/Kg-dry	1	10/16/2012 7:41:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/16/2012 7:41:00 AM
Surr: Dibromofluoromethane	97.3	67.6-119		%REC	1	10/16/2012 7:41:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/16/2012 7:41:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	6.87	0.0809		mg/Kg-dry	1	10/16/2012 11:15:08 PM
Barium	122	0.405		mg/Kg-dry	1	10/16/2012 11:15:08 PM
Cadmium	ND	0.162		mg/Kg-dry	1	10/16/2012 11:15:08 PM
Chromium	54.9	0.0809		mg/Kg-dry	1	10/16/2012 11:15:08 PM
Lead	4.35	0.162		mg/Kg-dry	1	10/16/2012 11:15:08 PM
Selenium	ND	0.405		mg/Kg-dry	1	10/16/2012 11:15:08 PM
Silver	ND	0.0809		mg/Kg-dry	1	10/16/2012 11:15:08 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.282		mg/Kg-dry	1	10/16/2012 7:50:08 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 12:40:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-053
Matrix: Soil
Client Sample ID: B21-7-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	14.8			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/5/2012 1:24:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-062 **Matrix:** Soil

Client Sample ID: B21-8-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	24.6		mg/Kg-dry	1	10/17/2012 8:47:00 AM
Heavy Oil	ND	61.6		mg/Kg-dry	1	10/17/2012 8:47:00 AM
Surr: 2-Fluorobiphenyl	102	50-150		%REC	1	10/17/2012 8:47:00 AM
Surr: o-Terphenyl	103	50-150		%REC	1	10/17/2012 8:47:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
2-Methylnaphthalene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
1-Methylnaphthalene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Acenaphthylene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Acenaphthene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Fluorene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Phenanthrene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Anthracene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Fluoranthene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Pyrene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Benz(a)anthracene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Chrysene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Benzo(b)fluoranthene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Benzo(k)fluoranthene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Benzo(a)pyrene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Indeno(1,2,3-cd)pyrene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Dibenz(a,h)anthracene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Benzo(g,h,i)perylene	ND	57.2		µg/Kg-dry	1	10/18/2012 8:39:00 PM
Surr: 2-Fluorobiphenyl	64.3	50.4-142		%REC	1	10/18/2012 8:39:00 PM
Surr: Terphenyl-d14 (surr)	82.6	48.8-157		%REC	1	10/18/2012 8:39:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.94		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 8:11:00 AM
Surr: Fluorobenzene	100	65-135		%REC	1	10/16/2012 8:11:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 1:24:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-062
Matrix: Soil
Client Sample ID: B21-8-5.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0712		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Chloromethane	ND	0.0712		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Vinyl chloride	ND	0.00237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Bromomethane	ND	0.107		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0594		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Chloroethane	ND	0.0712		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,1-Dichloroethene	ND	0.0594		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Methylene chloride	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
trans-1,2-Dichloroethene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0594		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,1-Dichloroethane	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
2,2-Dichloropropane	ND	0.0594		mg/Kg-dry	1	10/16/2012 8:11:00 AM
cis-1,2-Dichloroethene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Chloroform	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,1-Dichloropropene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Carbon tetrachloride	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2-Dichloroethane	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Benzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Trichloroethene (TCE)	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2-Dichloropropane	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Bromodichloromethane	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Dibromomethane	ND	0.0475		mg/Kg-dry	1	10/16/2012 8:11:00 AM
cis-1,3-Dichloropropene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Toluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
trans-1,3-Dichloropropene	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,1,2-Trichloroethane	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,3-Dichloropropane	ND	0.0594		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Tetrachloroethene (PCE)	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Dibromochloromethane	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2-Dibromoethane (EDB)	ND	0.00594		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Chlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Ethylbenzene	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
m,p-Xylene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 1:24:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-062
Matrix: Soil
Client Sample ID: B21-8-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Styrene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Isopropylbenzene	ND	0.0950		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Bromoform	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
n-Propylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Bromobenzene	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,3,5-Trimethylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
2-Chlorotoluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
4-Chlorotoluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
tert-Butylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2,3-Trichloropropane	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2,4-Trichlorobenzene	ND	0.0594		mg/Kg-dry	1	10/16/2012 8:11:00 AM
sec-Butylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
4-Isopropyltoluene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,3-Dichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,4-Dichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
n-Butylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2-Dichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2,4-Trimethylbenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Hexachlorobutadiene	ND	0.119		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Naphthalene	ND	0.0356		mg/Kg-dry	1	10/16/2012 8:11:00 AM
1,2,3-Trichlorobenzene	ND	0.0237		mg/Kg-dry	1	10/16/2012 8:11:00 AM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	10/16/2012 8:11:00 AM
Surr: Dibromofluoromethane	98.7	67.6-119		%REC	1	10/16/2012 8:11:00 AM
Surr: Toluene-d8	102	78.5-126		%REC	1	10/16/2012 8:11:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	5.47	0.0965		mg/Kg-dry	1	10/16/2012 11:24:10 PM
Barium	159	0.483		mg/Kg-dry	1	10/16/2012 11:24:10 PM
Cadmium	ND	0.193		mg/Kg-dry	1	10/16/2012 11:24:10 PM
Chromium	76.5	0.0965		mg/Kg-dry	1	10/16/2012 11:24:10 PM
Lead	5.60	0.193		mg/Kg-dry	1	10/16/2012 11:24:10 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 1:24:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-062
Matrix: Soil
Client Sample ID: B21-8-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.483		mg/Kg-dry	1	10/16/2012 11:24:10 PM
Silver	ND	0.0965		mg/Kg-dry	1	10/16/2012 11:24:10 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.302		mg/Kg-dry	1	10/16/2012 7:51:44 PM
Sample Moisture (Percent Moisture)				Batch ID: R6244		Analyst: CM
Percent Moisture	23.3			wt%	1	10/22/2012 10:21:44 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 2:15:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-073
Matrix: Soil
Client Sample ID: B21-9-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	10/17/2012 5:43:00 PM
Heavy Oil	ND	55.2		mg/Kg-dry	1	10/17/2012 5:43:00 PM
Surr: 2-Fluorobiphenyl	111	50-150		%REC	1	10/17/2012 5:43:00 PM
Surr: o-Terphenyl	107	50-150		%REC	1	10/17/2012 5:43:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
2-Methylnaphthalene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
1-Methylnaphthalene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Acenaphthylene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Acenaphthene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Fluorene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Phenanthrene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Anthracene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Fluoranthene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Pyrene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Benz(a)anthracene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Chrysene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Benzo(b)fluoranthene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Benzo(k)fluoranthene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Benzo(a)pyrene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Dibenz(a,h)anthracene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Benzo(g,h,i)perylene	ND	52.9		µg/Kg-dry	1	10/18/2012 9:04:00 PM
Surr: 2-Fluorobiphenyl	66.4	50.4-142		%REC	1	10/18/2012 9:04:00 PM
Surr: Terphenyl-d14 (surr)	80.8	48.8-157		%REC	1	10/18/2012 9:04:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	4.65		mg/Kg-dry	1	10/16/2012 8:40:00 AM
Surr: 1,2-Dichloroethane-d4	105	65-135		%REC	1	10/16/2012 8:40:00 AM
Surr: Fluorobenzene	98.7	65-135		%REC	1	10/16/2012 8:40:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 2:15:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-073
Matrix: Soil
Client Sample ID: B21-9-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Benzene	ND	0.0186		mg/Kg-dry	1	10/16/2012 8:40:00 AM
Toluene	ND	0.0186		mg/Kg-dry	1	10/16/2012 8:40:00 AM
Ethylbenzene	ND	0.0279		mg/Kg-dry	1	10/16/2012 8:40:00 AM
m,p-Xylene	ND	0.0186		mg/Kg-dry	1	10/16/2012 8:40:00 AM
o-Xylene	ND	0.0186		mg/Kg-dry	1	10/16/2012 8:40:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	10/16/2012 8:40:00 AM
Surr: Dibromofluoromethane	96.9	67.6-119		%REC	1	10/16/2012 8:40:00 AM
Surr: Toluene-d8	99.2	78.5-126		%REC	1	10/16/2012 8:40:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	8.14	0.0741		mg/Kg-dry	1	10/16/2012 11:33:12 PM
Barium	122	0.371		mg/Kg-dry	1	10/16/2012 11:33:12 PM
Cadmium	ND	0.148		mg/Kg-dry	1	10/16/2012 11:33:12 PM
Chromium	47.7	0.0741		mg/Kg-dry	1	10/16/2012 11:33:12 PM
Lead	3.71	0.148		mg/Kg-dry	1	10/16/2012 11:33:12 PM
Selenium	ND	0.371		mg/Kg-dry	1	10/16/2012 11:33:12 PM
Silver	1.07	0.0741		mg/Kg-dry	1	10/16/2012 11:33:12 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.251		mg/Kg-dry	1	10/16/2012 7:53:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	15.7			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/5/2012 2:35:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-076 **Matrix:** Soil

Client Sample ID: B21-9-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	22.8		mg/Kg-dry	1	10/17/2012 6:10:00 PM
Heavy Oil	ND	56.9		mg/Kg-dry	1	10/17/2012 6:10:00 PM
Surr: 2-Fluorobiphenyl	119	50-150		%REC	1	10/17/2012 6:10:00 PM
Surr: o-Terphenyl	113	50-150		%REC	1	10/17/2012 6:10:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.21		mg/Kg-dry	1	10/16/2012 9:10:00 AM
Surr: 1,2-Dichloroethane-d4	107	65-135		%REC	1	10/16/2012 9:10:00 AM
Surr: Fluorobenzene	98.5	65-135		%REC	1	10/16/2012 9:10:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Benzene	ND	0.0208		mg/Kg-dry	1	10/16/2012 9:10:00 AM
Toluene	ND	0.0208		mg/Kg-dry	1	10/16/2012 9:10:00 AM
Ethylbenzene	ND	0.0313		mg/Kg-dry	1	10/16/2012 9:10:00 AM
m,p-Xylene	ND	0.0208		mg/Kg-dry	1	10/16/2012 9:10:00 AM
o-Xylene	ND	0.0208		mg/Kg-dry	1	10/16/2012 9:10:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/16/2012 9:10:00 AM
Surr: Dibromofluoromethane	99.6	67.6-119		%REC	1	10/16/2012 9:10:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/16/2012 9:10:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	3.78	0.0818		mg/Kg-dry	1	10/16/2012 11:42:15 PM
Barium	88.7	0.409		mg/Kg-dry	1	10/16/2012 11:42:15 PM
Cadmium	ND	0.164		mg/Kg-dry	1	10/16/2012 11:42:15 PM
Chromium	44.4	0.0818		mg/Kg-dry	1	10/16/2012 11:42:15 PM
Lead	3.22	0.164		mg/Kg-dry	1	10/16/2012 11:42:15 PM
Selenium	ND	0.409		mg/Kg-dry	1	10/16/2012 11:42:15 PM
Silver	0.105	0.0818		mg/Kg-dry	1	10/16/2012 11:42:15 PM
Mercury by EPA Method 7471				Batch ID: 3441		Analyst: SG
Mercury	ND	0.291		mg/Kg-dry	1	10/16/2012 7:54:57 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/5/2012 2:35:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-076
Matrix: Soil
Client Sample ID: B21-9-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	19.0			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 8:55:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-085 **Matrix:** Soil

Client Sample ID: B21-10-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	23.0		mg/Kg-dry	1	10/17/2012 6:37:00 PM
Heavy Oil	ND	57.5		mg/Kg-dry	1	10/17/2012 6:37:00 PM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	10/17/2012 6:37:00 PM
Surr: o-Terphenyl	104	50-150		%REC	1	10/17/2012 6:37:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
2-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
1-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Acenaphthylene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Acenaphthene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Fluorene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Phenanthrene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Anthracene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Fluoranthene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Pyrene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Benz(a)anthracene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Chrysene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Benzo(b)fluoranthene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Benzo(k)fluoranthene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Benzo(a)pyrene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Indeno(1,2,3-cd)pyrene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Dibenz(a,h)anthracene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Benzo(g,h,i)perylene	ND	53.4		µg/Kg-dry	1	10/18/2012 9:29:00 PM
Surr: 2-Fluorobiphenyl	60.9	50.4-142		%REC	1	10/18/2012 9:29:00 PM
Surr: Terphenyl-d14 (surr)	72.2	48.8-157		%REC	1	10/18/2012 9:29:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.25		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 9:56:00 AM
Surr: Fluorobenzene	99.6	65-135		%REC	1	10/16/2012 9:56:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 8:55:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-085
Matrix: Soil
Client Sample ID: B21-10-2.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0630		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Chloromethane	ND	0.0630		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Vinyl chloride	ND	0.00210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Bromomethane	ND	0.0945		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0525		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Chloroethane	ND	0.0630		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,1-Dichloroethene	ND	0.0525		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Methylene chloride	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
trans-1,2-Dichloroethene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0525		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,1-Dichloroethane	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
2,2-Dichloropropane	ND	0.0525		mg/Kg-dry	1	10/16/2012 9:56:00 AM
cis-1,2-Dichloroethene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Chloroform	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,1-Dichloropropene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Carbon tetrachloride	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2-Dichloroethane	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Benzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Trichloroethene (TCE)	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2-Dichloropropane	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Bromodichloromethane	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Dibromomethane	ND	0.0420		mg/Kg-dry	1	10/16/2012 9:56:00 AM
cis-1,3-Dichloropropene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Toluene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
trans-1,3-Dichloropropene	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,1,2-Trichloroethane	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,3-Dichloropropane	ND	0.0525		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Tetrachloroethene (PCE)	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Dibromochloromethane	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2-Dibromoethane (EDB)	ND	0.00525		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Chlorobenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Ethylbenzene	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
m,p-Xylene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 8:55:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-085 **Matrix:** Soil

Client Sample ID: B21-10-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Styrene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Isopropylbenzene	ND	0.0840		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Bromoform	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
n-Propylbenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Bromobenzene	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,3,5-Trimethylbenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
2-Chlorotoluene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
4-Chlorotoluene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
tert-Butylbenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2,3-Trichloropropane	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2,4-Trichlorobenzene	ND	0.0525		mg/Kg-dry	1	10/16/2012 9:56:00 AM
sec-Butylbenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
4-Isopropyltoluene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,3-Dichlorobenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,4-Dichlorobenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
n-Butylbenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2-Dichlorobenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2,4-Trimethylbenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Hexachlorobutadiene	ND	0.105		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Naphthalene	ND	0.0315		mg/Kg-dry	1	10/16/2012 9:56:00 AM
1,2,3-Trichlorobenzene	ND	0.0210		mg/Kg-dry	1	10/16/2012 9:56:00 AM
Surr: 1-Bromo-4-fluorobenzene	104	63.1-141		%REC	1	10/16/2012 9:56:00 AM
Surr: Dibromofluoromethane	97.3	67.6-119		%REC	1	10/16/2012 9:56:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/16/2012 9:56:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	4.54	0.0785		mg/Kg-dry	1	10/16/2012 11:51:17 PM
Barium	130	0.392		mg/Kg-dry	1	10/16/2012 11:51:17 PM
Cadmium	ND	0.157		mg/Kg-dry	1	10/16/2012 11:51:17 PM
Chromium	57.9	0.0785		mg/Kg-dry	1	10/16/2012 11:51:17 PM
Lead	16.6	0.157		mg/Kg-dry	1	10/16/2012 11:51:17 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 8:55:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-085
Matrix: Soil
Client Sample ID: B21-10-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.392		mg/Kg-dry	1	10/16/2012 11:51:17 PM
Silver	0.109	0.0785		mg/Kg-dry	1	10/16/2012 11:51:17 PM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.250		mg/Kg-dry	1	10/18/2012 11:51:31 AM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	16.7			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:20:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-091
Matrix: Soil
Client Sample ID: B21-10-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	18.6		mg/Kg-dry	1	10/17/2012 7:31:00 PM
Heavy Oil	ND	46.5		mg/Kg-dry	1	10/17/2012 7:31:00 PM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	10/17/2012 7:31:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	10/17/2012 7:31:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	7.30		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 10:26:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/16/2012 10:26:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0876		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Chloromethane	ND	0.0876		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Vinyl chloride	ND	0.00292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Bromomethane	ND	0.131		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0730		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Chloroethane	ND	0.0876		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,1-Dichloroethene	ND	0.0730		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Methylene chloride	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
trans-1,2-Dichloroethene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0730		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,1-Dichloroethane	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
2,2-Dichloropropane	ND	0.0730		mg/Kg-dry	1	10/16/2012 10:26:00 AM
cis-1,2-Dichloroethene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Chloroform	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,1-Dichloropropene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Carbon tetrachloride	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2-Dichloroethane (EDC)	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Benzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Trichloroethene (TCE)	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2-Dichloropropane	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Bromodichloromethane	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:20:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-091
Matrix: Soil
Client Sample ID: B21-10-17.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dibromomethane	ND	0.0584		mg/Kg-dry	1	10/16/2012 10:26:00 AM
cis-1,3-Dichloropropene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Toluene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
trans-1,3-Dichloropropylene	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,1,2-Trichloroethane	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,3-Dichloropropane	ND	0.0730		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Tetrachloroethene (PCE)	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Dibromochloromethane	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2-Dibromoethane (EDB)	ND	0.00730		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Chlorobenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Ethylbenzene	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
m,p-Xylene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
o-Xylene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Styrene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Isopropylbenzene	ND	0.117		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Bromoform	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
n-Propylbenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Bromobenzene	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,3,5-Trimethylbenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
2-Chlorotoluene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
4-Chlorotoluene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
tert-Butylbenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2,3-Trichloropropane	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2,4-Trichlorobenzene	ND	0.0730		mg/Kg-dry	1	10/16/2012 10:26:00 AM
sec-Butylbenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
4-Isopropyltoluene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,3-Dichlorobenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,4-Dichlorobenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
n-Butylbenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2-Dichlorobenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2,4-Trimethylbenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Hexachlorobutadiene	ND	0.146		mg/Kg-dry	1	10/16/2012 10:26:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:20:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-091
Matrix: Soil
Client Sample ID: B21-10-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Naphthalene	ND	0.0438		mg/Kg-dry	1	10/16/2012 10:26:00 AM
1,2,3-Trichlorobenzene	ND	0.0292		mg/Kg-dry	1	10/16/2012 10:26:00 AM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	10/16/2012 10:26:00 AM
Surr: Dibromofluoromethane	98.5	67.6-119		%REC	1	10/16/2012 10:26:00 AM
Surr: Toluene-d8	98.9	78.5-126		%REC	1	10/16/2012 10:26:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	3.46	0.0669		mg/Kg-dry	1	10/17/2012 12:19:21 AM
Barium	21.0	0.335		mg/Kg-dry	1	10/17/2012 12:19:21 AM
Cadmium	ND	0.134		mg/Kg-dry	1	10/17/2012 12:19:21 AM
Chromium	17.2	0.0669		mg/Kg-dry	1	10/17/2012 12:19:21 AM
Lead	1.25	0.134		mg/Kg-dry	1	10/17/2012 12:19:21 AM
Selenium	ND	0.335		mg/Kg-dry	1	10/17/2012 12:19:21 AM
Silver	ND	0.0669		mg/Kg-dry	1	10/17/2012 12:19:21 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.240		mg/Kg-dry	1	10/18/2012 11:53:07 AM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	1.73			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:50:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-097
Matrix: Soil
Client Sample ID: B21-11-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	10/17/2012 7:58:00 PM
Heavy Oil	ND	54.8		mg/Kg-dry	1	10/17/2012 7:58:00 PM
Surr: 2-Fluorobiphenyl	97.3	50-150		%REC	1	10/17/2012 7:58:00 PM
Surr: o-Terphenyl	90.9	50-150		%REC	1	10/17/2012 7:58:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
2-Methylnaphthalene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
1-Methylnaphthalene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Acenaphthylene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Acenaphthene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Fluorene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Phenanthrene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Anthracene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Fluoranthene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Pyrene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Benz(a)anthracene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Chrysene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Benzo(b)fluoranthene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Benzo(k)fluoranthene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Benzo(a)pyrene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Dibenz(a,h)anthracene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Benzo(g,h,i)perylene	ND	52.0		µg/Kg-dry	1	10/18/2012 9:55:00 PM
Surr: 2-Fluorobiphenyl	72.4	50.4-142		%REC	1	10/18/2012 9:55:00 PM
Surr: Terphenyl-d14 (surr)	85.0	48.8-157		%REC	1	10/18/2012 9:55:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	4.82		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Surr: 1,2-Dichloroethane-d4	109	65-135		%REC	1	10/16/2012 10:56:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/16/2012 10:56:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:50:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-097
Matrix: Soil
Client Sample ID: B21-11-2.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0578		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Chloromethane	ND	0.0578		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Vinyl chloride	ND	0.00193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Bromomethane	ND	0.0867		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0482		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Chloroethane	ND	0.0578		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,1-Dichloroethene	ND	0.0482		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Methylene chloride	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
trans-1,2-Dichloroethene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0482		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,1-Dichloroethane	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
2,2-Dichloropropane	ND	0.0482		mg/Kg-dry	1	10/16/2012 10:56:00 AM
cis-1,2-Dichloroethene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Chloroform	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,1-Dichloropropene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Carbon tetrachloride	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2-Dichloroethane	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Benzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Trichloroethene (TCE)	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2-Dichloropropane	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Bromodichloromethane	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Dibromomethane	ND	0.0385		mg/Kg-dry	1	10/16/2012 10:56:00 AM
cis-1,3-Dichloropropene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Toluene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
trans-1,3-Dichloropropene	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,1,2-Trichloroethane	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,3-Dichloropropane	ND	0.0482		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Tetrachloroethene (PCE)	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Dibromochloromethane	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2-Dibromoethane (EDB)	ND	0.00482		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Chlorobenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Ethylbenzene	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
m,p-Xylene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:50:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-097
Matrix: Soil
Client Sample ID: B21-11-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Styrene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Isopropylbenzene	ND	0.0771		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Bromoform	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
n-Propylbenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Bromobenzene	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,3,5-Trimethylbenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
2-Chlorotoluene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
4-Chlorotoluene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
tert-Butylbenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2,3-Trichloropropane	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2,4-Trichlorobenzene	ND	0.0482		mg/Kg-dry	1	10/16/2012 10:56:00 AM
sec-Butylbenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
4-Isopropyltoluene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,3-Dichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,4-Dichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
n-Butylbenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2-Dichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2,4-Trimethylbenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Hexachlorobutadiene	ND	0.0963		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Naphthalene	ND	0.0289		mg/Kg-dry	1	10/16/2012 10:56:00 AM
1,2,3-Trichlorobenzene	ND	0.0193		mg/Kg-dry	1	10/16/2012 10:56:00 AM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	10/16/2012 10:56:00 AM
Surr: Dibromofluoromethane	98.4	67.6-119		%REC	1	10/16/2012 10:56:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/16/2012 10:56:00 AM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	4.82	0.0775		mg/Kg-dry	1	10/17/2012 12:28:23 AM
Barium	118	0.387		mg/Kg-dry	1	10/17/2012 12:28:23 AM
Cadmium	ND	0.155		mg/Kg-dry	1	10/17/2012 12:28:23 AM
Chromium	52.7	0.0775		mg/Kg-dry	1	10/17/2012 12:28:23 AM
Lead	16.2	0.155		mg/Kg-dry	1	10/17/2012 12:28:23 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:50:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-097
Matrix: Soil
Client Sample ID: B21-11-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.387		mg/Kg-dry	1	10/17/2012 12:28:23 AM
Silver	ND	0.0775		mg/Kg-dry	1	10/17/2012 12:28:23 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.271		mg/Kg-dry	1	10/18/2012 11:57:57 AM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	16.2			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 10:00:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-100 **Matrix:** Soil

Client Sample ID: B21-11-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	27.8		mg/Kg-dry	1	10/17/2012 8:25:00 PM
Heavy Oil	ND	69.4		mg/Kg-dry	1	10/17/2012 8:25:00 PM
Surr: 2-Fluorobiphenyl	98.2	50-150		%REC	1	10/17/2012 8:25:00 PM
Surr: o-Terphenyl	92.4	50-150		%REC	1	10/17/2012 8:25:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
2-Methylnaphthalene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
1-Methylnaphthalene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Acenaphthylene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Acenaphthene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Fluorene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Phenanthrene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Anthracene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Fluoranthene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Pyrene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Benz(a)anthracene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Chrysene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Benzo(b)fluoranthene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Benzo(k)fluoranthene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Benzo(a)pyrene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Indeno(1,2,3-cd)pyrene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Dibenz(a,h)anthracene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Benzo(g,h,i)perylene	ND	61.8		µg/Kg-dry	1	10/18/2012 10:20:00 PM
Surr: 2-Fluorobiphenyl	75.0	50.4-142		%REC	1	10/18/2012 10:20:00 PM
Surr: Terphenyl-d14 (surr)	82.6	48.8-157		%REC	1	10/18/2012 10:20:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	6.21		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 12:26:00 PM
Surr: Fluorobenzene	99.9	65-135		%REC	1	10/16/2012 12:26:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 10:00:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-100
Matrix: Soil
Client Sample ID: B21-11-10.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0745		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Chloromethane	ND	0.0745		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Vinyl chloride	ND	0.00248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Bromomethane	ND	0.112		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0621		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Chloroethane	ND	0.0745		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,1-Dichloroethene	ND	0.0621		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Methylene chloride	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
trans-1,2-Dichloroethene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0621		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,1-Dichloroethane	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
2,2-Dichloropropane	ND	0.0621		mg/Kg-dry	1	10/16/2012 12:26:00 PM
cis-1,2-Dichloroethene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Chloroform	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,1-Dichloropropene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Carbon tetrachloride	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2-Dichloroethane	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Benzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Trichloroethene (TCE)	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2-Dichloropropane	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Bromodichloromethane	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Dibromomethane	ND	0.0497		mg/Kg-dry	1	10/16/2012 12:26:00 PM
cis-1,3-Dichloropropene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Toluene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
trans-1,3-Dichloropropene	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,1,2-Trichloroethane	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,3-Dichloropropane	ND	0.0621		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Tetrachloroethene (PCE)	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Dibromochloromethane	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2-Dibromoethane (EDB)	ND	0.00621		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Chlorobenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Ethylbenzene	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
m,p-Xylene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 10:00:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-100
Matrix: Soil
Client Sample ID: B21-11-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Styrene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Isopropylbenzene	ND	0.0994		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Bromoform	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
n-Propylbenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Bromobenzene	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,3,5-Trimethylbenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
2-Chlorotoluene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
4-Chlorotoluene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
tert-Butylbenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2,3-Trichloropropane	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2,4-Trichlorobenzene	ND	0.0621		mg/Kg-dry	1	10/16/2012 12:26:00 PM
sec-Butylbenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
4-Isopropyltoluene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,3-Dichlorobenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,4-Dichlorobenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
n-Butylbenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2-Dichlorobenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2,4-Trimethylbenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Hexachlorobutadiene	ND	0.124		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Naphthalene	ND	0.0373		mg/Kg-dry	1	10/16/2012 12:26:00 PM
1,2,3-Trichlorobenzene	ND	0.0248		mg/Kg-dry	1	10/16/2012 12:26:00 PM
Surr: 1-Bromo-4-fluorobenzene	98.2	63.1-141		%REC	1	10/16/2012 12:26:00 PM
Surr: Dibromofluoromethane	98.2	67.6-119		%REC	1	10/16/2012 12:26:00 PM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/16/2012 12:26:00 PM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	4.39	0.0965		mg/Kg-dry	1	10/17/2012 12:37:25 AM
Barium	180	0.482		mg/Kg-dry	1	10/17/2012 12:37:25 AM
Cadmium	ND	0.193		mg/Kg-dry	1	10/17/2012 12:37:25 AM
Chromium	92.7	0.0965		mg/Kg-dry	1	10/17/2012 12:37:25 AM
Lead	5.77	0.193		mg/Kg-dry	1	10/17/2012 12:37:25 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 10:00:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-100
Matrix: Soil
Client Sample ID: B21-11-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.482		mg/Kg-dry	1	10/17/2012 12:37:25 AM
Silver	ND	0.0965		mg/Kg-dry	1	10/17/2012 12:37:25 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.341		mg/Kg-dry	1	10/18/2012 11:59:34 AM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	28.0			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 10:40:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-110
Matrix: Soil
Client Sample ID: B21-12-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	10/17/2012 8:52:00 PM
Heavy Oil	ND	58.4		mg/Kg-dry	1	10/17/2012 8:52:00 PM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	10/17/2012 8:52:00 PM
Surr: o-Terphenyl	100	50-150		%REC	1	10/17/2012 8:52:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3447		Analyst: PH
Naphthalene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
2-Methylnaphthalene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
1-Methylnaphthalene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Acenaphthylene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Acenaphthene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Fluorene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Phenanthrene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Anthracene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Fluoranthene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Pyrene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Benz(a)anthracene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Chrysene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Benzo(b)fluoranthene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Benzo(k)fluoranthene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Benzo(a)pyrene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Indeno(1,2,3-cd)pyrene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Dibenz(a,h)anthracene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Benzo(g,h,i)perylene	ND	55.5		µg/Kg-dry	1	10/19/2012 2:53:00 PM
Surr: 2-Fluorobiphenyl	112	50.4-142		%REC	1	10/19/2012 2:53:00 PM
Surr: Terphenyl-d14 (surr)	112	48.8-157		%REC	1	10/19/2012 2:53:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.65		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Surr: 1,2-Dichloroethane-d4	108	65-135		%REC	1	10/16/2012 12:56:00 PM
Surr: Fluorobenzene	101	65-135		%REC	1	10/16/2012 12:56:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 10:40:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-110
Matrix: Soil
Client Sample ID: B21-12-5.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0678		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Chloromethane	ND	0.0678		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Vinyl chloride	ND	0.00226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Bromomethane	ND	0.102		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0565		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Chloroethane	ND	0.0678		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,1-Dichloroethene	ND	0.0565		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Methylene chloride	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
trans-1,2-Dichloroethene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0565		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,1-Dichloroethane	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
2,2-Dichloropropane	ND	0.0565		mg/Kg-dry	1	10/16/2012 12:56:00 PM
cis-1,2-Dichloroethene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Chloroform	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,1-Dichloropropene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Carbon tetrachloride	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2-Dichloroethane	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Benzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Trichloroethene (TCE)	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2-Dichloropropane	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Bromodichloromethane	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Dibromomethane	ND	0.0452		mg/Kg-dry	1	10/16/2012 12:56:00 PM
cis-1,3-Dichloropropene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Toluene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
trans-1,3-Dichloropropene	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,1,2-Trichloroethane	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,3-Dichloropropane	ND	0.0565		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Tetrachloroethene (PCE)	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Dibromochloromethane	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2-Dibromoethane (EDB)	ND	0.00565		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Chlorobenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Ethylbenzene	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
m,p-Xylene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 10:40:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-110
Matrix: Soil
Client Sample ID: B21-12-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Styrene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Isopropylbenzene	ND	0.0904		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Bromoform	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
n-Propylbenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Bromobenzene	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,3,5-Trimethylbenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
2-Chlorotoluene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
4-Chlorotoluene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
tert-Butylbenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2,3-Trichloropropane	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2,4-Trichlorobenzene	ND	0.0565		mg/Kg-dry	1	10/16/2012 12:56:00 PM
sec-Butylbenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
4-Isopropyltoluene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,3-Dichlorobenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,4-Dichlorobenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
n-Butylbenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2-Dichlorobenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2,4-Trimethylbenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Hexachlorobutadiene	ND	0.113		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Naphthalene	ND	0.0339		mg/Kg-dry	1	10/16/2012 12:56:00 PM
1,2,3-Trichlorobenzene	ND	0.0226		mg/Kg-dry	1	10/16/2012 12:56:00 PM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%REC	1	10/16/2012 12:56:00 PM
Surr: Dibromofluoromethane	97.6	67.6-119		%REC	1	10/16/2012 12:56:00 PM
Surr: Toluene-d8	99.3	78.5-126		%REC	1	10/16/2012 12:56:00 PM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	5.48	0.0851		mg/Kg-dry	1	10/17/2012 12:46:29 AM
Barium	119	0.426		mg/Kg-dry	1	10/17/2012 12:46:29 AM
Cadmium	ND	0.170		mg/Kg-dry	1	10/17/2012 12:46:29 AM
Chromium	49.6	0.0851		mg/Kg-dry	1	10/17/2012 12:46:29 AM
Lead	4.42	0.170		mg/Kg-dry	1	10/17/2012 12:46:29 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 10:40:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-110
Matrix: Soil
Client Sample ID: B21-12-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.426		mg/Kg-dry	1	10/17/2012 12:46:29 AM
Silver	ND	0.0851		mg/Kg-dry	1	10/17/2012 12:46:29 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.315		mg/Kg-dry	1	10/18/2012 12:01:12 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	20.6			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 11:10:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-115
Matrix: Soil
Client Sample ID: B21-12-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	20.2		mg/Kg-dry	1	10/17/2012 9:19:00 PM
Heavy Oil	ND	50.4		mg/Kg-dry	1	10/17/2012 9:19:00 PM
Surr: 2-Fluorobiphenyl	105	50-150		%REC	1	10/17/2012 9:19:00 PM
Surr: o-Terphenyl	99.5	50-150		%REC	1	10/17/2012 9:19:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
2-Methylnaphthalene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
1-Methylnaphthalene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Acenaphthylene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Acenaphthene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Fluorene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Phenanthrene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Anthracene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Fluoranthene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Pyrene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Benz(a)anthracene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Chrysene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Benzo(b)fluoranthene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Benzo(k)fluoranthene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Benzo(a)pyrene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Indeno(1,2,3-cd)pyrene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Dibenz(a,h)anthracene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Benzo(g,h,i)perylene	ND	51.0		µg/Kg-dry	1	10/18/2012 1:10:00 AM
Surr: 2-Fluorobiphenyl	127	50.4-142		%REC	1	10/18/2012 1:10:00 AM
Surr: Terphenyl-d14 (surr)	109	48.8-157		%REC	1	10/18/2012 1:10:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	4.80		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Surr: 1,2-Dichloroethane-d4	107	65-135		%REC	1	10/16/2012 1:26:00 PM
Surr: Fluorobenzene	101	65-135		%REC	1	10/16/2012 1:26:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 11:10:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-115
Matrix: Soil
Client Sample ID: B21-12-17.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0577		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Chloromethane	ND	0.0577		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Vinyl chloride	ND	0.00192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Bromomethane	ND	0.0865		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0480		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Chloroethane	ND	0.0577		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,1-Dichloroethene	ND	0.0480		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Methylene chloride	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
trans-1,2-Dichloroethene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0480		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,1-Dichloroethane	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
2,2-Dichloropropane	ND	0.0480		mg/Kg-dry	1	10/16/2012 1:26:00 PM
cis-1,2-Dichloroethene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Chloroform	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,1-Dichloropropene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Carbon tetrachloride	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2-Dichloroethane	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Benzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Trichloroethene (TCE)	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2-Dichloropropane	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Bromodichloromethane	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Dibromomethane	ND	0.0384		mg/Kg-dry	1	10/16/2012 1:26:00 PM
cis-1,3-Dichloropropene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Toluene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
trans-1,3-Dichloropropene	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,1,2-Trichloroethane	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,3-Dichloropropane	ND	0.0480		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Tetrachloroethene (PCE)	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Dibromochloromethane	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2-Dibromoethane (EDB)	ND	0.00480		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Chlorobenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Ethylbenzene	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
m,p-Xylene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 11:10:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-115
Matrix: Soil
Client Sample ID: B21-12-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Styrene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Isopropylbenzene	ND	0.0769		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Bromoform	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
n-Propylbenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Bromobenzene	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,3,5-Trimethylbenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
2-Chlorotoluene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
4-Chlorotoluene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
tert-Butylbenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2,3-Trichloropropane	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2,4-Trichlorobenzene	ND	0.0480		mg/Kg-dry	1	10/16/2012 1:26:00 PM
sec-Butylbenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
4-Isopropyltoluene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,3-Dichlorobenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,4-Dichlorobenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
n-Butylbenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2-Dichlorobenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2,4-Trimethylbenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Hexachlorobutadiene	ND	0.0961		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Naphthalene	ND	0.0288		mg/Kg-dry	1	10/16/2012 1:26:00 PM
1,2,3-Trichlorobenzene	ND	0.0192		mg/Kg-dry	1	10/16/2012 1:26:00 PM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%REC	1	10/16/2012 1:26:00 PM
Surr: Dibromofluoromethane	98.0	67.6-119		%REC	1	10/16/2012 1:26:00 PM
Surr: Toluene-d8	99.3	78.5-126		%REC	1	10/16/2012 1:26:00 PM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	1.45	0.0774		mg/Kg-dry	1	10/17/2012 12:55:32 AM
Barium	39.0	0.387		mg/Kg-dry	1	10/17/2012 12:55:32 AM
Cadmium	ND	0.155		mg/Kg-dry	1	10/17/2012 12:55:32 AM
Chromium	26.6	0.0774		mg/Kg-dry	1	10/17/2012 12:55:32 AM
Lead	1.63	0.155		mg/Kg-dry	1	10/17/2012 12:55:32 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 11:10:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-115
Matrix: Soil
Client Sample ID: B21-12-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.387		mg/Kg-dry	1	10/17/2012 12:55:32 AM
Silver	ND	0.0774		mg/Kg-dry	1	10/17/2012 12:55:32 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.229		mg/Kg-dry	1	10/18/2012 12:02:50 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	8.98			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 12:05:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-121 **Matrix:** Soil

Client Sample ID: B21-13-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	24.6		mg/Kg-dry	1	10/17/2012 9:45:00 PM
Heavy Oil	ND	61.5		mg/Kg-dry	1	10/17/2012 9:45:00 PM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	10/17/2012 9:45:00 PM
Surr: o-Terphenyl	99.4	50-150		%REC	1	10/17/2012 9:45:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
2-Methylnaphthalene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
1-Methylnaphthalene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Acenaphthylene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Acenaphthene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Fluorene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Phenanthrene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Anthracene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Fluoranthene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Pyrene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Benz(a)anthracene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Chrysene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Benzo(b)fluoranthene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Benzo(k)fluoranthene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Benzo(a)pyrene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Dibenz(a,h)anthracene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Benzo(g,h,i)perylene	ND	55.1		µg/Kg-dry	1	10/18/2012 6:35:00 AM
Surr: 2-Fluorobiphenyl	136	50.4-142		%REC	1	10/18/2012 6:35:00 AM
Surr: Terphenyl-d14 (surr)	126	48.8-157		%REC	1	10/18/2012 6:35:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	5.29		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Surr: 1,2-Dichloroethane-d4	105	65-135		%REC	1	10/16/2012 1:56:00 PM
Surr: Fluorobenzene	100	65-135		%REC	1	10/16/2012 1:56:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 12:05:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-121
Matrix: Soil
Client Sample ID: B21-13-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0635		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Chloromethane	ND	0.0635		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Vinyl chloride	ND	0.00212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Bromomethane	ND	0.0953		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0529		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Chloroethane	ND	0.0635		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,1-Dichloroethene	ND	0.0529		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Methylene chloride	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
trans-1,2-Dichloroethene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0529		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,1-Dichloroethane	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
2,2-Dichloropropane	ND	0.0529		mg/Kg-dry	1	10/16/2012 1:56:00 PM
cis-1,2-Dichloroethene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Chloroform	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,1-Dichloropropene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Carbon tetrachloride	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2-Dichloroethane	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Benzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Trichloroethene (TCE)	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2-Dichloropropane	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Bromodichloromethane	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Dibromomethane	ND	0.0424		mg/Kg-dry	1	10/16/2012 1:56:00 PM
cis-1,3-Dichloropropene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Toluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
trans-1,3-Dichloropropene	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,1,2-Trichloroethane	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,3-Dichloropropane	ND	0.0529		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Tetrachloroethene (PCE)	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Dibromochloromethane	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2-Dibromoethane (EDB)	ND	0.00529		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Chlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Ethylbenzene	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
m,p-Xylene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 12:05:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-121
Matrix: Soil
Client Sample ID: B21-13-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Styrene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Isopropylbenzene	ND	0.0847		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Bromoform	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
n-Propylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Bromobenzene	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,3,5-Trimethylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
2-Chlorotoluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
4-Chlorotoluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
tert-Butylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2,3-Trichloropropane	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2,4-Trichlorobenzene	ND	0.0529		mg/Kg-dry	1	10/16/2012 1:56:00 PM
sec-Butylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
4-Isopropyltoluene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,3-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,4-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
n-Butylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2-Dichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2,4-Trimethylbenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Hexachlorobutadiene	ND	0.106		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Naphthalene	ND	0.0318		mg/Kg-dry	1	10/16/2012 1:56:00 PM
1,2,3-Trichlorobenzene	ND	0.0212		mg/Kg-dry	1	10/16/2012 1:56:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.9	63.1-141		%REC	1	10/16/2012 1:56:00 PM
Surr: Dibromofluoromethane	97.0	67.6-119		%REC	1	10/16/2012 1:56:00 PM
Surr: Toluene-d8	99.5	78.5-126		%REC	1	10/16/2012 1:56:00 PM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	10.1	0.0938		mg/Kg-dry	1	10/17/2012 1:04:35 AM
Barium	113	0.469		mg/Kg-dry	1	10/17/2012 1:04:35 AM
Cadmium	0.205	0.188		mg/Kg-dry	1	10/17/2012 1:04:35 AM
Chromium	60.8	0.0938		mg/Kg-dry	1	10/17/2012 1:04:35 AM
Lead	10.7	0.188		mg/Kg-dry	1	10/17/2012 1:04:35 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 12:05:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-121
Matrix: Soil
Client Sample ID: B21-13-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.469		mg/Kg-dry	1	10/17/2012 1:04:35 AM
Silver	ND	0.0938		mg/Kg-dry	1	10/17/2012 1:04:35 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.276		mg/Kg-dry	1	10/18/2012 12:04:25 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	19.2			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 12:18:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-126
Matrix: Soil
Client Sample ID: B21-13-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	19.1		mg/Kg-dry	1	10/17/2012 10:12:00 PM
Heavy Oil	ND	47.7		mg/Kg-dry	1	10/17/2012 10:12:00 PM
Surr: 2-Fluorobiphenyl	95.9	50-150		%REC	1	10/17/2012 10:12:00 PM
Surr: o-Terphenyl	89.0	50-150		%REC	1	10/17/2012 10:12:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	6.10		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Surr: 1,2-Dichloroethane-d4	106	65-135		%REC	1	10/16/2012 2:26:00 PM
Surr: Fluorobenzene	99.5	65-135		%REC	1	10/16/2012 2:26:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0732		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Chloromethane	ND	0.0732		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Vinyl chloride	ND	0.00244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Bromomethane	ND	0.110		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0610		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Chloroethane	ND	0.0732		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,1-Dichloroethene	ND	0.0610		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Methylene chloride	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
trans-1,2-Dichloroethene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0610		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,1-Dichloroethane	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
2,2-Dichloropropane	ND	0.0610		mg/Kg-dry	1	10/16/2012 2:26:00 PM
cis-1,2-Dichloroethene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Chloroform	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,1-Dichloropropene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Carbon tetrachloride	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2-Dichloroethane (EDC)	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Benzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Trichloroethene (TCE)	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2-Dichloropropane	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Bromodichloromethane	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 12:18:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-126
Matrix: Soil
Client Sample ID: B21-13-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Dibromomethane	ND	0.0488		mg/Kg-dry	1	10/16/2012 2:26:00 PM
cis-1,3-Dichloropropene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Toluene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
trans-1,3-Dichloropropylene	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,1,2-Trichloroethane	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,3-Dichloropropane	ND	0.0610		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Tetrachloroethene (PCE)	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Dibromochloromethane	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2-Dibromoethane (EDB)	ND	0.00610		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Chlorobenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Ethylbenzene	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
m,p-Xylene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
o-Xylene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Styrene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Isopropylbenzene	ND	0.0976		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Bromoform	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
n-Propylbenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Bromobenzene	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,3,5-Trimethylbenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
2-Chlorotoluene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
4-Chlorotoluene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
tert-Butylbenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2,3-Trichloropropane	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2,4-Trichlorobenzene	ND	0.0610		mg/Kg-dry	1	10/16/2012 2:26:00 PM
sec-Butylbenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
4-Isopropyltoluene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,3-Dichlorobenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,4-Dichlorobenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
n-Butylbenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2-Dichlorobenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2,4-Trimethylbenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Hexachlorobutadiene	ND	0.122		mg/Kg-dry	1	10/16/2012 2:26:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 12:18:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-126
Matrix: Soil
Client Sample ID: B21-13-15.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
Naphthalene	ND	0.0366		mg/Kg-dry	1	10/16/2012 2:26:00 PM
1,2,3-Trichlorobenzene	ND	0.0244		mg/Kg-dry	1	10/16/2012 2:26:00 PM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/16/2012 2:26:00 PM
Surr: Dibromofluoromethane	98.3	67.6-119		%REC	1	10/16/2012 2:26:00 PM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/16/2012 2:26:00 PM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	2.14	0.0683		mg/Kg-dry	1	10/17/2012 1:13:38 AM
Barium	21.5	0.342		mg/Kg-dry	1	10/17/2012 1:13:38 AM
Cadmium	ND	0.137		mg/Kg-dry	1	10/17/2012 1:13:38 AM
Chromium	20.7	0.0683		mg/Kg-dry	1	10/17/2012 1:13:38 AM
Lead	1.05	0.137		mg/Kg-dry	1	10/17/2012 1:13:38 AM
Selenium	ND	0.342		mg/Kg-dry	1	10/17/2012 1:13:38 AM
Silver	ND	0.0683		mg/Kg-dry	1	10/17/2012 1:13:38 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.225		mg/Kg-dry	1	10/18/2012 12:06:01 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	4.31			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 1:25:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-133
Matrix: Soil
Client Sample ID: B21-14-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	10/17/2012 10:39:00 PM
Heavy Oil	ND	55.8		mg/Kg-dry	1	10/17/2012 10:39:00 PM
Surr: 2-Fluorobiphenyl	99.2	50-150		%REC	1	10/17/2012 10:39:00 PM
Surr: o-Terphenyl	90.8	50-150		%REC	1	10/17/2012 10:39:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
2-Methylnaphthalene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
1-Methylnaphthalene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Acenaphthylene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Acenaphthene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Fluorene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Phenanthrene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Anthracene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Fluoranthene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Pyrene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Benz(a)anthracene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Chrysene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Benzo(b)fluoranthene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Benzo(k)fluoranthene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Benzo(a)pyrene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Indeno(1,2,3-cd)pyrene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Dibenz(a,h)anthracene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Benzo(g,h,i)perylene	ND	52.8		µg/Kg-dry	1	10/18/2012 6:10:00 AM
Surr: 2-Fluorobiphenyl	114	50.4-142		%REC	1	10/18/2012 6:10:00 AM
Surr: Terphenyl-d14 (surr)	122	48.8-157		%REC	1	10/18/2012 6:10:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6222		Analyst: EM
Gasoline	ND	4.90		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Surr: 1,2-Dichloroethane-d4	108	65-135		%REC	1	10/16/2012 3:27:00 PM
Surr: Fluorobenzene	99.2	65-135		%REC	1	10/16/2012 3:27:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 1:25:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-133
Matrix: Soil
Client Sample ID: B21-14-2.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3439 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0588		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Chloromethane	ND	0.0588		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Vinyl chloride	ND	0.00196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Bromomethane	ND	0.0882		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0490		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Chloroethane	ND	0.0588		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,1-Dichloroethene	ND	0.0490		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Methylene chloride	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
trans-1,2-Dichloroethene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0490		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,1-Dichloroethane	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
2,2-Dichloropropane	ND	0.0490		mg/Kg-dry	1	10/16/2012 3:27:00 PM
cis-1,2-Dichloroethene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Chloroform	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,1-Dichloropropene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Carbon tetrachloride	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2-Dichloroethane	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Benzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Trichloroethene (TCE)	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2-Dichloropropane	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Bromodichloromethane	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Dibromomethane	ND	0.0392		mg/Kg-dry	1	10/16/2012 3:27:00 PM
cis-1,3-Dichloropropene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Toluene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
trans-1,3-Dichloropropene	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,1,2-Trichloroethane	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,3-Dichloropropane	ND	0.0490		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Tetrachloroethene (PCE)	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Dibromochloromethane	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2-Dibromoethane (EDB)	ND	0.00490		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Chlorobenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Ethylbenzene	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
m,p-Xylene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 1:25:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-133
Matrix: Soil
Client Sample ID: B21-14-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3439		Analyst: EM
o-Xylene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Styrene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Isopropylbenzene	ND	0.0784		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Bromoform	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
n-Propylbenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Bromobenzene	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,3,5-Trimethylbenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
2-Chlorotoluene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
4-Chlorotoluene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
tert-Butylbenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2,3-Trichloropropane	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2,4-Trichlorobenzene	ND	0.0490		mg/Kg-dry	1	10/16/2012 3:27:00 PM
sec-Butylbenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
4-Isopropyltoluene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,3-Dichlorobenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,4-Dichlorobenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
n-Butylbenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2-Dichlorobenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2,4-Trimethylbenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Hexachlorobutadiene	ND	0.0980		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Naphthalene	ND	0.0294		mg/Kg-dry	1	10/16/2012 3:27:00 PM
1,2,3-Trichlorobenzene	ND	0.0196		mg/Kg-dry	1	10/16/2012 3:27:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	10/16/2012 3:27:00 PM
Surr: Dibromofluoromethane	98.1	67.6-119		%REC	1	10/16/2012 3:27:00 PM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/16/2012 3:27:00 PM
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Arsenic	2.42	0.0798		mg/Kg-dry	1	10/17/2012 1:22:40 AM
Barium	67.1	0.399		mg/Kg-dry	1	10/17/2012 1:22:40 AM
Cadmium	ND	0.160		mg/Kg-dry	1	10/17/2012 1:22:40 AM
Chromium	43.6	0.0798		mg/Kg-dry	1	10/17/2012 1:22:40 AM
Lead	3.02	0.160		mg/Kg-dry	1	10/17/2012 1:22:40 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 1:25:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-133
Matrix: Soil
Client Sample ID: B21-14-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3449		Analyst: SG
Selenium	ND	0.399		mg/Kg-dry	1	10/17/2012 1:22:40 AM
Silver	ND	0.0798		mg/Kg-dry	1	10/17/2012 1:22:40 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.274		mg/Kg-dry	1	10/18/2012 12:09:14 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	15.4			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 1:40:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-137
Matrix: Soil
Client Sample ID: B21-14-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3445		Analyst: BR
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	10/17/2012 11:06:00 PM
Heavy Oil	ND	53.5		mg/Kg-dry	1	10/17/2012 11:06:00 PM
Surr: 2-Fluorobiphenyl	107	50-150		%REC	1	10/17/2012 11:06:00 PM
Surr: o-Terphenyl	99.4	50-150		%REC	1	10/17/2012 11:06:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	5.15		mg/Kg-dry	1	10/17/2012 4:17:00 AM
Surr: 1,2-Dichloroethane-d4	111	65-135		%REC	1	10/17/2012 4:17:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 4:17:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Benzene	ND	0.0206		mg/Kg-dry	1	10/17/2012 4:17:00 AM
Toluene	ND	0.0206		mg/Kg-dry	1	10/17/2012 4:17:00 AM
Ethylbenzene	ND	0.0309		mg/Kg-dry	1	10/17/2012 4:17:00 AM
m,p-Xylene	ND	0.0206		mg/Kg-dry	1	10/17/2012 4:17:00 AM
o-Xylene	ND	0.0206		mg/Kg-dry	1	10/17/2012 4:17:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.0	63.1-141		%REC	1	10/17/2012 4:17:00 AM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	10/17/2012 4:17:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/17/2012 4:17:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	3.44	0.114		mg/Kg-dry	1	10/17/2012 2:29:03 AM
Barium	90.4	0.568		mg/Kg-dry	1	10/17/2012 2:29:03 AM
Cadmium	ND	0.227		mg/Kg-dry	1	10/17/2012 2:29:03 AM
Chromium	48.2	0.114		mg/Kg-dry	1	10/17/2012 2:29:03 AM
Lead	3.80	0.227		mg/Kg-dry	1	10/17/2012 2:29:03 AM
Selenium	0.736	0.568		mg/Kg-dry	1	10/17/2012 2:29:03 AM
Silver	ND	0.114		mg/Kg-dry	1	10/17/2012 2:29:03 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.222		mg/Kg-dry	1	10/18/2012 12:10:51 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 1:40:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-137
Matrix: Soil
Client Sample ID: B21-14-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	12.0			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 2:30:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-146
Matrix: Soil
Client Sample ID: B21-15-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	10/16/2012 8:17:00 PM
Heavy Oil	ND	51.5		mg/Kg-dry	1	10/16/2012 8:17:00 PM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	10/16/2012 8:17:00 PM
Surr: o-Terphenyl	104	50-150		%REC	1	10/16/2012 8:17:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
2-Methylnaphthalene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
1-Methylnaphthalene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Acenaphthylene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Acenaphthene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Fluorene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Phenanthrene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Anthracene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Fluoranthene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Pyrene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Benz(a)anthracene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Chrysene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Benzo(b)fluoranthene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Benzo(k)fluoranthene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Benzo(a)pyrene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Indeno(1,2,3-cd)pyrene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Dibenz(a,h)anthracene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Benzo(g,h,i)perylene	ND	52.9		µg/Kg-dry	1	10/18/2012 2:50:00 AM
Surr: 2-Fluorobiphenyl	100	50.4-142		%REC	1	10/18/2012 2:50:00 AM
Surr: Terphenyl-d14 (surr)	117	48.8-157		%REC	1	10/18/2012 2:50:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	5.11		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Surr: 1,2-Dichloroethane-d4	111	65-135		%REC	1	10/17/2012 4:47:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 4:47:00 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 2:30:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-146 **Matrix:** Soil

Client Sample ID: B21-15-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0613		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Chloromethane	ND	0.0613		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Vinyl chloride	ND	0.00204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Bromomethane	ND	0.0919		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0511		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Chloroethane	ND	0.0613		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,1-Dichloroethene	ND	0.0511		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Methylene chloride	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
trans-1,2-Dichloroethene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0511		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,1-Dichloroethane	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
2,2-Dichloropropane	ND	0.0511		mg/Kg-dry	1	10/17/2012 4:47:00 AM
cis-1,2-Dichloroethene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Chloroform	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,1-Dichloropropene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Carbon tetrachloride	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2-Dichloroethane	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Benzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Trichloroethene (TCE)	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2-Dichloropropane	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Bromodichloromethane	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Dibromomethane	ND	0.0409		mg/Kg-dry	1	10/17/2012 4:47:00 AM
cis-1,3-Dichloropropene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Toluene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
trans-1,3-Dichloropropene	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,1,2-Trichloroethane	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,3-Dichloropropane	ND	0.0511		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Tetrachloroethene (PCE)	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Dibromochloromethane	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2-Dibromoethane (EDB)	ND	0.00511		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Chlorobenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Ethylbenzene	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
m,p-Xylene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 2:30:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-146
Matrix: Soil
Client Sample ID: B21-15-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
o-Xylene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Styrene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Isopropylbenzene	ND	0.0817		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Bromoform	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
n-Propylbenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Bromobenzene	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,3,5-Trimethylbenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
2-Chlorotoluene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
4-Chlorotoluene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
tert-Butylbenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2,3-Trichloropropane	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2,4-Trichlorobenzene	ND	0.0511		mg/Kg-dry	1	10/17/2012 4:47:00 AM
sec-Butylbenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
4-Isopropyltoluene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,3-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,4-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
n-Butylbenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2-Dichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2,4-Trimethylbenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Hexachlorobutadiene	ND	0.102		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Naphthalene	ND	0.0306		mg/Kg-dry	1	10/17/2012 4:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0204		mg/Kg-dry	1	10/17/2012 4:47:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	10/17/2012 4:47:00 AM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	10/17/2012 4:47:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/17/2012 4:47:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	3.14	0.0890		mg/Kg-dry	1	10/17/2012 3:23:01 AM
Barium	71.8	0.445		mg/Kg-dry	1	10/17/2012 3:23:01 AM
Cadmium	ND	0.178		mg/Kg-dry	1	10/17/2012 3:23:01 AM
Chromium	41.7	0.0890		mg/Kg-dry	1	10/17/2012 3:23:01 AM
Lead	2.74	0.178		mg/Kg-dry	1	10/17/2012 3:23:01 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 2:30:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-146
Matrix: Soil
Client Sample ID: B21-15-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Selenium	ND	0.445		mg/Kg-dry	1	10/17/2012 3:23:01 AM
Silver	ND	0.0890		mg/Kg-dry	1	10/17/2012 3:23:01 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.269		mg/Kg-dry	1	10/18/2012 12:12:28 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	15.5			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 2:40:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-149 **Matrix:** Soil

Client Sample ID: B21-15-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	19.1		mg/Kg-dry	1	10/16/2012 9:11:00 PM
Heavy Oil	ND	47.7		mg/Kg-dry	1	10/16/2012 9:11:00 PM
Surr: 2-Fluorobiphenyl	95.6	50-150		%REC	1	10/16/2012 9:11:00 PM
Surr: o-Terphenyl	94.8	50-150		%REC	1	10/16/2012 9:11:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	6.07		mg/Kg-dry	1	10/17/2012 5:46:00 AM
Surr: 1,2-Dichloroethane-d4	112	65-135		%REC	1	10/17/2012 5:46:00 AM
Surr: Fluorobenzene	102	65-135		%REC	1	10/17/2012 5:46:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Benzene	ND	0.0243		mg/Kg-dry	1	10/17/2012 5:46:00 AM
Toluene	ND	0.0243		mg/Kg-dry	1	10/17/2012 5:46:00 AM
Ethylbenzene	ND	0.0364		mg/Kg-dry	1	10/17/2012 5:46:00 AM
m,p-Xylene	ND	0.0243		mg/Kg-dry	1	10/17/2012 5:46:00 AM
o-Xylene	ND	0.0243		mg/Kg-dry	1	10/17/2012 5:46:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.4	63.1-141		%REC	1	10/17/2012 5:46:00 AM
Surr: Dibromofluoromethane	99.4	67.6-119		%REC	1	10/17/2012 5:46:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/17/2012 5:46:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	1.39	0.0855		mg/Kg-dry	1	10/17/2012 3:32:04 AM
Barium	44.1	0.427		mg/Kg-dry	1	10/17/2012 3:32:04 AM
Cadmium	ND	0.171		mg/Kg-dry	1	10/17/2012 3:32:04 AM
Chromium	31.3	0.0855		mg/Kg-dry	1	10/17/2012 3:32:04 AM
Lead	1.47	0.171		mg/Kg-dry	1	10/17/2012 3:32:04 AM
Selenium	ND	0.427		mg/Kg-dry	1	10/17/2012 3:32:04 AM
Silver	ND	0.0855		mg/Kg-dry	1	10/17/2012 3:32:04 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.277		mg/Kg-dry	1	10/18/2012 12:53:56 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 2:40:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-149
Matrix: Soil
Client Sample ID: B21-15-12.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	7.89			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 3:15:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-157 **Matrix:** Soil

Client Sample ID: B21-16-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	10/16/2012 9:38:00 PM
Heavy Oil	ND	55.3		mg/Kg-dry	1	10/16/2012 9:38:00 PM
Surr: 2-Fluorobiphenyl	102	50-150		%REC	1	10/16/2012 9:38:00 PM
Surr: o-Terphenyl	103	50-150		%REC	1	10/16/2012 9:38:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
2-Methylnaphthalene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
1-Methylnaphthalene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Acenaphthylene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Acenaphthene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Fluorene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Phenanthrene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Anthracene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Fluoranthene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Pyrene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Benz(a)anthracene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Chrysene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Benzo(b)fluoranthene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Benzo(k)fluoranthene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Benzo(a)pyrene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Dibenz(a,h)anthracene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Benzo(g,h,i)perylene	ND	55.2		µg/Kg-dry	1	10/18/2012 3:15:00 AM
Surr: 2-Fluorobiphenyl	123	50.4-142		%REC	1	10/18/2012 3:15:00 AM
Surr: Terphenyl-d14 (surr)	119	48.8-157		%REC	1	10/18/2012 3:15:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	5.05		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Surr: 1,2-Dichloroethane-d4	109	65-135		%REC	1	10/17/2012 7:14:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 7:14:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 3:15:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-157
Matrix: Soil
Client Sample ID: B21-16-2.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3452 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0606		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Chloromethane	ND	0.0606		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Vinyl chloride	ND	0.00202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Bromomethane	ND	0.0909		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0505		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Chloroethane	ND	0.0606		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,1-Dichloroethene	ND	0.0505		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Methylene chloride	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
trans-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0505		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,1-Dichloroethane	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
2,2-Dichloropropane	ND	0.0505		mg/Kg-dry	1	10/17/2012 7:14:00 AM
cis-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Chloroform	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,1-Dichloropropene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Carbon tetrachloride	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2-Dichloroethane	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Benzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Trichloroethene (TCE)	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2-Dichloropropane	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Bromodichloromethane	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Dibromomethane	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:14:00 AM
cis-1,3-Dichloropropene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Toluene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
trans-1,3-Dichloropropene	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,1,2-Trichloroethane	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,3-Dichloropropane	ND	0.0505		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Tetrachloroethene (PCE)	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Dibromochloromethane	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2-Dibromoethane (EDB)	ND	0.00505		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Chlorobenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Ethylbenzene	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
m,p-Xylene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 3:15:00 PM

Project: Rufus 2.0 W011

Lab ID: 1210020-157 **Matrix:** Soil

Client Sample ID: B21-16-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
o-Xylene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Styrene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Isopropylbenzene	ND	0.0808		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Bromoform	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
n-Propylbenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Bromobenzene	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,3,5-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
2-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
4-Chlorotoluene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
tert-Butylbenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2,3-Trichloropropane	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2,4-Trichlorobenzene	ND	0.0505		mg/Kg-dry	1	10/17/2012 7:14:00 AM
sec-Butylbenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
4-Isopropyltoluene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,3-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,4-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
n-Butylbenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2,4-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Hexachlorobutadiene	ND	0.101		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Naphthalene	ND	0.0303		mg/Kg-dry	1	10/17/2012 7:14:00 AM
1,2,3-Trichlorobenzene	ND	0.0202		mg/Kg-dry	1	10/17/2012 7:14:00 AM
Surr: 1-Bromo-4-fluorobenzene	98.4	63.1-141		%REC	1	10/17/2012 7:14:00 AM
Surr: Dibromofluoromethane	98.0	67.6-119		%REC	1	10/17/2012 7:14:00 AM
Surr: Toluene-d8	99.7	78.5-126		%REC	1	10/17/2012 7:14:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	5.54	0.0972		mg/Kg-dry	1	10/17/2012 4:00:09 AM
Barium	130	0.486		mg/Kg-dry	1	10/17/2012 4:00:09 AM
Cadmium	ND	0.194		mg/Kg-dry	1	10/17/2012 4:00:09 AM
Chromium	61.9	0.0972		mg/Kg-dry	1	10/17/2012 4:00:09 AM
Lead	11.1	0.194		mg/Kg-dry	1	10/17/2012 4:00:09 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 3:15:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-157
Matrix: Soil
Client Sample ID: B21-16-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Selenium	ND	0.486		mg/Kg-dry	1	10/17/2012 4:00:09 AM
Silver	ND	0.0972		mg/Kg-dry	1	10/17/2012 4:00:09 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.287		mg/Kg-dry	1	10/18/2012 12:55:33 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	17.7			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 3:25:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-160
Matrix: Soil
Client Sample ID: B21-16-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	19.5		mg/Kg-dry	1	10/16/2012 10:05:00 PM
Heavy Oil	ND	48.7		mg/Kg-dry	1	10/16/2012 10:05:00 PM
Surr: 2-Fluorobiphenyl	101	50-150		%REC	1	10/16/2012 10:05:00 PM
Surr: o-Terphenyl	102	50-150		%REC	1	10/16/2012 10:05:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	6.73		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Surr: 1,2-Dichloroethane-d4	111	65-135		%REC	1	10/17/2012 7:44:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 7:44:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0808		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Chloromethane	ND	0.0808		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Vinyl chloride	ND	0.00269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Bromomethane	ND	0.121		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0673		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Chloroethane	ND	0.0808		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,1-Dichloroethene	ND	0.0673		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Methylene chloride	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
trans-1,2-Dichloroethene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0673		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,1-Dichloroethane	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
2,2-Dichloropropane	ND	0.0673		mg/Kg-dry	1	10/17/2012 7:44:00 AM
cis-1,2-Dichloroethene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Chloroform	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,1-Dichloropropene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Carbon tetrachloride	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2-Dichloroethane	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Benzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Trichloroethene (TCE)	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2-Dichloropropane	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Bromodichloromethane	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 3:25:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-160
Matrix: Soil
Client Sample ID: B21-16-10.0

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3452 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dibromomethane	ND	0.0538		mg/Kg-dry	1	10/17/2012 7:44:00 AM
cis-1,3-Dichloropropene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Toluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
trans-1,3-Dichloropropene	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,1,2-Trichloroethane	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,3-Dichloropropane	ND	0.0673		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Tetrachloroethene (PCE)	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Dibromochloromethane	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2-Dibromoethane (EDB)	ND	0.00673		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Chlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Ethylbenzene	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
m,p-Xylene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
o-Xylene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Styrene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Isopropylbenzene	ND	0.108		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Bromoform	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
n-Propylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Bromobenzene	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,3,5-Trimethylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
2-Chlorotoluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
4-Chlorotoluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
tert-Butylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2,3-Trichloropropane	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2,4-Trichlorobenzene	ND	0.0673		mg/Kg-dry	1	10/17/2012 7:44:00 AM
sec-Butylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
4-Isopropyltoluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,3-Dichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,4-Dichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
n-Butylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2-Dichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2,4-Trimethylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Hexachlorobutadiene	ND	0.135		mg/Kg-dry	1	10/17/2012 7:44:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 3:25:00 PM
Project: Rufus 2.0 W011
Lab ID: 1210020-160
Matrix: Soil
Client Sample ID: B21-16-10.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Naphthalene	ND	0.0404		mg/Kg-dry	1	10/17/2012 7:44:00 AM
1,2,3-Trichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 7:44:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.8	63.1-141		%REC	1	10/17/2012 7:44:00 AM
Surr: Dibromofluoromethane	101	67.6-119		%REC	1	10/17/2012 7:44:00 AM
Surr: Toluene-d8	105	78.5-126		%REC	1	10/17/2012 7:44:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	1.15	0.0837		mg/Kg-dry	1	10/17/2012 4:09:12 AM
Barium	36.5	0.419		mg/Kg-dry	1	10/17/2012 4:09:12 AM
Cadmium	ND	0.167		mg/Kg-dry	1	10/17/2012 4:09:12 AM
Chromium	26.5	0.0837		mg/Kg-dry	1	10/17/2012 4:09:12 AM
Lead	1.20	0.167		mg/Kg-dry	1	10/17/2012 4:09:12 AM
Selenium	ND	0.419		mg/Kg-dry	1	10/17/2012 4:09:12 AM
Silver	ND	0.0837		mg/Kg-dry	1	10/17/2012 4:09:12 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.232		mg/Kg-dry	1	10/18/2012 12:57:09 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	3.70			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/10/2012 8:25:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-218 **Matrix:** Soil

Client Sample ID: MW21-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	18.4		mg/Kg-dry	1	10/16/2012 10:32:00 PM
Heavy Oil	ND	46.1		mg/Kg-dry	1	10/16/2012 10:32:00 PM
Surr: 2-Fluorobiphenyl	99.3	50-150		%REC	1	10/16/2012 10:32:00 PM
Surr: o-Terphenyl	101	50-150		%REC	1	10/16/2012 10:32:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
2-Methylnaphthalene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
1-Methylnaphthalene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Acenaphthylene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Acenaphthene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Fluorene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Phenanthrene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Anthracene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Fluoranthene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Pyrene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Benz(a)anthracene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Chrysene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Benzo(b)fluoranthene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Benzo(k)fluoranthene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Benzo(a)pyrene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Indeno(1,2,3-cd)pyrene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Dibenz(a,h)anthracene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Benzo(g,h,i)perylene	ND	45.7		µg/Kg-dry	1	10/18/2012 3:40:00 AM
Surr: 2-Fluorobiphenyl	97.6	50.4-142		%REC	1	10/18/2012 3:40:00 AM
Surr: Terphenyl-d14 (surr)	103	48.8-157		%REC	1	10/18/2012 3:40:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	6.72		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Surr: 1,2-Dichloroethane-d4	110	65-135		%REC	1	10/17/2012 8:14:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 8:14:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/10/2012 8:25:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-218
Matrix: Soil
Client Sample ID: MW21-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0807		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Chloromethane	ND	0.0807		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Vinyl chloride	ND	0.00269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Bromomethane	ND	0.121		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0672		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Chloroethane	ND	0.0807		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,1-Dichloroethene	ND	0.0672		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Methylene chloride	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
trans-1,2-Dichloroethene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0672		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,1-Dichloroethane	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
2,2-Dichloropropane	ND	0.0672		mg/Kg-dry	1	10/17/2012 8:14:00 AM
cis-1,2-Dichloroethene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Chloroform	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,1-Dichloropropene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Carbon tetrachloride	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2-Dichloroethane	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Benzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Trichloroethene (TCE)	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2-Dichloropropane	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Bromodichloromethane	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Dibromomethane	ND	0.0538		mg/Kg-dry	1	10/17/2012 8:14:00 AM
cis-1,3-Dichloropropene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Toluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
trans-1,3-Dichloropropene	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,1,2-Trichloroethane	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,3-Dichloropropane	ND	0.0672		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Tetrachloroethene (PCE)	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Dibromochloromethane	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2-Dibromoethane (EDB)	ND	0.00672		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Chlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Ethylbenzene	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
m,p-Xylene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/10/2012 8:25:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-218
Matrix: Soil
Client Sample ID: MW21-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
o-Xylene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Styrene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Isopropylbenzene	ND	0.108		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Bromoform	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
n-Propylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Bromobenzene	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,3,5-Trimethylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
2-Chlorotoluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
4-Chlorotoluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
tert-Butylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2,3-Trichloropropane	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2,4-Trichlorobenzene	ND	0.0672		mg/Kg-dry	1	10/17/2012 8:14:00 AM
sec-Butylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
4-Isopropyltoluene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,3-Dichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,4-Dichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
n-Butylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2-Dichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2,4-Trimethylbenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Hexachlorobutadiene	ND	0.134		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Naphthalene	ND	0.0403		mg/Kg-dry	1	10/17/2012 8:14:00 AM
1,2,3-Trichlorobenzene	ND	0.0269		mg/Kg-dry	1	10/17/2012 8:14:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.4	63.1-141		%REC	1	10/17/2012 8:14:00 AM
Surr: Dibromofluoromethane	99.2	67.6-119		%REC	1	10/17/2012 8:14:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/17/2012 8:14:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	0.891	0.0900		mg/Kg-dry	1	10/17/2012 4:18:15 AM
Barium	43.0	0.450		mg/Kg-dry	1	10/17/2012 4:18:15 AM
Cadmium	ND	0.180		mg/Kg-dry	1	10/17/2012 4:18:15 AM
Chromium	31.9	0.0900		mg/Kg-dry	1	10/17/2012 4:18:15 AM
Lead	1.32	0.180		mg/Kg-dry	1	10/17/2012 4:18:15 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/10/2012 8:25:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-218
Matrix: Soil
Client Sample ID: MW21-1-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Selenium	ND	0.450		mg/Kg-dry	1	10/17/2012 4:18:15 AM
Silver	ND	0.0900		mg/Kg-dry	1	10/17/2012 4:18:15 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.264		mg/Kg-dry	1	10/18/2012 12:58:46 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	3.39			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/10/2012 8:55:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-223
Matrix: Soil
Client Sample ID: MW21-1-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	20.2		mg/Kg-dry	1	10/16/2012 10:59:00 PM
Heavy Oil	ND	50.6		mg/Kg-dry	1	10/16/2012 10:59:00 PM
Surr: 2-Fluorobiphenyl	99.5	50-150		%REC	1	10/16/2012 10:59:00 PM
Surr: o-Terphenyl	101	50-150		%REC	1	10/16/2012 10:59:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
2-Methylnaphthalene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
1-Methylnaphthalene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Acenaphthylene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Acenaphthene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Fluorene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Phenanthrene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Anthracene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Fluoranthene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Pyrene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Benz(a)anthracene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Chrysene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Benzo(b)fluoranthene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Benzo(k)fluoranthene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Benzo(a)pyrene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Indeno(1,2,3-cd)pyrene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Dibenz(a,h)anthracene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Benzo(g,h,i)perylene	ND	52.0		µg/Kg-dry	1	10/18/2012 4:05:00 AM
Surr: 2-Fluorobiphenyl	133	50.4-142		%REC	1	10/18/2012 4:05:00 AM
Surr: Terphenyl-d14 (surr)	109	48.8-157		%REC	1	10/18/2012 4:05:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	8.68		mg/Kg-dry	1	10/17/2012 8:43:00 AM
Surr: 1,2-Dichloroethane-d4	110	65-135		%REC	1	10/17/2012 8:43:00 AM
Surr: Fluorobenzene	100	65-135		%REC	1	10/17/2012 8:43:00 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/10/2012 8:55:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-223 **Matrix:** Soil

Client Sample ID: MW21-1-17.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Benzene	ND	0.0347		mg/Kg-dry	1	10/17/2012 8:43:00 AM
Toluene	ND	0.0347		mg/Kg-dry	1	10/17/2012 8:43:00 AM
Ethylbenzene	ND	0.0521		mg/Kg-dry	1	10/17/2012 8:43:00 AM
m,p-Xylene	ND	0.0347		mg/Kg-dry	1	10/17/2012 8:43:00 AM
o-Xylene	ND	0.0347		mg/Kg-dry	1	10/17/2012 8:43:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/17/2012 8:43:00 AM
Surr: Dibromofluoromethane	99.8	67.6-119		%REC	1	10/17/2012 8:43:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/17/2012 8:43:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	3.97	0.0930		mg/Kg-dry	1	10/17/2012 4:27:18 AM
Barium	125	0.465		mg/Kg-dry	1	10/17/2012 4:27:18 AM
Cadmium	ND	0.186		mg/Kg-dry	1	10/17/2012 4:27:18 AM
Chromium	73.3	0.0930		mg/Kg-dry	1	10/17/2012 4:27:18 AM
Lead	4.79	0.186		mg/Kg-dry	1	10/17/2012 4:27:18 AM
Selenium	ND	0.465		mg/Kg-dry	1	10/17/2012 4:27:18 AM
Silver	ND	0.0930		mg/Kg-dry	1	10/17/2012 4:27:18 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.242		mg/Kg-dry	1	10/18/2012 1:00:23 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	12.5			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/8/2012 8:37:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-231 **Matrix:** Soil

Client Sample ID: MW21-2-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	10/16/2012 11:26:00 PM
Heavy Oil	ND	53.1		mg/Kg-dry	1	10/16/2012 11:26:00 PM
Surr: 2-Fluorobiphenyl	98.8	50-150		%REC	1	10/16/2012 11:26:00 PM
Surr: o-Terphenyl	98.9	50-150		%REC	1	10/16/2012 11:26:00 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
2-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
1-Methylnaphthalene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Acenaphthylene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Acenaphthene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Fluorene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Phenanthrene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Anthracene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Fluoranthene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Pyrene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Benz(a)anthracene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Chrysene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Benzo(b)fluoranthene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Benzo(k)fluoranthene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Benzo(a)pyrene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Indeno(1,2,3-cd)pyrene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Dibenz(a,h)anthracene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Benzo(g,h,i)perylene	ND	53.4		µg/Kg-dry	1	10/18/2012 4:30:00 AM
Surr: 2-Fluorobiphenyl	103	50.4-142		%REC	1	10/18/2012 4:30:00 AM
Surr: Terphenyl-d14 (surr)	116	48.8-157		%REC	1	10/18/2012 4:30:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	4.22		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Surr: 1,2-Dichloroethane-d4	111	65-135		%REC	1	10/17/2012 9:13:00 AM
Surr: Fluorobenzene	99.5	65-135		%REC	1	10/17/2012 9:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 8:37:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-231
Matrix: Soil
Client Sample ID: MW21-2-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0507		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Chloromethane	ND	0.0507		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Vinyl chloride	ND	0.00169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Bromomethane	ND	0.0760		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0422		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Chloroethane	ND	0.0507		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,1-Dichloroethene	ND	0.0422		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Methylene chloride	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
trans-1,2-Dichloroethene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0422		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,1-Dichloroethane	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
2,2-Dichloropropane	ND	0.0422		mg/Kg-dry	1	10/17/2012 9:13:00 AM
cis-1,2-Dichloroethene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Chloroform	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,1-Dichloropropene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Carbon tetrachloride	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2-Dichloroethane	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Benzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Trichloroethene (TCE)	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2-Dichloropropane	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Bromodichloromethane	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Dibromomethane	ND	0.0338		mg/Kg-dry	1	10/17/2012 9:13:00 AM
cis-1,3-Dichloropropene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Toluene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
trans-1,3-Dichloropropene	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,1,2-Trichloroethane	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,3-Dichloropropane	ND	0.0422		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Tetrachloroethene (PCE)	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Dibromochloromethane	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2-Dibromoethane (EDB)	ND	0.00422		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Chlorobenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Ethylbenzene	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
m,p-Xylene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 8:37:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-231
Matrix: Soil
Client Sample ID: **MW21-2-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
o-Xylene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Styrene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Isopropylbenzene	ND	0.0676		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Bromoform	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
n-Propylbenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Bromobenzene	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,3,5-Trimethylbenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
2-Chlorotoluene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
4-Chlorotoluene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
tert-Butylbenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2,3-Trichloropropane	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2,4-Trichlorobenzene	ND	0.0422		mg/Kg-dry	1	10/17/2012 9:13:00 AM
sec-Butylbenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
4-Isopropyltoluene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,3-Dichlorobenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,4-Dichlorobenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
n-Butylbenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2-Dichlorobenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2,4-Trimethylbenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Hexachlorobutadiene	ND	0.0845		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Naphthalene	ND	0.0253		mg/Kg-dry	1	10/17/2012 9:13:00 AM
1,2,3-Trichlorobenzene	ND	0.0169		mg/Kg-dry	1	10/17/2012 9:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	103	63.1-141		%REC	1	10/17/2012 9:13:00 AM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	10/17/2012 9:13:00 AM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/17/2012 9:13:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	3.09	0.0793		mg/Kg-dry	1	10/17/2012 4:36:21 AM
Barium	95.4	0.396		mg/Kg-dry	1	10/17/2012 4:36:21 AM
Cadmium	ND	0.159		mg/Kg-dry	1	10/17/2012 4:36:21 AM
Chromium	52.0	0.0793		mg/Kg-dry	1	10/17/2012 4:36:21 AM
Lead	3.41	0.159		mg/Kg-dry	1	10/17/2012 4:36:21 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 8:37:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-231
Matrix: Soil
Client Sample ID: MW21-2-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Selenium	ND	0.396		mg/Kg-dry	1	10/17/2012 4:36:21 AM
Silver	ND	0.0793		mg/Kg-dry	1	10/17/2012 4:36:21 AM
Mercury by EPA Method 7471				Batch ID: 3456		Analyst: MC
Mercury	ND	0.292		mg/Kg-dry	1	10/18/2012 1:02:01 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	17.6			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:23:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-236
Matrix: Soil
Client Sample ID: MW21-2-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	10/16/2012 11:52:00 PM
Heavy Oil	ND	53.1		mg/Kg-dry	1	10/16/2012 11:52:00 PM
Surr: 2-Fluorobiphenyl	108	50-150		%REC	1	10/16/2012 11:52:00 PM
Surr: o-Terphenyl	110	50-150		%REC	1	10/16/2012 11:52:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	5.62		mg/Kg-dry	1	10/17/2012 9:43:00 AM
Surr: 1,2-Dichloroethane-d4	110	65-135		%REC	1	10/17/2012 9:43:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 9:43:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Benzene	ND	0.0225		mg/Kg-dry	1	10/17/2012 9:43:00 AM
Toluene	ND	0.0225		mg/Kg-dry	1	10/17/2012 9:43:00 AM
Ethylbenzene	ND	0.0337		mg/Kg-dry	1	10/17/2012 9:43:00 AM
m,p-Xylene	ND	0.0225		mg/Kg-dry	1	10/17/2012 9:43:00 AM
o-Xylene	ND	0.0225		mg/Kg-dry	1	10/17/2012 9:43:00 AM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	10/17/2012 9:43:00 AM
Surr: Dibromofluoromethane	102	67.6-119		%REC	1	10/17/2012 9:43:00 AM
Surr: Toluene-d8	100	78.5-126		%REC	1	10/17/2012 9:43:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	2.01	0.0803		mg/Kg-dry	1	10/17/2012 4:45:24 AM
Barium	80.1	0.401		mg/Kg-dry	1	10/17/2012 4:45:24 AM
Cadmium	ND	0.161		mg/Kg-dry	1	10/17/2012 4:45:24 AM
Chromium	29.8	0.0803		mg/Kg-dry	1	10/17/2012 4:45:24 AM
Lead	1.68	0.161		mg/Kg-dry	1	10/17/2012 4:45:24 AM
Selenium	ND	0.401		mg/Kg-dry	1	10/17/2012 4:45:24 AM
Silver	ND	0.0803		mg/Kg-dry	1	10/17/2012 4:45:24 AM
Mercury by EPA Method 7471				Batch ID: 3465		Analyst: SG
Mercury	ND	0.255		mg/Kg-dry	1	10/19/2012 12:29:03 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/8/2012 9:23:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-236
Matrix: Soil
Client Sample ID: MW21-2-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	9.08			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/9/2012 8:12:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-241 **Matrix:** Soil

Client Sample ID: MW21-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	23.8		mg/Kg-dry	1	10/17/2012 12:19:00 AM
Heavy Oil	ND	59.4		mg/Kg-dry	1	10/17/2012 12:19:00 AM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	10/17/2012 12:19:00 AM
Surr: o-Terphenyl	107	50-150		%REC	1	10/17/2012 12:19:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
2-Methylnaphthalene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
1-Methylnaphthalene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Acenaphthylene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Acenaphthene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Fluorene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Phenanthrene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Anthracene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Fluoranthene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Pyrene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Benz(a)anthracene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Chrysene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Benzo(b)fluoranthene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Benzo(k)fluoranthene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Benzo(a)pyrene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Indeno(1,2,3-cd)pyrene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Dibenz(a,h)anthracene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Benzo(g,h,i)perylene	ND	55.1		µg/Kg-dry	1	10/18/2012 4:55:00 AM
Surr: 2-Fluorobiphenyl	99.7	50.4-142		%REC	1	10/18/2012 4:55:00 AM
Surr: Terphenyl-d14 (surr)	112	48.8-157		%REC	1	10/18/2012 4:55:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	7.79		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Surr: 1,2-Dichloroethane-d4	110	65-135		%REC	1	10/17/2012 10:13:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 10:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/9/2012 8:12:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-241
Matrix: Soil
Client Sample ID: **MW21-3-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0935		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Chloromethane	ND	0.0935		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Vinyl chloride	ND	0.00312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Bromomethane	ND	0.140		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0779		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Chloroethane	ND	0.0935		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,1-Dichloroethene	ND	0.0779		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Methylene chloride	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
trans-1,2-Dichloroethene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0779		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,1-Dichloroethane	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
2,2-Dichloropropane	ND	0.0779		mg/Kg-dry	1	10/17/2012 10:13:00 AM
cis-1,2-Dichloroethene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Chloroform	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,1-Dichloropropene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Carbon tetrachloride	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2-Dichloroethane	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Benzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Trichloroethene (TCE)	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2-Dichloropropane	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Bromodichloromethane	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Dibromomethane	ND	0.0623		mg/Kg-dry	1	10/17/2012 10:13:00 AM
cis-1,3-Dichloropropene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Toluene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
trans-1,3-Dichloropropene	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,1,2-Trichloroethane	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,3-Dichloropropane	ND	0.0779		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Tetrachloroethene (PCE)	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Dibromochloromethane	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2-Dibromoethane (EDB)	ND	0.00779		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Chlorobenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Ethylbenzene	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
m,p-Xylene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/9/2012 8:12:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-241
Matrix: Soil
Client Sample ID: **MW21-3-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
o-Xylene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Styrene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Isopropylbenzene	ND	0.125		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Bromoform	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
n-Propylbenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Bromobenzene	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,3,5-Trimethylbenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
2-Chlorotoluene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
4-Chlorotoluene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
tert-Butylbenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2,3-Trichloropropane	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2,4-Trichlorobenzene	ND	0.0779		mg/Kg-dry	1	10/17/2012 10:13:00 AM
sec-Butylbenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
4-Isopropyltoluene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,3-Dichlorobenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,4-Dichlorobenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
n-Butylbenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2-Dichlorobenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2,4-Trimethylbenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Hexachlorobutadiene	ND	0.156		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Naphthalene	ND	0.0467		mg/Kg-dry	1	10/17/2012 10:13:00 AM
1,2,3-Trichlorobenzene	ND	0.0312		mg/Kg-dry	1	10/17/2012 10:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	101	63.1-141		%REC	1	10/17/2012 10:13:00 AM
Surr: Dibromofluoromethane	99.0	67.6-119		%REC	1	10/17/2012 10:13:00 AM
Surr: Toluene-d8	102	78.5-126		%REC	1	10/17/2012 10:13:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	5.11	0.0918		mg/Kg-dry	1	10/17/2012 4:54:27 AM
Barium	175	0.459		mg/Kg-dry	1	10/17/2012 4:54:27 AM
Cadmium	ND	0.184		mg/Kg-dry	1	10/17/2012 4:54:27 AM
Chromium	63.3	0.0918		mg/Kg-dry	1	10/17/2012 4:54:27 AM
Lead	8.17	0.184		mg/Kg-dry	1	10/17/2012 4:54:27 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/9/2012 8:12:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-241
Matrix: Soil
Client Sample ID: MW21-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Selenium	ND	0.459		mg/Kg-dry	1	10/17/2012 4:54:27 AM
Silver	ND	0.0918		mg/Kg-dry	1	10/17/2012 4:54:27 AM
Mercury by EPA Method 7471				Batch ID: 3465		Analyst: SG
Mercury	ND	0.270		mg/Kg-dry	1	10/19/2012 12:35:32 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	18.7			wt%	1	10/16/2012 10:35:24 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/9/2012 9:18:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-250
Matrix: Soil
Client Sample ID: MW21-3-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	19.9		mg/Kg-dry	1	10/17/2012 12:46:00 AM
Heavy Oil	ND	49.8		mg/Kg-dry	1	10/17/2012 12:46:00 AM
Surr: 2-Fluorobiphenyl	101	50-150		%REC	1	10/17/2012 12:46:00 AM
Surr: o-Terphenyl	102	50-150		%REC	1	10/17/2012 12:46:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	4.90		mg/Kg-dry	1	10/17/2012 10:43:00 AM
Surr: 1,2-Dichloroethane-d4	111	65-135		%REC	1	10/17/2012 10:43:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 10:43:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Benzene	ND	0.0196		mg/Kg-dry	1	10/17/2012 10:43:00 AM
Toluene	ND	0.0196		mg/Kg-dry	1	10/17/2012 10:43:00 AM
Ethylbenzene	ND	0.0294		mg/Kg-dry	1	10/17/2012 10:43:00 AM
m,p-Xylene	ND	0.0196		mg/Kg-dry	1	10/17/2012 10:43:00 AM
o-Xylene	ND	0.0196		mg/Kg-dry	1	10/17/2012 10:43:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.8	63.1-141		%REC	1	10/17/2012 10:43:00 AM
Surr: Dibromofluoromethane	98.5	67.6-119		%REC	1	10/17/2012 10:43:00 AM
Surr: Toluene-d8	99.7	78.5-126		%REC	1	10/17/2012 10:43:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	1.34	0.0775		mg/Kg-dry	1	10/17/2012 5:03:30 AM
Barium	28.5	0.387		mg/Kg-dry	1	10/17/2012 5:03:30 AM
Cadmium	ND	0.155		mg/Kg-dry	1	10/17/2012 5:03:30 AM
Chromium	28.0	0.0775		mg/Kg-dry	1	10/17/2012 5:03:30 AM
Lead	1.31	0.155		mg/Kg-dry	1	10/17/2012 5:03:30 AM
Selenium	ND	0.387		mg/Kg-dry	1	10/17/2012 5:03:30 AM
Silver	ND	0.0775		mg/Kg-dry	1	10/17/2012 5:03:30 AM
Mercury by EPA Method 7471				Batch ID: 3465		Analyst: SG
Mercury	ND	0.242		mg/Kg-dry	1	10/19/2012 12:37:08 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/9/2012 9:18:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-250
Matrix: Soil
Client Sample ID: MW21-3-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	7.82			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/4/2012 8:43:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-255 **Matrix:** Soil

Client Sample ID: B21-1-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	19.6		mg/Kg-dry	1	10/17/2012 1:13:00 AM
Heavy Oil	ND	49.1		mg/Kg-dry	1	10/17/2012 1:13:00 AM
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	10/17/2012 1:13:00 AM
Surr: o-Terphenyl	105	50-150		%REC	1	10/17/2012 1:13:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
2-Methylnaphthalene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
1-Methylnaphthalene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Acenaphthylene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Acenaphthene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Fluorene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Phenanthrene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Anthracene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Fluoranthene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Pyrene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Benz(a)anthracene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Chrysene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Benzo(b)fluoranthene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Benzo(k)fluoranthene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Benzo(a)pyrene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Indeno(1,2,3-cd)pyrene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Dibenz(a,h)anthracene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Benzo(g,h,i)perylene	ND	51.8		µg/Kg-dry	1	10/18/2012 5:20:00 AM
Surr: 2-Fluorobiphenyl	109	50.4-142		%REC	1	10/18/2012 5:20:00 AM
Surr: Terphenyl-d14 (surr)	104	48.8-157		%REC	1	10/18/2012 5:20:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	4.36		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Surr: 1,2-Dichloroethane-d4	110	65-135		%REC	1	10/17/2012 11:13:00 AM
Surr: Fluorobenzene	102	65-135		%REC	1	10/17/2012 11:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/4/2012 8:43:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-255
Matrix: Soil
Client Sample ID: B21-1-7.5

Volatile Organic Compounds by EPA Method 8260

Batch ID: 3452 Analyst: EM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0523		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Chloromethane	ND	0.0523		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Vinyl chloride	ND	0.00174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Bromomethane	ND	0.0784		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0436		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Chloroethane	ND	0.0523		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,1-Dichloroethene	ND	0.0436		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Methylene chloride	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
trans-1,2-Dichloroethene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0436		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,1-Dichloroethane	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
2,2-Dichloropropane	ND	0.0436		mg/Kg-dry	1	10/17/2012 11:13:00 AM
cis-1,2-Dichloroethene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Chloroform	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,1-Dichloropropene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Carbon tetrachloride	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2-Dichloroethane	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Benzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Trichloroethene (TCE)	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2-Dichloropropane	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Bromodichloromethane	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Dibromomethane	ND	0.0348		mg/Kg-dry	1	10/17/2012 11:13:00 AM
cis-1,3-Dichloropropene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Toluene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
trans-1,3-Dichloropropene	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,1,2-Trichloroethane	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,3-Dichloropropane	ND	0.0436		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Tetrachloroethene (PCE)	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Dibromochloromethane	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2-Dibromoethane (EDB)	ND	0.00436		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Chlorobenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Ethylbenzene	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
m,p-Xylene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/4/2012 8:43:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-255
Matrix: Soil
Client Sample ID: B21-1-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
o-Xylene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Styrene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Isopropylbenzene	ND	0.0697		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Bromoform	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
n-Propylbenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Bromobenzene	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,3,5-Trimethylbenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
2-Chlorotoluene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
4-Chlorotoluene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
tert-Butylbenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2,3-Trichloropropane	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2,4-Trichlorobenzene	ND	0.0436		mg/Kg-dry	1	10/17/2012 11:13:00 AM
sec-Butylbenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
4-Isopropyltoluene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,3-Dichlorobenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,4-Dichlorobenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
n-Butylbenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2-Dichlorobenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2-Dibromo-3-chloropropane	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2,4-Trimethylbenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Hexachlorobutadiene	ND	0.0871		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Naphthalene	ND	0.0261		mg/Kg-dry	1	10/17/2012 11:13:00 AM
1,2,3-Trichlorobenzene	ND	0.0174		mg/Kg-dry	1	10/17/2012 11:13:00 AM
Surr: 1-Bromo-4-fluorobenzene	102	63.1-141		%REC	1	10/17/2012 11:13:00 AM
Surr: Dibromofluoromethane	99.5	67.6-119		%REC	1	10/17/2012 11:13:00 AM
Surr: Toluene-d8	99.4	78.5-126		%REC	1	10/17/2012 11:13:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	2.84	0.0859		mg/Kg-dry	1	10/17/2012 5:12:33 AM
Barium	75.8	0.430		mg/Kg-dry	1	10/17/2012 5:12:33 AM
Cadmium	ND	0.172		mg/Kg-dry	1	10/17/2012 5:12:33 AM
Chromium	42.8	0.0859		mg/Kg-dry	1	10/17/2012 5:12:33 AM
Lead	2.64	0.172		mg/Kg-dry	1	10/17/2012 5:12:33 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/4/2012 8:43:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-255
Matrix: Soil
Client Sample ID: B21-1-7.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Selenium	ND	0.430		mg/Kg-dry	1	10/17/2012 5:12:33 AM
Silver	ND	0.0859		mg/Kg-dry	1	10/17/2012 5:12:33 AM
Mercury by EPA Method 7471				Batch ID: 3465		Analyst: SG
Mercury	ND	0.264		mg/Kg-dry	1	10/19/2012 12:38:43 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	12.5			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/4/2012 9:11:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-262 **Matrix:** Soil

Client Sample ID: B21-1-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	19.7		mg/Kg-dry	1	10/17/2012 1:40:00 AM
Heavy Oil	ND	49.3		mg/Kg-dry	1	10/17/2012 1:40:00 AM
Surr: 2-Fluorobiphenyl	97.3	50-150		%REC	1	10/17/2012 1:40:00 AM
Surr: o-Terphenyl	97.7	50-150		%REC	1	10/17/2012 1:40:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	5.49		mg/Kg-dry	1	10/17/2012 11:43:00 AM
Surr: 1,2-Dichloroethane-d4	111	65-135		%REC	1	10/17/2012 11:43:00 AM
Surr: Fluorobenzene	100	65-135		%REC	1	10/17/2012 11:43:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Benzene	ND	0.0220		mg/Kg-dry	1	10/17/2012 11:43:00 AM
Toluene	ND	0.0220		mg/Kg-dry	1	10/17/2012 11:43:00 AM
Ethylbenzene	ND	0.0329		mg/Kg-dry	1	10/17/2012 11:43:00 AM
m,p-Xylene	ND	0.0220		mg/Kg-dry	1	10/17/2012 11:43:00 AM
o-Xylene	ND	0.0220		mg/Kg-dry	1	10/17/2012 11:43:00 AM
Surr: 1-Bromo-4-fluorobenzene	99.3	63.1-141		%REC	1	10/17/2012 11:43:00 AM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	10/17/2012 11:43:00 AM
Surr: Toluene-d8	102	78.5-126		%REC	1	10/17/2012 11:43:00 AM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	0.836	0.0782		mg/Kg-dry	1	10/17/2012 5:21:37 AM
Barium	38.0	0.391		mg/Kg-dry	1	10/17/2012 5:21:37 AM
Cadmium	ND	0.156		mg/Kg-dry	1	10/17/2012 5:21:37 AM
Chromium	27.0	0.0782		mg/Kg-dry	1	10/17/2012 5:21:37 AM
Lead	1.27	0.156		mg/Kg-dry	1	10/17/2012 5:21:37 AM
Selenium	ND	0.391		mg/Kg-dry	1	10/17/2012 5:21:37 AM
Silver	ND	0.0782		mg/Kg-dry	1	10/17/2012 5:21:37 AM
Mercury by EPA Method 7471				Batch ID: 3465		Analyst: SG
Mercury	ND	0.232		mg/Kg-dry	1	10/19/2012 12:40:19 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/4/2012 9:11:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-262
Matrix: Soil
Client Sample ID: B21-1-25.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	7.29			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/11/2012 8:15:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-266 **Matrix:** Soil

Client Sample ID: B21-2-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	25.2		mg/Kg-dry	1	10/17/2012 2:07:00 AM
Heavy Oil	ND	63.0		mg/Kg-dry	1	10/17/2012 2:07:00 AM
Surr: 2-Fluorobiphenyl	93.8	50-150		%REC	1	10/17/2012 2:07:00 AM
Surr: o-Terphenyl	94.1	50-150		%REC	1	10/17/2012 2:07:00 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 3448		Analyst: PH
Naphthalene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
2-Methylnaphthalene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
1-Methylnaphthalene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Acenaphthylene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Acenaphthene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Fluorene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Phenanthrene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Anthracene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Fluoranthene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Pyrene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Benz(a)anthracene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Chrysene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Benzo(b)fluoranthene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Benzo(k)fluoranthene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Benzo(a)pyrene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Indeno(1,2,3-cd)pyrene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Dibenz(a,h)anthracene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Benzo(g,h,i)perylene	ND	56.4		µg/Kg-dry	1	10/18/2012 5:45:00 AM
Surr: 2-Fluorobiphenyl	107	50.4-142		%REC	1	10/18/2012 5:45:00 AM
Surr: Terphenyl-d14 (surr)	110	48.8-157		%REC	1	10/18/2012 5:45:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	5.88		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Surr: 1,2-Dichloroethane-d4	110	65-135		%REC	1	10/17/2012 1:13:00 PM
Surr: Fluorobenzene	99.8	65-135		%REC	1	10/17/2012 1:13:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/11/2012 8:15:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-266
Matrix: Soil
Client Sample ID: B21-2-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0705		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Chloromethane	ND	0.0705		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Vinyl chloride	ND	0.00235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Bromomethane	ND	0.106		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0588		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Chloroethane	ND	0.0705		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,1-Dichloroethene	ND	0.0588		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Methylene chloride	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
trans-1,2-Dichloroethene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0588		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,1-Dichloroethane	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
2,2-Dichloropropane	ND	0.0588		mg/Kg-dry	1	10/17/2012 1:13:00 PM
cis-1,2-Dichloroethene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Chloroform	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,1-Dichloropropene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Carbon tetrachloride	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2-Dichloroethane	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Benzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Trichloroethene (TCE)	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2-Dichloropropane	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Bromodichloromethane	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Dibromomethane	ND	0.0470		mg/Kg-dry	1	10/17/2012 1:13:00 PM
cis-1,3-Dichloropropene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Toluene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
trans-1,3-Dichloropropene	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,1,2-Trichloroethane	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,3-Dichloropropane	ND	0.0588		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Tetrachloroethene (PCE)	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Dibromochloromethane	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2-Dibromoethane (EDB)	ND	0.00588		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Chlorobenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Ethylbenzene	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
m,p-Xylene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/11/2012 8:15:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-266
Matrix: Soil
Client Sample ID: B21-2-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
o-Xylene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Styrene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Isopropylbenzene	ND	0.0941		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Bromoform	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
n-Propylbenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Bromobenzene	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,3,5-Trimethylbenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
2-Chlorotoluene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
4-Chlorotoluene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
tert-Butylbenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2,3-Trichloropropane	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2,4-Trichlorobenzene	ND	0.0588		mg/Kg-dry	1	10/17/2012 1:13:00 PM
sec-Butylbenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
4-Isopropyltoluene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,3-Dichlorobenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,4-Dichlorobenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
n-Butylbenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2-Dichlorobenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2-Dibromo-3-chloropropane	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2,4-Trimethylbenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Hexachlorobutadiene	ND	0.118		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Naphthalene	ND	0.0353		mg/Kg-dry	1	10/17/2012 1:13:00 PM
1,2,3-Trichlorobenzene	ND	0.0235		mg/Kg-dry	1	10/17/2012 1:13:00 PM
Surr: 1-Bromo-4-fluorobenzene	99.3	63.1-141		%REC	1	10/17/2012 1:13:00 PM
Surr: Dibromofluoromethane	100	67.6-119		%REC	1	10/17/2012 1:13:00 PM
Surr: Toluene-d8	101	78.5-126		%REC	1	10/17/2012 1:13:00 PM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	6.37	0.102		mg/Kg-dry	1	10/17/2012 5:48:40 AM
Barium	126	0.509		mg/Kg-dry	1	10/17/2012 5:48:40 AM
Cadmium	ND	0.204		mg/Kg-dry	1	10/17/2012 5:48:40 AM
Chromium	59.3	0.102		mg/Kg-dry	1	10/17/2012 5:48:40 AM
Lead	4.76	0.204		mg/Kg-dry	1	10/17/2012 5:48:40 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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/11/2012 8:15:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-266
Matrix: Soil
Client Sample ID: B21-2-5.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Selenium	ND	0.509		mg/Kg-dry	1	10/17/2012 5:48:40 AM
Silver	ND	0.102		mg/Kg-dry	1	10/17/2012 5:48:40 AM
Mercury by EPA Method 7471				Batch ID: 3465		Analyst: SG
Mercury	ND	0.309		mg/Kg-dry	1	10/19/2012 12:45:09 PM
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	22.1			wt%	1	10/16/2012 10:35:24 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#: **1210020**

Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/11/2012 8:54:00 AM

Project: Rufus 2.0 W011

Lab ID: 1210020-272 **Matrix:** Soil

Client Sample ID: B21-2-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3446		Analyst: BR
Diesel (Fuel Oil)	ND	17.6		mg/Kg-dry	1	10/17/2012 2:33:00 AM
Heavy Oil	ND	44.1		mg/Kg-dry	1	10/17/2012 2:33:00 AM
Surr: 2-Fluorobiphenyl	100	50-150		%REC	1	10/17/2012 2:33:00 AM
Surr: o-Terphenyl	99.8	50-150		%REC	1	10/17/2012 2:33:00 AM
Gasoline by NWTPH-Gx				Batch ID: R6251		Analyst: EM
Gasoline	ND	5.56		mg/Kg-dry	1	10/17/2012 1:43:00 PM
Surr: 1,2-Dichloroethane-d4	111	65-135		%REC	1	10/17/2012 1:43:00 PM
Surr: Fluorobenzene	101	65-135		%REC	1	10/17/2012 1:43:00 PM
Volatile Organic Compounds by EPA Method 8260				Batch ID: 3452		Analyst: EM
Benzene	ND	0.0223		mg/Kg-dry	1	10/17/2012 1:43:00 PM
Toluene	ND	0.0223		mg/Kg-dry	1	10/17/2012 1:43:00 PM
Ethylbenzene	ND	0.0334		mg/Kg-dry	1	10/17/2012 1:43:00 PM
m,p-Xylene	ND	0.0223		mg/Kg-dry	1	10/17/2012 1:43:00 PM
o-Xylene	ND	0.0223		mg/Kg-dry	1	10/17/2012 1:43:00 PM
Surr: 1-Bromo-4-fluorobenzene	100	63.1-141		%REC	1	10/17/2012 1:43:00 PM
Surr: Dibromofluoromethane	102	67.6-119		%REC	1	10/17/2012 1:43:00 PM
Surr: Toluene-d8	99.9	78.5-126		%REC	1	10/17/2012 1:43:00 PM
Total Metals by EPA Method 6020				Batch ID: 3450		Analyst: SG
Arsenic	2.12	0.0813		mg/Kg-dry	1	10/17/2012 5:57:44 AM
Barium	33.2	0.406		mg/Kg-dry	1	10/17/2012 5:57:44 AM
Cadmium	ND	0.163		mg/Kg-dry	1	10/17/2012 5:57:44 AM
Chromium	24.5	0.0813		mg/Kg-dry	1	10/17/2012 5:57:44 AM
Lead	1.36	0.163		mg/Kg-dry	1	10/17/2012 5:57:44 AM
Selenium	ND	0.406		mg/Kg-dry	1	10/17/2012 5:57:44 AM
Silver	ND	0.0813		mg/Kg-dry	1	10/17/2012 5:57:44 AM
Mercury by EPA Method 7471				Batch ID: 3465		Analyst: SG
Mercury	ND	0.229		mg/Kg-dry	1	10/19/2012 12:46:46 PM

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#: **1210020**
Date Reported: **11/15/2012**

Client: GeoEngineers, Inc. - Redmond
Collection Date: 10/11/2012 8:54:00 AM
Project: Rufus 2.0 W011
Lab ID: 1210020-272
Matrix: Soil
Client Sample ID: B21-2-20.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R6156		Analyst: CM
Percent Moisture	2.37			wt%	1	10/16/2012 10:35:24 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

Work Order: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **MB-3449**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6172**
Client ID: **MBLKS**	Batch ID: **3449**		Analysis Date: **10/16/2012**	SeqNo: **122802**

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-3449**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6172**
Client ID: **LCSS**	Batch ID: **3449**		Analysis Date: **10/16/2012**	SeqNo: **122803**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	108	0.100	102.0	0	106	69.41	130.39				
Barium	744	0.500	797.0	0	93.3	74.78	125.22				
Cadmium	91.9	0.200	86.50	0	106	73.18	127.17				
Chromium	228	0.100	208.0	0	109	70.67	129.33				
Lead	73.2	0.200	72.10	0	101	68.1	131.9				
Selenium	175	0.500	165.0	0	106	67.88	132.12				
Silver	22.3	0.100	31.30	0	71.3	65.18	134.82				

Sample ID: **1210020-003BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6172**
Client ID: **B21-3-7.5**	Batch ID: **3449**		Analysis Date: **10/16/2012**	SeqNo: **122806**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.39	0.0939						5.038	6.71	30	
Barium	147	0.469						160.1	8.55	30	
Cadmium	ND	0.188						0	0	30	
Chromium	69.9	0.0939						74.36	6.20	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1210020-003BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6172**
Client ID: **B21-3-7.5** Batch ID: **3449** Analysis Date: **10/16/2012** SeqNo: **122806**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	5.60	0.188						5.407	3.56	30	
Selenium	ND	0.469						0	0	30	
Silver	ND	0.0939						0.1026	200	30	R

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: **1210020-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6172**
Client ID: **B21-3-7.5** Batch ID: **3449** Analysis Date: **10/16/2012** SeqNo: **122808**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	50.7	0.0860	43.00	5.038	106	75	125				
Barium	197	0.430	43.00	160.1	85.3	75	125				
Cadmium	2.19	0.172	2.150	0.1109	96.8	75	125				
Chromium	122	0.0860	43.00	74.36	111	75	125				
Lead	24.9	0.172	21.50	5.407	90.5	75	125				
Selenium	3.84	0.430	4.300	0.3452	81.2	75	125				
Silver	1.43	0.0860	2.150	0.1026	61.7	75	125				S

NOTES:
S - Low Ag spike recovery noted. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID: **1210020-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6172**
Client ID: **B21-3-7.5** Batch ID: **3449** Analysis Date: **10/16/2012** SeqNo: **122809**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	58.4	0.0987	49.37	5.038	108	75	125	50.69	14.2	30	
Barium	214	0.494	49.37	160.1	109	75	125	196.8	8.37	30	
Cadmium	2.52	0.197	2.469	0.1109	97.8	75	125	2.193	14.1	30	
Chromium	132	0.0987	49.37	74.36	116	75	125	122.3	7.47	30	
Lead	29.0	0.197	24.69	5.407	95.4	75	125	24.85	15.3	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1210020-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6172**
Client ID: **B21-3-7.5** Batch ID: **3449** Analysis Date: **10/16/2012** SeqNo: **122809**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	4.50	0.494	4.937	0.3452	84.2	75	125	3.836	15.9	30	
Silver	1.72	0.0987	2.469	0.1026	65.5	75	125	1.429	18.5	30	S

NOTES:
S - Low Ag spike recovery noted. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID: **1210020-003BPDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6172**
Client ID: **B21-3-7.5** Batch ID: **3449** Analysis Date: **10/16/2012** SeqNo: **122810**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	2.54	0.0889	2.50	0.197	46.2	75	125				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID: **MB-3450** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/16/2012** RunNo: **6190**
Client ID: **MBLKS** Batch ID: **3450** Analysis Date: **10/17/2012** SeqNo: **123152**

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									

Work Order: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **LCS-3450**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6190**
Client ID: **LCSS**	Batch ID: **3450**		Analysis Date: **10/17/2012**	SeqNo: **123153**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	133	0.100	102.0	0	130	69.41	130.4				
Barium	817	0.500	797.0	0	102	74.78	125.2				
Cadmium	96.1	0.200	86.50	0	111	73.18	127.2				
Chromium	241	0.100	208.0	0	116	70.67	129.3				
Lead	76.2	0.200	72.10	0	106	68.1	131.9				
Selenium	184	0.500	165.0	0	112	67.88	132.1				
Silver	22.0	0.100	31.30	0	70.4	65.18	134.8				

Sample ID: **1210020-137BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6190**
Client ID: **B21-14-12.5**	Batch ID: **3450**		Analysis Date: **10/17/2012**	SeqNo: **123155**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.20	0.0854						3.436	43.9	30	R
Barium	71.3	0.427						90.45	23.7	30	
Cadmium	ND	0.171						0	0	30	
Chromium	41.5	0.0854						48.20	14.9	30	
Lead	2.55	0.171						3.803	39.5	30	R
Selenium	ND	0.427						0.7358	200	30	R
Silver	ND	0.0854						0	0	30	

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: **1210020-137BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6190**
Client ID: **B21-14-12.5**	Batch ID: **3450**		Analysis Date: **10/17/2012**	SeqNo: **123157**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.5	0.0854	42.70	3.436	112	75	125				
Barium	100	0.427	42.70	90.45	22.6	75	125				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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1210020-137BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6190**
Client ID: **B21-14-12.5** Batch ID: **3450** Analysis Date: **10/17/2012** SeqNo: **123157**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	2.27	0.171	2.135	0.1055	102	75	125				
Chromium	90.0	0.0854	42.70	48.20	98.0	75	125				
Lead	22.2	0.171	21.35	3.803	86.3	75	125				
Selenium	4.32	0.427	4.270	0.7358	83.9	75	125				
Silver	0.919	0.0854	2.135	0	43.1	75	125				S

NOTES:
S - Outlying spike recoveries observed. A duplicate analysis was performed with similar results indicating a matrix effect.

Sample ID: **1210020-137BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6190**
Client ID: **B21-14-12.5** Batch ID: **3450** Analysis Date: **10/17/2012** SeqNo: **123158**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	57.0	0.0901	45.07	3.436	119	75	125	51.45	10.2	30	
Barium	118	0.451	45.07	90.45	60.1	75	125	100.1	16.0	30	S
Cadmium	2.52	0.180	2.253	0.1055	107	75	125	2.272	10.5	30	
Chromium	99.2	0.0901	45.07	48.20	113	75	125	90.03	9.72	30	
Lead	24.8	0.180	22.53	3.803	93.2	75	125	22.23	10.9	30	
Selenium	4.93	0.451	4.507	0.7358	93.0	75	125	4.319	13.1	30	
Silver	1.10	0.0901	2.253	0	48.7	75	125	0.9191	17.6	30	S

NOTES:
S - Outlying spike recoveries observed. A duplicate analysis was performed with similar results indicating a matrix effect.

Sample ID: **1210020-137BPDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6190**
Client ID: **B21-14-12.5** Batch ID: **3450** Analysis Date: **10/17/2012** SeqNo: **123159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	264	0.447	50.0	159	61.4	75	125				S
Silver	1.03	0.0894	2.50	-0.0629	20.6	75	125				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

Date: *11/15/2012*

Work Order: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID: **1210020-137BPDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6190**
Client ID: **B21-14-12.5** Batch ID: **3450** Analysis Date: **10/17/2012** SeqNo: **123159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recoveries due to matrix interference.

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: *11/15/2012*

Work Order: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **MB-3441**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6170**
Client ID: **MBLKS**	Batch ID: **3441**		Analysis Date: **10/16/2012**	SeqNo: **122713**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-3441**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6170**
Client ID: **LCSS**	Batch ID: **3441**		Analysis Date: **10/16/2012**	SeqNo: **122714**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.516	0.250	0.5000	0	103	80	120				

Sample ID: **1210099-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6170**
Client ID: **BATCH**	Batch ID: **3441**		Analysis Date: **10/16/2012**	SeqNo: **122716**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.330						0	0	20	R

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: **1210099-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6170**
Client ID: **BATCH**	Batch ID: **3441**		Analysis Date: **10/16/2012**	SeqNo: **122717**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.647	0.306	0.6124	0.05783	96.2	70	130				

Sample ID: **1210099-001AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6170**
Client ID: **BATCH**	Batch ID: **3441**		Analysis Date: **10/16/2012**	SeqNo: **122718**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.647	0.301	0.6017	0.05783	98.0	70	130	0.6467	0.106	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1210099-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **10/16/2012**		RunNo: **6170**	
Client ID: **BATCH**	Batch ID: **3441**					Analysis Date: **10/16/2012**		SeqNo: **122718**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **MB-3456**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **10/17/2012**		RunNo: **6197**	
Client ID: **MBLKS**	Batch ID: **3456**					Analysis Date: **10/18/2012**		SeqNo: **123310**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-3456**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **10/17/2012**		RunNo: **6197**	
Client ID: **LCSS**	Batch ID: **3456**					Analysis Date: **10/18/2012**		SeqNo: **123311**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.494	0.250	0.5000	0	98.8	80	120				

Sample ID: **1210094-005BDUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **10/17/2012**		RunNo: **6197**	
Client ID: **BATCH**	Batch ID: **3456**					Analysis Date: **10/18/2012**		SeqNo: **123313**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.218						0	0	20	

Sample ID: **1210094-005BMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **10/17/2012**		RunNo: **6197**	
Client ID: **BATCH**	Batch ID: **3456**					Analysis Date: **10/18/2012**		SeqNo: **123314**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.571	0.268	0.5359	0.02892	101	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1210094-005BMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **10/17/2012**	RunNo: **6197**
Client ID: **BATCH**	Batch ID: **3456**		Analysis Date: **10/18/2012**	SeqNo: **123315**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.628	0.278	0.5569	0.02892	108	70	130	0.5712	9.49	20	

Sample ID: **MB-3465**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/18/2012**	RunNo: **6224**
Client ID: **MBLKS**	Batch ID: **3465**		Analysis Date: **10/19/2012**	SeqNo: **123735**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID: **LCS-3465**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/18/2012**	RunNo: **6224**
Client ID: **LCSS**	Batch ID: **3465**		Analysis Date: **10/19/2012**	SeqNo: **123736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.486	0.250	0.5000	0	97.2	80	120				

Sample ID: **1210020-236BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/18/2012**	RunNo: **6224**
Client ID: **MW21-2-20.0**	Batch ID: **3465**		Analysis Date: **10/19/2012**	SeqNo: **123739**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.523	0.259	0.5188	0	101	70	130				

Sample ID: **1210020-236BMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **10/18/2012**	RunNo: **6224**
Client ID: **MW21-2-20.0**	Batch ID: **3465**		Analysis Date: **10/19/2012**	SeqNo: **123740**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.527	0.259	0.5188	0	102	70	130	0.5230	0.791	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID: **1210163-005BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/18/2012** RunNo: **6224**
Client ID: **BATCH** Batch ID: **3465** Analysis Date: **10/19/2012** SeqNo: **123750**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.294						0	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

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

Sample ID: **1210020-146BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6247**
Client ID: **B21-15-5.0**	Batch ID: **3446**		Analysis Date: **10/16/2012**	SeqNo: **124091**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.9						0	0	30	
Heavy Oil	ND	57.1						0	0	30	
Surr: 2-Fluorobiphenyl	23.2		22.86		101	50	150		0		
Surr: o-Terphenyl	23.4		22.86		103	50	150		0		

Sample ID: **LCS-3446**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6247**
Client ID: **LCSS**	Batch ID: **3446**		Analysis Date: **10/16/2012**	SeqNo: **124108**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	569	20.0	500.0	0	114	65	135				
Surr: 2-Fluorobiphenyl	21.8		20.00		109	50	150				
Surr: o-Terphenyl	21.3		20.00		106	50	150				

Sample ID: **MB-3446**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6247**
Client ID: **MBLKS**	Batch ID: **3446**		Analysis Date: **10/16/2012**	SeqNo: **124109**

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	20.8		20.00		104	50	150				
Surr: o-Terphenyl	21.1		20.00		106	50	150				

Sample ID: **1210020-003BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6249**
Client ID: **B21-3-7.5**	Batch ID: **3445**		Analysis Date: **10/17/2012**	SeqNo: **124134**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	24.8						0	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: *11/15/2012*

Work Order: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

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

Sample ID: **1210020-003BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6249**
Client ID: **B21-3-7.5**	Batch ID: **3445**		Analysis Date: **10/17/2012**	SeqNo: **124134**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Heavy Oil	ND	62.1						0	0	30	
Surr: 2-Fluorobiphenyl	24.9		24.85		100	50	150		0		
Surr: o-Terphenyl	24.8		24.85		100	50	150		0		

Sample ID: **LCS-3445**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6249**
Client ID: **LCSS**	Batch ID: **3445**		Analysis Date: **10/17/2012**	SeqNo: **124148**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	592	20.0	500.0	0	118	65	135				
Surr: 2-Fluorobiphenyl	21.7		20.00		109	50	150				
Surr: o-Terphenyl	20.7		20.00		103	50	150				

Sample ID: **MB-3445**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6249**
Client ID: **MBLKS**	Batch ID: **3445**		Analysis Date: **10/17/2012**	SeqNo: **124149**

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	20.7		20.00		103	50	150				
Surr: o-Terphenyl	21.0		20.00		105	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-3448**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/17/2012**	RunNo: **6192**
Client ID: **MBLKS**	Batch ID: **3448**		Analysis Date: **10/18/2012**	SeqNo: **123185**

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	518		500.0		104	50.4	142				
Surr: Terphenyl-d14 (surr)	541		500.0		108	48.8	157				

Sample ID: **LCS-3448**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/17/2012**	RunNo: **6192**
Client ID: **LCSS**	Batch ID: **3448**		Analysis Date: **10/18/2012**	SeqNo: **123186**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	903	50.0	1,000	0	90.3	77.4	119				
2-Methylnaphthalene	953	50.0	1,000	0	95.3	77.1	122				
1-Methylnaphthalene	902	50.0	1,000	0	90.2	77.9	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-3448** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/17/2012** RunNo: **6192**
Client ID: **LCSS** Batch ID: **3448** Analysis Date: **10/18/2012** SeqNo: **123186**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	1,020	50.0	1,000	0	102	75.2	125				
Acenaphthene	896	50.0	1,000	0	89.6	76	120				
Fluorene	941	50.0	1,000	0	94.1	75.8	125				
Phenanthrene	891	50.0	1,000	0	89.1	74.2	121				
Anthracene	989	50.0	1,000	0	98.9	71.7	129				
Fluoranthene	1,050	50.0	1,000	0	105	68.3	135				
Pyrene	1,030	50.0	1,000	0	103	66.7	134				
Benz(a)anthracene	1,120	50.0	1,000	0	112	57.9	150				
Chrysene	888	50.0	1,000	0	88.8	76.1	123				
Benzo(b)fluoranthene	1,080	50.0	1,000	0	108	61.2	142				
Benzo(k)fluoranthene	862	50.0	1,000	0	86.2	68.1	134				
Benzo(a)pyrene	975	50.0	1,000	0	97.5	58.1	146				
Indeno(1,2,3-cd)pyrene	1,090	50.0	1,000	0	109	63.8	138				
Dibenz(a,h)anthracene	1,090	50.0	1,000	0	109	60.8	143				
Benzo(g,h,i)perylene	964	50.0	1,000	0	96.4	63.7	136				
Surr: 2-Fluorobiphenyl	517		500.0		103	50.4	142				
Surr: Terphenyl-d14 (surr)	540		500.0		108	48.8	157				

Sample ID: **1210020-115BMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/17/2012** RunNo: **6192**
Client ID: **B21-12-17.5** Batch ID: **3448** Analysis Date: **10/18/2012** SeqNo: **123188**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	896	49.7	994.3	0	90.1	42.9	138				
2-Methylnaphthalene	960	49.7	994.3	0	96.5	42.8	151				
1-Methylnaphthalene	937	49.7	994.3	0	94.2	41.6	148				
Acenaphthylene	1,330	49.7	994.3	0	134	32.6	160				
Acenaphthene	916	49.7	994.3	0	92.2	46.3	142				
Fluorene	1,010	49.7	994.3	0	102	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1210020-115BMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/17/2012** RunNo: **6192**
Client ID: **B21-12-17.5** Batch ID: **3448** Analysis Date: **10/18/2012** SeqNo: **123188**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	907	49.7	994.3	0	91.2	45.5	140				
Anthracene	1,020	49.7	994.3	0	102	32.6	160				
Fluoranthene	1,120	49.7	994.3	0	112	44.6	161				
Pyrene	1,090	49.7	994.3	0	110	48.3	158				
Benz(a)anthracene	1,220	49.7	994.3	0	123	57.5	169				
Chrysene	919	49.7	994.3	0	92.4	45.2	146				
Benzo(b)fluoranthene	1,180	49.7	994.3	0	118	42.2	168				
Benzo(k)fluoranthene	895	49.7	994.3	0	90.1	48	161				
Benzo(a)pyrene	1,050	49.7	994.3	0	106	34.4	179				
Indeno(1,2,3-cd)pyrene	1,160	49.7	994.3	0	117	41.1	165				
Dibenz(a,h)anthracene	1,160	49.7	994.3	0	117	38.1	166				
Benzo(g,h,i)perylene	998	49.7	994.3	0	100	45.6	157				
Surr: 2-Fluorobiphenyl	567		497.1		114	50.4	142				
Surr: Terphenyl-d14 (surr)	556		497.1		112	48.8	157				

Sample ID: **1210020-121BDUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/17/2012** RunNo: **6192**
Client ID: **B21-13-2.5** Batch ID: **3448** Analysis Date: **10/18/2012** SeqNo: **123202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	55.0						0	0	30	
2-Methylnaphthalene	ND	55.0						0	0	30	
1-Methylnaphthalene	ND	55.0						0	0	30	
Acenaphthylene	ND	55.0						0	0	30	
Acenaphthene	ND	55.0						0	0	30	
Fluorene	ND	55.0						0	0	30	
Phenanthrene	ND	55.0						0	0	30	
Anthracene	ND	55.0						0	0	30	
Fluoranthene	ND	55.0						0	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1210020-121BDUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/17/2012** RunNo: **6192**
Client ID: **B21-13-2.5** Batch ID: **3448** Analysis Date: **10/18/2012** SeqNo: **123202**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	55.0						0	0	30	
Benz(a)anthracene	ND	55.0						0	0	30	
Chrysene	ND	55.0						0	0	30	
Benzo(b)fluoranthene	ND	55.0						0	0	30	
Benzo(k)fluoranthene	ND	55.0						0	0	30	
Benzo(a)pyrene	ND	55.0						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	55.0						0	0	30	
Dibenz(a,h)anthracene	ND	55.0						0	0	30	
Benzo(g,h,i)perylene	ND	55.0						0	0	30	
Surr: 2-Fluorobiphenyl	653		550.0		119	50.4	142		0		
Surr: Terphenyl-d14 (surr)	668		550.0		122	48.8	157		0		

Sample ID: **MB-3447** SampType: **MBLK** Units: **µg/Kg** Prep Date: **10/16/2012** RunNo: **6218**
Client ID: **MBLKS** Batch ID: **3447** Analysis Date: **10/18/2012** SeqNo: **123603**

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									

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **MB-3447**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/16/2012**	RunNo: **6218**
Client ID: **MBLKS**	Batch ID: **3447**		Analysis Date: **10/18/2012**	SeqNo: **123603**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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	422		500.0		84.4	50.4	142				
Surr: Terphenyl-d14 (surr)	430		500.0		86.0	48.8	157				

Sample ID: **LCS-3447**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/16/2012**	RunNo: **6218**
Client ID: **LCSS**	Batch ID: **3447**		Analysis Date: **10/18/2012**	SeqNo: **123604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	985	50.0	1,000	0	98.5	77.4	119				
2-Methylnaphthalene	1,050	50.0	1,000	0	105	77.1	122				
1-Methylnaphthalene	1,020	50.0	1,000	0	102	77.9	120				
Acenaphthylene	1,140	50.0	1,000	0	114	75.2	125				
Acenaphthene	1,020	50.0	1,000	0	102	76	120				
Fluorene	1,020	50.0	1,000	0	102	75.8	125				
Phenanthrene	959	50.0	1,000	0	95.9	74.2	121				
Anthracene	1,070	50.0	1,000	0	107	71.7	129				
Fluoranthene	1,060	50.0	1,000	0	106	68.3	135				
Pyrene	1,050	50.0	1,000	0	105	66.7	134				
Benz(a)anthracene	1,120	50.0	1,000	0	112	57.9	150				
Chrysene	950	50.0	1,000	0	95.0	76.1	123				
Benzo(b)fluoranthene	1,080	50.0	1,000	0	108	61.2	142				
Benzo(k)fluoranthene	1,110	50.0	1,000	0	111	68.1	134				
Benzo(a)pyrene	1,030	50.0	1,000	0	103	58.1	146				

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **LCS-3447** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/16/2012** RunNo: **6218**
Client ID: **LCSS** Batch ID: **3447** Analysis Date: **10/18/2012** SeqNo: **123604**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,130	50.0	1,000	0	113	63.8	138				
Dibenz(a,h)anthracene	1,120	50.0	1,000	0	112	60.8	143				
Benzo(g,h,i)perylene	1,010	50.0	1,000	0	101	63.7	136				
Surr: 2-Fluorobiphenyl	538		500.0		108	50.4	142				
Surr: Terphenyl-d14 (surr)	618		500.0		124	48.8	157				

Sample ID: **1210020-003BMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6218**
Client ID: **B21-3-7.5** Batch ID: **3447** Analysis Date: **10/18/2012** SeqNo: **123606**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,140	59.8	1,196	0	95.3	42.9	138				
2-Methylnaphthalene	1,300	59.8	1,196	0	108	42.8	151				
1-Methylnaphthalene	1,290	59.8	1,196	0	108	41.6	148				
Acenaphthylene	1,590	59.8	1,196	0	133	32.6	160				
Acenaphthene	1,190	59.8	1,196	0	99.8	46.3	142				
Fluorene	1,240	59.8	1,196	0	103	43.4	153				
Phenanthrene	1,130	59.8	1,196	0	94.6	45.5	140				
Anthracene	1,270	59.8	1,196	0	106	32.6	160				
Fluoranthene	1,300	59.8	1,196	0	109	44.6	161				
Pyrene	1,280	59.8	1,196	0	107	48.3	158				
Benz(a)anthracene	1,430	59.8	1,196	0	120	57.5	169				
Chrysene	1,120	59.8	1,196	0	93.7	45.2	146				
Benzo(b)fluoranthene	1,340	59.8	1,196	0	112	42.2	168				
Benzo(k)fluoranthene	1,340	59.8	1,196	0	112	48	161				
Benzo(a)pyrene	1,270	59.8	1,196	0	106	34.4	179				
Indeno(1,2,3-cd)pyrene	1,370	59.8	1,196	0	115	41.1	165				
Dibenz(a,h)anthracene	1,370	59.8	1,196	0	114	38.1	166				
Benzo(g,h,i)perylene	1,200	59.8	1,196	0	101	45.6	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **1210020-003BMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6218**
Client ID: **B21-3-7.5**	Batch ID: **3447**		Analysis Date: **10/18/2012**	SeqNo: **123606**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	642		598.0		107	50.4	142				
Surr: Terphenyl-d14 (surr)	730		598.0		122	48.8	157				

Sample ID: **1210020-014BDUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6218**
Client ID: **B21-4-5.0**	Batch ID: **3447**		Analysis Date: **10/18/2012**	SeqNo: **123608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	52.3						0	0	30	
2-Methylnaphthalene	ND	52.3						0	0	30	
1-Methylnaphthalene	ND	52.3						0	0	30	
Acenaphthylene	ND	52.3						0	0	30	
Acenaphthene	ND	52.3						0	0	30	
Fluorene	ND	52.3						0	0	30	
Phenanthrene	ND	52.3						0	0	30	
Anthracene	ND	52.3						0	0	30	
Fluoranthene	ND	52.3						0	0	30	
Pyrene	ND	52.3						0	0	30	
Benz(a)anthracene	ND	52.3						0	0	30	
Chrysene	ND	52.3						0	0	30	
Benzo(b)fluoranthene	ND	52.3						0	0	30	
Benzo(k)fluoranthene	ND	52.3						0	0	30	
Benzo(a)pyrene	ND	52.3						0	0	30	
Indeno(1,2,3-cd)pyrene	ND	52.3						0	0	30	
Dibenz(a,h)anthracene	ND	52.3						0	0	30	
Benzo(g,h,i)perylene	ND	52.3						0	0	30	
Surr: 2-Fluorobiphenyl	378		523.4		72.2	50.4	142		0		
Surr: Terphenyl-d14 (surr)	367		523.4		70.0	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: **CCV-3447B** SampType: **CCV** Units: **µg/Kg** Prep Date: **10/19/2012** RunNo: **6218**
Client ID: **CCV** Batch ID: **3447** Analysis Date: **10/19/2012** SeqNo: **123774**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,070	50.0	1,000	0	107	80	120				
2-Methylnaphthalene	1,120	50.0	1,000	0	112	80	120				
1-Methylnaphthalene	1,110	50.0	1,000	0	111	80	120				
Acenaphthylene	1,190	50.0	1,000	0	119	80	120				
Acenaphthene	1,060	50.0	1,000	0	106	80	120				
Fluorene	1,110	50.0	1,000	0	111	80	120				
Phenanthrene	1,060	50.0	1,000	0	106	80	120				
Anthracene	1,160	50.0	1,000	0	116	80	120				
Fluoranthene	1,190	50.0	1,000	0	119	80	120				
Pyrene	1,170	50.0	1,000	0	117	80	120				
Benz(a)anthracene	1,130	50.0	1,000	0	113	80	120				
Chrysene	1,050	50.0	1,000	0	105	80	120				
Benzo(b)fluoranthene	869	50.0	1,000	0	86.9	80	120				
Benzo(k)fluoranthene	1,180	50.0	1,000	0	118	80	120				
Benzo(a)pyrene	891	50.0	1,000	0	89.1	80	120				
Indeno(1,2,3-cd)pyrene	933	50.0	1,000	0	93.3	80	120				
Dibenz(a,h)anthracene	894	50.0	1,000	0	89.4	80	120				
Benzo(g,h,i)perylene	957	50.0	1,000	0	95.7	80	120				
Surr: 2-Fluorobiphenyl	500		500.0		100	50.4	142				
Surr: Terphenyl-d14 (surr)	529		500.0		106	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1210020-003ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/15/2012**	RunNo: **6222**
Client ID: **B21-3-7.5**	Batch ID: **R6222**		Analysis Date: **10/16/2012**	SeqNo: **123688**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.92						0	0	30	
Surr: 1,2-Dichloroethane-d4	0.633		0.5922		107	65	135		0		
Surr: Fluorobenzene	0.596		0.5922		101	65	135		0		

Sample ID: **LCS-R6222**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/15/2012**	RunNo: **6222**
Client ID: **LCSS**	Batch ID: **R6222**		Analysis Date: **10/16/2012**	SeqNo: **123710**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	21.9	5.00	25.00	0	87.5	65	135				
Surr: 1,2-Dichloroethane-d4	0.534		0.5000		107	65	135				
Surr: Fluorobenzene	0.505		0.5000		101	65	135				

Sample ID: **MB-R6222**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/15/2012**	RunNo: **6222**
Client ID: **MBLKS**	Batch ID: **R6222**		Analysis Date: **10/16/2012**	SeqNo: **123711**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,2-Dichloroethane-d4	0.540		0.5000		108	65	135				
Surr: Fluorobenzene	0.497		0.5000		99.4	65	135				

Sample ID: **1210020-146ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6251**
Client ID: **B21-15-5.0**	Batch ID: **R6251**		Analysis Date: **10/17/2012**	SeqNo: **124177**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.11						0	0	30	
Surr: 1,2-Dichloroethane-d4	0.569		0.5108		111	65	135		0		
Surr: Fluorobenzene	0.514		0.5108		101	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1210020-146ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/16/2012**	RunNo: **6251**
Client ID: **B21-15-5.0**	Batch ID: **R6251**		Analysis Date: **10/17/2012**	SeqNo: **124177**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **MB-R6251**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6251**
Client ID: **MBLKS**	Batch ID: **R6251**		Analysis Date: **10/17/2012**	SeqNo: **124196**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: 1,2-Dichloroethane-d4	0.564		0.5000		113	65	135				
Surr: Fluorobenzene	0.516		0.5000		103	65	135				

Sample ID: **LCS-R6251**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/16/2012**	RunNo: **6251**
Client ID: **LCSS**	Batch ID: **R6251**		Analysis Date: **10/17/2012**	SeqNo: **124198**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	19.5	5.00	25.00	0	78.1	65	135				
Surr: 1,2-Dichloroethane-d4	0.542		0.5000		108	65	135				
Surr: Fluorobenzene	0.502		0.5000		100	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-003ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **B21-3-7.5** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123659**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0711						0	0	30	
Chloromethane	ND	0.0711						0	0	30	
Vinyl chloride	ND	0.00237						0	0	30	
Bromomethane	ND	0.107						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	0.0592						0	0	30	
Chloroethane	ND	0.0711						0	0	30	
1,1-Dichloroethene	ND	0.0592						0	0	30	
Methylene chloride	ND	0.0237						0	0	30	
trans-1,2-Dichloroethene	ND	0.0237						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	0.0592						0	0	30	
1,1-Dichloroethane	ND	0.0237						0	0	30	
2,2-Dichloropropane	ND	0.0592						0	0	30	
cis-1,2-Dichloroethene	ND	0.0237						0	0	30	
Chloroform	ND	0.0237						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	0.0237						0	0	30	
1,1-Dichloropropene	ND	0.0237						0	0	30	
Carbon tetrachloride	ND	0.0237						0	0	30	
1,2-Dichloroethane	ND	0.0355						0	0	30	
Benzene	ND	0.0237						0	0	30	
Trichloroethene (TCE)	ND	0.0355						0	0	30	
1,2-Dichloropropane	ND	0.0237						0	0	30	
Bromodichloromethane	ND	0.0237						0	0	30	
Dibromomethane	ND	0.0474						0	0	30	
cis-1,3-Dichloropropene	ND	0.0237						0	0	30	
Toluene	ND	0.0237						0	0	30	
trans-1,3-Dichloropropene	ND	0.0355						0	0	30	
1,1,2-Trichloroethane	ND	0.0355						0	0	30	
1,3-Dichloropropane	ND	0.0592						0	0	30	
Tetrachloroethene (PCE)	ND	0.0237						0	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-003ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **B21-3-7.5** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123659**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	ND	0.0355						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00592						0	0	30	
Chlorobenzene	ND	0.0237						0	0	30	
1,1,1,2-Tetrachloroethane	ND	0.0355						0	0	30	
Ethylbenzene	ND	0.0355						0	0	30	
m,p-Xylene	ND	0.0237						0	0	30	
o-Xylene	ND	0.0237						0	0	30	
Styrene	ND	0.0237						0	0	30	
Isopropylbenzene	ND	0.0948						0	0	30	
Bromoform	ND	0.0237						0	0	30	
1,1,2,2-Tetrachloroethane	ND	0.0237						0	0	30	
n-Propylbenzene	ND	0.0237						0	0	30	
Bromobenzene	ND	0.0355						0	0	30	
1,3,5-Trimethylbenzene	ND	0.0237						0	0	30	
2-Chlorotoluene	ND	0.0237						0	0	30	
4-Chlorotoluene	ND	0.0237						0	0	30	
tert-Butylbenzene	ND	0.0237						0	0	30	
1,2,3-Trichloropropane	ND	0.0237						0	0	30	
1,2,4-Trichlorobenzene	ND	0.0592						0	0	30	
sec-Butylbenzene	ND	0.0237						0	0	30	
4-Isopropyltoluene	ND	0.0237						0	0	30	
1,3-Dichlorobenzene	ND	0.0237						0	0	30	
1,4-Dichlorobenzene	ND	0.0237						0	0	30	
n-Butylbenzene	ND	0.0237						0	0	30	
1,2-Dichlorobenzene	ND	0.0237						0	0	30	
1,2-Dibromo-3-chloropropane	ND	0.0355						0	0	30	
1,2,4-Trimethylbenzene	ND	0.0237						0	0	30	
Hexachlorobutadiene	ND	0.118						0	0	30	
Naphthalene	ND	0.0355						0	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-003ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/15/2012**	RunNo: **6221**
Client ID: **B21-3-7.5**	Batch ID: **3439**		Analysis Date: **10/16/2012**	SeqNo: **123659**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	ND	0.0237						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.603		0.5922		102	63.1	141		0		
Surr: Dibromofluoromethane	0.582		0.5922		98.3	67.6	119		0		
Surr: Toluene-d8	0.603		0.5922		102	78.5	126		0		

Sample ID: **1210020-014AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/15/2012**	RunNo: **6221**
Client ID: **B21-4-5.0**	Batch ID: **3439**		Analysis Date: **10/16/2012**	SeqNo: **123667**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.283	0.0602	0.5019	0	56.3	43.5	121				
Chloromethane	0.405	0.0602	0.5019	0	80.7	45	130				
Vinyl chloride	0.388	0.00201	0.5019	0	77.4	51.2	146				
Bromomethane	0.414	0.0903	0.5019	0	82.4	70	130				
Trichlorofluoromethane (CFC-11)	0.341	0.0502	0.5019	0	68.0	52.2	132				
Chloroethane	0.463	0.0602	0.5019	0	92.3	43.8	117				
1,1-Dichloroethene	0.401	0.0502	0.5019	0	80.0	61.9	141				
Methylene chloride	0.394	0.0201	0.5019	0	78.5	54.7	142				
trans-1,2-Dichloroethene	0.409	0.0201	0.5019	0	81.4	52	136				
Methyl tert-butyl ether (MTBE)	0.341	0.0502	0.5019	0	68.0	54.4	132				
1,1-Dichloroethane	0.394	0.0201	0.5019	0	78.6	51.8	141				
2,2-Dichloropropane	0.334	0.0502	0.5019	0	66.6	36	123				
cis-1,2-Dichloroethene	0.390	0.0201	0.5019	0	77.7	58.6	136				
Chloroform	0.381	0.0201	0.5019	0	75.9	53.2	129				
1,1,1-Trichloroethane (TCA)	0.388	0.0201	0.5019	0	77.3	58.3	145				
1,1-Dichloropropene	0.389	0.0201	0.5019	0	77.6	55.1	138				
Carbon tetrachloride	0.357	0.0201	0.5019	0	71.1	53.3	144				
1,2-Dichloroethane	0.356	0.0301	0.5019	0	71.0	51.3	139				
Benzene	0.390	0.0201	0.5019	0	77.8	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-014AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **B21-4-5.0** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123667**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	0.388	0.0301	0.5019	0	77.3	68.6	132				
1,2-Dichloropropane	0.391	0.0201	0.5019	0	77.9	59	136				
Bromodichloromethane	0.357	0.0201	0.5019	0	71.2	50.7	141				
Dibromomethane	0.361	0.0401	0.5019	0	71.9	50.6	137				
cis-1,3-Dichloropropene	0.357	0.0201	0.5019	0	71.2	52.3	129				
Toluene	0.388	0.0201	0.5019	0	77.4	67.8	129				
trans-1,3-Dichloropropene	0.341	0.0301	0.5019	0	67.9	52.2	138				
1,1,2-Trichloroethane	0.357	0.0301	0.5019	0	71.2	51.6	137				
1,3-Dichloropropane	0.339	0.0502	0.5019	0	67.6	53.1	134				
Tetrachloroethene (PCE)	0.331	0.0201	0.5019	0	66.0	44.1	141				
Dibromochloromethane	0.356	0.0301	0.5019	0	70.9	55.3	140				
1,2-Dibromoethane (EDB)	0.375	0.00502	0.5019	0	74.7	50.4	136				
Chlorobenzene	0.357	0.0201	0.5019	0	71.2	60	133				
1,1,1,2-Tetrachloroethane	0.357	0.0301	0.5019	0	71.2	53.1	142				
Ethylbenzene	0.371	0.0301	0.5019	0	73.9	54.5	134				
m,p-Xylene	0.715	0.0201	1.004	0	71.2	53.1	132				
o-Xylene	0.366	0.0201	0.5019	0	72.9	53.3	139				
Styrene	0.354	0.0201	0.5019	0	70.6	51.1	132				
Isopropylbenzene	0.360	0.0803	0.5019	0	71.7	58.9	138				
Bromoform	0.312	0.0201	0.5019	0	62.2	57.9	130				
1,1,2,2-Tetrachloroethane	0.325	0.0201	0.5019	0	64.7	51.9	131				
n-Propylbenzene	0.353	0.0201	0.5019	0	70.4	53.6	140				
Bromobenzene	0.340	0.0301	0.5019	0	67.7	54.2	140				
1,3,5-Trimethylbenzene	0.359	0.0201	0.5019	0	71.5	51.8	136				
2-Chlorotoluene	0.359	0.0201	0.5019	0	71.5	51.6	136				
4-Chlorotoluene	0.412	0.0201	0.5019	0	82.0	50.1	139				
tert-Butylbenzene	0.373	0.0201	0.5019	0	74.4	50.5	135				
1,2,3-Trichloropropane	0.312	0.0201	0.5019	0	62.2	50.5	131				
1,2,4-Trichlorobenzene	0.343	0.0502	0.5019	0	68.4	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-014AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **B21-4-5.0** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123667**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	0.366	0.0201	0.5019	0	73.0	52.6	141				
4-Isopropyltoluene	0.355	0.0201	0.5019	0	70.7	52.9	134				
1,3-Dichlorobenzene	0.325	0.0201	0.5019	0	64.8	52.6	131				
1,4-Dichlorobenzene	0.367	0.0201	0.5019	0	73.2	52.9	129				
n-Butylbenzene	0.352	0.0201	0.5019	0	70.1	52.6	130				
1,2-Dichlorobenzene	0.324	0.0201	0.5019	0	64.6	55.8	129				
1,2-Dibromo-3-chloropropane	0.287	0.0301	0.5019	0	57.1	53	129				
1,2,4-Trimethylbenzene	0.358	0.0201	0.5019	0	71.4	50.6	137				
Hexachlorobutadiene	0.396	0.100	0.5019	0	78.9	51.5	130				
Naphthalene	0.291	0.0301	0.5019	0	57.9	52.3	124				
1,2,3-Trichlorobenzene	0.293	0.0201	0.5019	0	58.3	54.4	124				
Surr: 1-Bromo-4-fluorobenzene	0.504		0.5019		100	63.1	141				
Surr: Dibromofluoromethane	0.493		0.5019		98.2	67.6	119				
Surr: Toluene-d8	0.509		0.5019		101	78.5	126				

Sample ID: **LCS-3439** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **LCSS** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123683**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.775	0.0600	1.000	0	77.5	37.7	136				
Chloromethane	0.913	0.0600	1.000	0	91.3	38.8	132				
Vinyl chloride	0.932	0.00200	1.000	0	93.2	56.1	130				
Bromomethane	0.990	0.0900	1.000	0	99.0	44.3	149				
Trichlorofluoromethane (CFC-11)	0.904	0.0500	1.000	0	90.4	61.8	130				
Chloroethane	0.968	0.0600	1.000	0	96.8	52.2	131				
1,1-Dichloroethene	0.975	0.0500	1.000	0	97.5	64.6	134				
Methylene chloride	0.990	0.0200	1.000	0	99.0	60.6	140				
trans-1,2-Dichloroethene	0.982	0.0200	1.000	0	98.2	68.7	127				

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-3439** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **LCSS** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123683**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.984	0.0500	1.000	0	98.4	73.4	128				
1,1-Dichloroethane	0.980	0.0200	1.000	0	98.0	65.5	132				
2,2-Dichloropropane	0.883	0.0500	1.000	0	88.3	28.1	149				
cis-1,2-Dichloroethene	0.978	0.0200	1.000	0	97.8	71.6	123				
Chloroform	1.00	0.0200	1.000	0	100	67.5	129				
1,1,1-Trichloroethane (TCA)	0.968	0.0200	1.000	0	96.8	74.4	130				
1,1-Dichloropropene	0.956	0.0200	1.000	0	95.6	72.7	131				
Carbon tetrachloride	0.944	0.0200	1.000	0	94.4	73	136				
1,2-Dichloroethane	0.967	0.0300	1.000	0	96.7	68.7	133				
Benzene	0.978	0.0200	1.000	0	97.8	74.6	124				
Trichloroethene (TCE)	0.996	0.0300	1.000	0	99.6	71.5	134				
1,2-Dichloropropane	0.913	0.0200	1.000	0	91.3	72.7	133				
Bromodichloromethane	0.910	0.0200	1.000	0	91.0	76.1	136				
Dibromomethane	0.962	0.0400	1.000	0	96.2	70	130				
cis-1,3-Dichloropropene	0.981	0.0200	1.000	0	98.1	59.1	143				
Toluene	0.988	0.0200	1.000	0	98.9	81.1	123				
trans-1,3-Dichloropropene	0.970	0.0300	1.000	0	97.0	49.2	149				
1,1,2-Trichloroethane	0.981	0.0300	1.000	0	98.1	74.5	129				
1,3-Dichloropropane	0.967	0.0500	1.000	0	96.7	70	130				
Tetrachloroethene (PCE)	1.06	0.0200	1.000	0	106	64.4	150				
Dibromochloromethane	0.981	0.0300	1.000	0	98.1	70.6	144				
1,2-Dibromoethane (EDB)	0.973	0.00500	1.000	0	97.3	70	130				
Chlorobenzene	0.962	0.0200	1.000	0	96.2	76.1	123				
1,1,1,2-Tetrachloroethane	0.984	0.0300	1.000	0	98.4	74.8	131				
Ethylbenzene	0.979	0.0300	1.000	0	97.9	74	129				
m,p-Xylene	1.92	0.0200	2.000	0	96.2	79.8	128				
o-Xylene	0.973	0.0200	1.000	0	97.3	77.3	128				
Styrene	0.972	0.0200	1.000	0	97.2	76.8	130				
Isopropylbenzene	0.967	0.0800	1.000	0	96.7	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-3439** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **LCSS** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123683**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	0.968	0.0200	1.000	0	96.8	67	154				
1,1,2,2-Tetrachloroethane	0.933	0.0200	1.000	0	93.3	61.9	139				
n-Propylbenzene	0.956	0.0200	1.000	0	95.6	78	130				
Bromobenzene	0.984	0.0300	1.000	0	98.4	49.2	144				
1,3,5-Trimethylbenzene	0.975	0.0200	1.000	0	97.5	79.7	128				
2-Chlorotoluene	0.962	0.0200	1.000	0	96.2	76.7	129				
4-Chlorotoluene	0.978	0.0200	1.000	0	97.8	77.5	125				
tert-Butylbenzene	0.933	0.0200	1.000	0	93.3	74.2	128				
1,2,3-Trichloropropane	0.953	0.0200	1.000	0	95.3	67.9	136				
1,2,4-Trichlorobenzene	0.904	0.0500	1.000	0	90.4	65.6	137				
sec-Butylbenzene	0.964	0.0200	1.000	0	96.4	75.6	133				
4-Isopropyltoluene	0.934	0.0200	1.000	0	93.4	76.8	131				
1,3-Dichlorobenzene	0.980	0.0200	1.000	0	98.0	72.8	128				
1,4-Dichlorobenzene	0.914	0.0200	1.000	0	91.4	72.6	126				
n-Butylbenzene	0.938	0.0200	1.000	0	93.8	65.3	136				
1,2-Dichlorobenzene	0.992	0.0200	1.000	0	99.2	72.8	126				
1,2-Dibromo-3-chloropropane	0.927	0.0300	1.000	0	92.6	64.3	135				
1,2,4-Trimethylbenzene	0.959	0.0200	1.000	0	95.9	77.5	129				
Hexachlorobutadiene	0.960	0.100	1.000	0	96.0	42	151				
Naphthalene	0.945	0.0300	1.000	0	94.5	64	130				
1,2,3-Trichlorobenzene	0.916	0.0200	1.000	0	91.6	62.1	140				
Surr: 1-Bromo-4-fluorobenzene	0.503		0.5000		101	63.1	141				
Surr: Dibromofluoromethane	0.496		0.5000		99.1	67.6	119				
Surr: Toluene-d8	0.507		0.5000		101	78.5	126				

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3439** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **MBLKS** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123684**

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	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0300									
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-Dichloropropene	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3439** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **MBLKS** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123684**

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3439** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/15/2012** RunNo: **6221**
Client ID: **MBLKS** Batch ID: **3439** Analysis Date: **10/16/2012** SeqNo: **123684**

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: 1-Bromo-4-fluorobenzene	0.511		0.5000		102	63.1	141				
Surr: Dibromofluoromethane	0.496		0.5000		99.1	67.6	119				
Surr: Toluene-d8	0.508		0.5000		102	78.5	126				

Sample ID: **1210020-146ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **B21-15-5.0** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124153**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0613						0	0	30	
Chloromethane	ND	0.0613						0	0	30	
Vinyl chloride	ND	0.00204						0	0	30	
Bromomethane	ND	0.0919						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	0.0511						0	0	30	
Chloroethane	ND	0.0613						0	0	30	
1,1-Dichloroethene	ND	0.0511						0	0	30	
Methylene chloride	ND	0.0204						0	0	30	
trans-1,2-Dichloroethene	ND	0.0204						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	0.0511						0	0	30	
1,1-Dichloroethane	ND	0.0204						0	0	30	
2,2-Dichloropropane	ND	0.0511						0	0	30	
cis-1,2-Dichloroethene	ND	0.0204						0	0	30	
Chloroform	ND	0.0204						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	0.0204						0	0	30	
1,1-Dichloropropene	ND	0.0204						0	0	30	
Carbon tetrachloride	ND	0.0204						0	0	30	
1,2-Dichloroethane	ND	0.0306						0	0	30	
Benzene	ND	0.0204						0	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-146ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **B21-15-5.0** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124153**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0306						0	0	30	
1,2-Dichloropropane	ND	0.0204						0	0	30	
Bromodichloromethane	ND	0.0204						0	0	30	
Dibromomethane	ND	0.0409						0	0	30	
cis-1,3-Dichloropropene	ND	0.0204						0	0	30	
Toluene	ND	0.0204						0	0	30	
trans-1,3-Dichloropropene	ND	0.0306						0	0	30	
1,1,2-Trichloroethane	ND	0.0306						0	0	30	
1,3-Dichloropropane	ND	0.0511						0	0	30	
Tetrachloroethene (PCE)	ND	0.0204						0	0	30	
Dibromochloromethane	ND	0.0306						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.00511						0	0	30	
Chlorobenzene	ND	0.0204						0	0	30	
1,1,1,2-Tetrachloroethane	ND	0.0306						0	0	30	
Ethylbenzene	ND	0.0306						0	0	30	
m,p-Xylene	ND	0.0204						0	0	30	
o-Xylene	ND	0.0204						0	0	30	
Styrene	ND	0.0204						0	0	30	
Isopropylbenzene	ND	0.0817						0	0	30	
Bromoform	ND	0.0204						0	0	30	
1,1,2,2-Tetrachloroethane	ND	0.0204						0	0	30	
n-Propylbenzene	ND	0.0204						0	0	30	
Bromobenzene	ND	0.0306						0	0	30	
1,3,5-Trimethylbenzene	ND	0.0204						0	0	30	
2-Chlorotoluene	ND	0.0204						0	0	30	
4-Chlorotoluene	ND	0.0204						0	0	30	
tert-Butylbenzene	ND	0.0204						0	0	30	
1,2,3-Trichloropropane	ND	0.0204						0	0	30	
1,2,4-Trichlorobenzene	ND	0.0511						0	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-146ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **B21-15-5.0** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124153**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0204						0	0	30	
4-Isopropyltoluene	ND	0.0204						0	0	30	
1,3-Dichlorobenzene	ND	0.0204						0	0	30	
1,4-Dichlorobenzene	ND	0.0204						0	0	30	
n-Butylbenzene	ND	0.0204						0	0	30	
1,2-Dichlorobenzene	ND	0.0204						0	0	30	
1,2-Dibromo-3-chloropropane	ND	0.0306						0	0	30	
1,2,4-Trimethylbenzene	ND	0.0204						0	0	30	
Hexachlorobutadiene	ND	0.102						0	0	30	
Naphthalene	ND	0.0306						0	0	30	
1,2,3-Trichlorobenzene	ND	0.0204						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	0.505		0.5108		98.8	63.1	141		0		
Surr: Dibromofluoromethane	0.509		0.5108		99.6	67.6	119		0		
Surr: Toluene-d8	0.515		0.5108		101	78.5	126		0		

Sample ID: **1210020-149AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **B21-15-12.5** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124155**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.627	0.0728	0.6068	0	103	43.5	121				
Chloromethane	0.791	0.0728	0.6068	0	130	45	130				S
Vinyl chloride	0.708	0.00243	0.6068	0	117	51.2	146				
Bromomethane	0.504	0.109	0.6068	0	83.1	70	130				
Trichlorofluoromethane (CFC-11)	0.556	0.0607	0.6068	0	91.6	52.2	132				
Chloroethane	0.697	0.0728	0.6068	0	115	43.8	117				
1,1-Dichloroethene	0.711	0.0607	0.6068	0	117	61.9	141				
Methylene chloride	0.659	0.0243	0.6068	0	109	54.7	142				
trans-1,2-Dichloroethene	0.713	0.0243	0.6068	0	118	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-149AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **B21-15-12.5** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124155**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.638	0.0607	0.6068	0	105	54.4	132				
1,1-Dichloroethane	0.730	0.0243	0.6068	0	120	51.8	141				
2,2-Dichloropropane	0.548	0.0607	0.6068	0	90.3	36	123				
cis-1,2-Dichloroethene	0.721	0.0243	0.6068	0	119	58.6	136				
Chloroform	0.695	0.0243	0.6068	0	115	53.2	129				
1,1,1-Trichloroethane (TCA)	0.708	0.0243	0.6068	0	117	58.3	145				
1,1-Dichloropropene	0.714	0.0243	0.6068	0	118	55.1	138				
Carbon tetrachloride	0.639	0.0243	0.6068	0	105	53.3	144				
1,2-Dichloroethane	0.655	0.0364	0.6068	0	108	51.3	139				
Benzene	0.718	0.0243	0.6068	0	118	63.5	133				
Trichloroethene (TCE)	0.744	0.0364	0.6068	0	123	68.6	132				
1,2-Dichloropropane	0.684	0.0243	0.6068	0	113	59	136				
Bromodichloromethane	0.634	0.0243	0.6068	0	104	50.7	141				
Dibromomethane	0.649	0.0485	0.6068	0	107	50.6	137				
cis-1,3-Dichloropropene	0.630	0.0243	0.6068	0	104	52.3	129				
Toluene	0.694	0.0243	0.6068	0	114	67.8	129				
trans-1,3-Dichloropropene	0.628	0.0364	0.6068	0	104	52.2	138				
1,1,2-Trichloroethane	0.634	0.0364	0.6068	0	105	51.6	137				
1,3-Dichloropropane	0.632	0.0607	0.6068	0	104	53.1	134				
Tetrachloroethene (PCE)	0.714	0.0243	0.6068	0	118	44.1	141				
Dibromochloromethane	0.644	0.0364	0.6068	0	106	55.3	140				
1,2-Dibromoethane (EDB)	0.616	0.00607	0.6068	0	102	50.4	136				
Chlorobenzene	0.654	0.0243	0.6068	0	108	60	133				
1,1,1,2-Tetrachloroethane	0.620	0.0364	0.6068	0	102	53.1	142				
Ethylbenzene	0.661	0.0364	0.6068	0	109	54.5	134				
m,p-Xylene	1.32	0.0243	1.214	0	109	53.1	132				
o-Xylene	0.663	0.0243	0.6068	0	109	53.3	139				
Styrene	0.631	0.0243	0.6068	0	104	51.1	132				
Isopropylbenzene	0.651	0.0971	0.6068	0	107	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210020-149AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **B21-15-12.5** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124155**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	0.569	0.0243	0.6068	0	93.8	57.9	130				
1,1,2,2-Tetrachloroethane	0.513	0.0243	0.6068	0	84.5	51.9	131				
n-Propylbenzene	0.632	0.0243	0.6068	0	104	53.6	140				
Bromobenzene	0.636	0.0364	0.6068	0	105	54.2	140				
1,3,5-Trimethylbenzene	0.620	0.0243	0.6068	0	102	51.8	136				
2-Chlorotoluene	0.615	0.0243	0.6068	0	101	51.6	136				
4-Chlorotoluene	0.612	0.0243	0.6068	0	101	50.1	139				
tert-Butylbenzene	0.616	0.0243	0.6068	0	102	50.5	135				
1,2,3-Trichloropropane	0.579	0.0243	0.6068	0	95.4	50.5	131				
1,2,4-Trichlorobenzene	0.523	0.0607	0.6068	0	86.2	50.8	130				
sec-Butylbenzene	0.629	0.0243	0.6068	0	104	52.6	141				
4-Isopropyltoluene	0.606	0.0243	0.6068	0	99.9	52.9	134				
1,3-Dichlorobenzene	0.610	0.0243	0.6068	0	101	52.6	131				
1,4-Dichlorobenzene	0.599	0.0243	0.6068	0	98.7	52.9	129				
n-Butylbenzene	0.595	0.0243	0.6068	0	98.1	52.6	130				
1,2-Dichlorobenzene	0.587	0.0243	0.6068	0	96.8	55.8	129				
1,2-Dibromo-3-chloropropane	0.589	0.0364	0.6068	0	97.0	53	129				
1,2,4-Trimethylbenzene	0.603	0.0243	0.6068	0	99.4	50.6	137				
Hexachlorobutadiene	0.604	0.121	0.6068	0	99.6	51.5	130				
Naphthalene	0.529	0.0364	0.6068	0	87.2	52.3	124				
1,2,3-Trichlorobenzene	0.544	0.0243	0.6068	0	89.6	54.4	124				
Surr: 1-Bromo-4-fluorobenzene	0.597		0.6068		98.4	63.1	141				
Surr: Dibromofluoromethane	0.608		0.6068		100	67.6	119				
Surr: Toluene-d8	0.612		0.6068		101	78.5	126				

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3452** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **MBLKS** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124171**

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	ND	0.0300									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0300									
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-Dichloropropene	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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3452** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **MBLKS** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124171**

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-3452** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **MBLKS** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124171**

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: 1-Bromo-4-fluorobenzene	0.504		0.5000		101	63.1	141				
Surr: Dibromofluoromethane	0.494		0.5000		98.8	67.6	119				
Surr: Toluene-d8	0.503		0.5000		101	78.5	126				

Sample ID: **LCS-3452** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **LCSS** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124174**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.906	0.0600	1.000	0	90.6	37.7	136				
Chloromethane	0.988	0.0600	1.000	0	98.8	38.8	132				
Vinyl chloride	0.990	0.00200	1.000	0	99.0	56.1	130				
Bromomethane	1.04	0.0900	1.000	0	104	44.3	149				
Trichlorofluoromethane (CFC-11)	1.01	0.0500	1.000	0	101	61.8	130				
Chloroethane	1.01	0.0600	1.000	0	101	52.2	131				
1,1-Dichloroethene	1.05	0.0500	1.000	0	105	64.6	134				
Methylene chloride	1.01	0.0200	1.000	0	101	60.6	140				
trans-1,2-Dichloroethene	1.03	0.0200	1.000	0	103	68.7	127				
Methyl tert-butyl ether (MTBE)	1.01	0.0500	1.000	0	101	73.4	128				
1,1-Dichloroethane	1.05	0.0200	1.000	0	105	65.5	132				
2,2-Dichloropropane	0.970	0.0500	1.000	0	97.0	28.1	149				
cis-1,2-Dichloroethene	1.04	0.0200	1.000	0	104	71.6	123				
Chloroform	1.04	0.0200	1.000	0	104	67.5	129				
1,1,1-Trichloroethane (TCA)	1.03	0.0200	1.000	0	103	74.4	130				
1,1-Dichloropropene	1.02	0.0200	1.000	0	102	72.7	131				
Carbon tetrachloride	0.994	0.0200	1.000	0	99.4	73	136				
1,2-Dichloroethane	1.02	0.0300	1.000	0	102	68.7	133				
Benzene	1.02	0.0200	1.000	0	102	74.6	124				

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-3452** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **LCSS** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124174**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	1.07	0.0300	1.000	0	107	71.5	134				
1,2-Dichloropropane	1.03	0.0200	1.000	0	103	72.7	133				
Bromodichloromethane	0.991	0.0200	1.000	0	99.1	76.1	136				
Dibromomethane	1.02	0.0400	1.000	0	102	70	130				
cis-1,3-Dichloropropene	1.01	0.0200	1.000	0	101	59.1	143				
Toluene	1.02	0.0200	1.000	0	102	81.1	123				
trans-1,3-Dichloropropene	1.00	0.0300	1.000	0	100	49.2	149				
1,1,2-Trichloroethane	1.00	0.0300	1.000	0	100	74.5	129				
1,3-Dichloropropane	1.00	0.0500	1.000	0	100	70	130				
Tetrachloroethene (PCE)	1.12	0.0200	1.000	0	112	64.4	150				
Dibromochloromethane	0.992	0.0300	1.000	0	99.2	70.6	144				
1,2-Dibromoethane (EDB)	0.993	0.00500	1.000	0	99.3	70	130				
Chlorobenzene	1.01	0.0200	1.000	0	101	76.1	123				
1,1,1,2-Tetrachloroethane	1.01	0.0300	1.000	0	101	74.8	131				
Ethylbenzene	1.02	0.0300	1.000	0	102	74	129				
m,p-Xylene	2.07	0.0200	2.000	0	103	79.8	128				
o-Xylene	1.02	0.0200	1.000	0	102	77.3	128				
Styrene	1.01	0.0200	1.000	0	101	76.8	130				
Isopropylbenzene	1.02	0.0800	1.000	0	102	70	130				
Bromoform	0.977	0.0200	1.000	0	97.7	67	154				
1,1,2,2-Tetrachloroethane	0.906	0.0200	1.000	0	90.7	61.9	139				
n-Propylbenzene	1.02	0.0200	1.000	0	102	78	130				
Bromobenzene	1.02	0.0300	1.000	0	102	49.2	144				
1,3,5-Trimethylbenzene	1.00	0.0200	1.000	0	100	79.7	128				
2-Chlorotoluene	1.02	0.0200	1.000	0	102	76.7	129				
4-Chlorotoluene	1.01	0.0200	1.000	0	101	77.5	125				
tert-Butylbenzene	0.942	0.0200	1.000	0	94.2	74.2	128				
1,2,3-Trichloropropane	0.988	0.0200	1.000	0	98.8	67.9	136				
1,2,4-Trichlorobenzene	0.969	0.0500	1.000	0	96.9	65.6	137				

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: 1210020
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus 2.0 W011

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-3452** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/16/2012** RunNo: **6250**
Client ID: **LCSS** Batch ID: **3452** Analysis Date: **10/17/2012** SeqNo: **124174**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	0.976	0.0200	1.000	0	97.6	75.6	133				
4-Isopropyltoluene	0.991	0.0200	1.000	0	99.1	76.8	131				
1,3-Dichlorobenzene	1.01	0.0200	1.000	0	101	72.8	128				
1,4-Dichlorobenzene	1.01	0.0200	1.000	0	101	72.6	126				
n-Butylbenzene	1.01	0.0200	1.000	0	101	65.3	136				
1,2-Dichlorobenzene	1.02	0.0200	1.000	0	102	72.8	126				
1,2-Dibromo-3-chloropropane	0.946	0.0300	1.000	0	94.6	64.3	135				
1,2,4-Trimethylbenzene	1.01	0.0200	1.000	0	101	77.5	129				
Hexachlorobutadiene	0.966	0.100	1.000	0	96.6	42	151				
Naphthalene	0.970	0.0300	1.000	0	97.0	64	130				
1,2,3-Trichlorobenzene	0.972	0.0200	1.000	0	97.2	62.1	140				
Surr: 1-Bromo-4-fluorobenzene	0.507		0.5000		101	63.1	141				
Surr: Dibromofluoromethane	0.491		0.5000		98.1	67.6	119				
Surr: Toluene-d8	0.502		0.5000		100	78.5	126				

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

Sample Log-In Check List

Client Name: **GEI1**	Work Order Number: **1210020**
Logged by: **Troy Zehr**	Date Received: **10/15/2012**

Chain of Custody

1.	Were custodial seals present?	Yes	☐	No	☐	Not Required	☑
2.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present	☐
3.	How was the sample delivered?	Client					

Log In

4.	Coolers are present?	Yes	☑	No	☐	NA	☐
5.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes	☑	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	☑	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐		
9.	Are samples properly preserved?	Yes	☑	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	☑	NA	☐
11.	Is there headspace present in VOA vials?	Yes	☐	No	☐	NA	☑
12.	Did all sample containers arrive in good condition?(unbroken)	Yes	☑	No	☐		
13.	Does paperwork match bottle labels?	Yes	☑	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐		
15.	Is it clear what analyses were requested?	Yes	☑	No	☐		
16.	Were all holding times able to be met?	Yes	☑	No	☐		

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	NA	☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler 1	5.1	Good
Cooler 2	6.2	Good
Cooler 3	4.8	Good
Cooler 4	5.2	Good
Cooler 5	6.1	Good

Item #	Temp ºC	Condition
Cooler 6	6.5	Good
Cooler 7	5.4	Good
Cooler 8	5.9	Good
Cooler 9	6.3	Good
Temp Blank 1	5.0	Good
Temp Blank 2	5.4	Good
Temp Blank 3	3.6	Good
Temp Blank 4	4.9	Good
Temp Blank 5	5.4	Good
Temp Blank 6	6.1	Good
Temp Blank 7	5.1	Good

Fremont

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1210020

Date: 10/11/12 Page: 1 of 3

Client: GEOENGINEERS
Address:
City, State, Zip: SEATTLE, WA Tel:
Report To (PM): CHRIS BRAUN Fax: 425 861 6050 Email: CBRAUN@GEOENGINEERS.COM

Project Name: RUFUS W/C 11
Location: SEATTLE, WA
Collected by: SLG
Project No: 24434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	OX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Chlorinated Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (N,S)**	Comments/Preservation
1 B21-2 2.5'	10/11/12	0805																
2 5.0		0815		X		X	X		X						XT			
3 7.5		0822																
4 10.0		0845																
5 12.5		0835																
6 15.0		0840																
7 17.5		0845																
8 20.0		0854			X			X							XT			
9 25.0		0905																
10 30.0		0912																

*Metals Analysis (Circle): MTCA5 RCRA8 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 Sn Sr Ti Tl 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)

Special Remarks:

Relinquished: Date/Time: 10/11/12 1350 Received: Date/Time: 10/11/12 1400

Relinquished: Date/Time: Received: Date/Time:

TAT: Rush Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

Fremont

Chain of Custody Record

1411 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (Internal): _____

Date: 10/11/12 Page: 2 of: 3

Client: GEOENGINEERS
Address:
City, State, Zip: SEATTLE, WA Tel:
Report To (PM): CHRIS BROWN Fax: 425 861-6050 Email: CBROWN@GEOENGINEERS.COM

Project Name: RUFUS 41 OIL
Location: SEATTLE, WA
Collected by: ZLL
Project No: 20454-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	OP Pesticides (EPA 8081)	OP Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 E 21.2 35.0'	10/11/12	0920																
2 40.2		0924																
3 45.0 NO SAMPLE																		
4 50.0		1209																
5 55.0		1220																
6 100.0		1632																
7 105.0 NO SAMPLE																		
8 70.0		1058																
9 75.0		1145																
10 80.0		1152																

Metals Analysis (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

Anions (Circle): Nitrite Nitrate 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)

Relinquished: Date/Time: 10/11/12 1330 Received: Date/Time: 10/11/12 1400

Relinquished: Date/Time: Received: Date/Time:

Special Remarks:

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1317 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 10/11/12

Page: 3 of: 3

Client: GEOENGINEERS
Address:
City, State, Zip: SEATTLE, WA
Tel:
Project Name: RUFUS MO 11
Location: SEATTLE, WA
Collected by: SLG

Reports To (PM): CHRIS BROWN
Fax: 425-861-6050
Email: CBROWN@GEOENGINEERS.COM
Project No: 21881-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SemiVOA (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (4)**	Comments/Depth
1 B-21-2 85.0	10/11/12	1215																
2 90.0		1223																
3 95.0		1230																
4 100.0		1245																
5																		
6																		
7																		
8																		
9																		
10																		

*Metals Analysis (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

**Anions (Circle): Sulfide 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.)

Special Remarks:

Relinquished: Date/Time: 10/11/12 1330
Received: Date/Time: 10/11/12 1400
Relinquished: Date/Time:
Received: Date/Time:

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab; Yellow - File; Pink - Originator

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Laboratory Project No (internal): 1210020

Date: 10/8/12

Page: 1 of: 3

Client: GEOENGINEERS
Address:
City, State, Zip: SEATTLE, WA
Tel: 206.427.7706

Project Name: RUFUS 2.0 W/O 11
Location: SEATTLE, WA
Collected by: SLG

Reports To (PM): CHRIS BROWN
Fax: 425-861-6051 email: CBROWN@GEOENGINEERS
Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type: (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SIM HOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) | Dissolved (D)	Asbestos (C)**	Comments/Depth
1 MW21-2-2.5'	10/8/12	0820	S															
2 5.0'		0825																
3 7.5		0851		X			X		X		X				X	T		
4 10.0		0841																
5 12.5		0855																
6 15.0	NO SAMPLE																	
7 17.5		0914																
8 20.0		0923			X				X						X	T		
9 22.5		0931																
10 25.0		0940																

*Metals Analysis (Circle): NWTCA-5 RCRA-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 Ti Tl U V Zn

**Ambient (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.)

Special Remarks:

Relinquished: Date/Time: 10/8/12 1625
Received: Date/Time: 10/8/12 17:09

Relinquished: Date/Time:
Received: Date/Time:

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Laboratory Project No: (internal): _____

Date: 10/8/12 Page: 2 of: 3

Client: GEOENGINEERS
Address:
City, State, Zip: SEATTLE, WA Tel: 206-427-7706
Reports To (PM): CHRIS BROWN Fax: 425-861-6050 Email: CBROWN@GEOENGINEERS.COM

Project Name: PUGET 2.0 W/O 11
Location: SEATTLE, WA
Collected by: SLH
Project No: 20434001-11

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GR/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**			Comments/Depth
1	MW 21-2 - 27.5	10/8/12	0945	S																		
2	30.0		0951																			
3	35.0		0957																			
4	40.0		1004																			
5	45.0		1012																			
6	50.0		1020																			
7	55.0		1033																			
8	60.0		1045																			
9	65.0		1057																			
10	70.0		1106																			

*Metals Analysis (Circle): MTCA-5 RCRA-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 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 retained after 30 days.)

Special Remarks:

Relinquished: [signature] Date/Time: 10/8/12 1625 Received: [signature] Date/Time: 10/8/12 17:09

Relinquished: Date/Time: Received: Date/Time:

TAT --> Next Day 2 Day 3 Day STD

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Laboratory Project No (internal): _____

Date: 10/8/12 Page: 3 of: 3

Client: GEOENGINEERS
Address:
City, State, Zip: SEATTLE WA Tel: 206-427-7706
Report To (PM): CHRIS BROWN Fax: 425 861 6050 Email: CBROWN@GEOENGINEERS.COM

Project Name: RUFUS 2.0 W/O 1.
Location: SEATTLE, WA
Collected by: ZLG
Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals - (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	Comments/Depth
1 MW 21-2 - 75.0	10/8/12	1120	SOIL																
2 80.0		1130																	
3 85.0		1144																	
4 90.0		1200																	
5 95.0		1206																	
6 100.0		1237																	
7 105.0		1255																	
8 110.0	↓	1320	↓																
9																			
10																			

*Metals Analysis (Circle): MTCA-5 RCRA-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 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 retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
a [signature]	10/8/12 1635	[signature]	10/8/12 17:07
b		i	

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Laboratory Project No (if known): 1210020

Date: 10/10/12

Page: 1 of: 3

Client: GEO ENGINEERS

Project Name: RUFUS W/O 11

Address:

Location: SEATTLE, WA

City, State, Zip: SEATTLE, WA Tel: 206 284 7227

Collected by: SLL

Reports To (PM): CHRIS BROWN Fax: 425.861.6056 Email: CBROWN@GEOENGINEERS.COM

Project No: 20434-001-11

	Sample Name:	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by 1FA 8021B	PHX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270 SIM)	PAH (EPA 8270 SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6010 / 7000's)	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1	MW 21-1 2.5	10/10/12	0819	S															
2	5.0		0825		X			X	X	X						X	T		
3	7.5		0831																
4	10.0		0835																
5	12.5		0842																
6	15.0		0850																
7	17.5		0855			X			X							X	T		
8	20.0		0904																
9	25.0		0905																
10	30.0	↓	0910	↓															

*Metals Analysis (Circle): MTCA-5 RCRA-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 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 retained after 30 days)

Special Remarks

Relinquished: [signature] Date/Time: 10/10/12 1305

Received: [signature] Date/Time: 10/10/12 13:05

Relinquished: Date/Time:

Received: Date/Time:

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Laboratory Project No (internal): _____

Date: 10/10/12

Page: 2 of 3

Client: GEOENGINEERS

Project Name: RUFUS W/C II

Address: _____

Location: SEATTLE, WA

City, State, Zip: SEATTLE, WA Tel: 206.728.2993

Collected by: BLG

Reports To (PM): CHRIS BROWN Fax: 425-861-6050 Email: CBROWN@GEOENGINEERS.COM Project No: 20424-001-11

Sample Name	Container Size	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021B	BTEX by 8260	Dioxins/Furans (EPA 8290)	Hydrocarbon Identification (HCID)	Diesel/Motor Oil Range Organics	SGME WOI (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**			Comments/Depth
1 MW 21-1	35.0	10/10	0936																	
2	40.0		4																	
3	45.0	NO	SAMPLE	0953																
4	50.0		1010																	
5	55.0		1015																	
6	60.0		1030																	
7	65.0	NO	SAMPLE																	
8	70.0		1050	2																
9	75.0		1059																	
10	80.0		1116																	

*Metals Analysis (Circle): 6/TCA-5 HERA 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 Si Sn 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 (after 30 days unless other arrangements are made)

Special Remarks:

Relinquished: [signature] Date/Time: 10/10/12 1345

Received: [signature] Date/Time: 10/10/12 13:45

Relinquished: _____ Date/Time: _____

Received: _____ Date/Time: _____

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Laboratory Project No (Internal): _____

Date: 10/10/12 Page: 3 of: 3

Client: GEOENGINEERS
Address:
City, State, Zip: SEATTLE WA Tel: 206 284 1123
Reports To (PM): CHRIS BALLIN Fax: 425 861 6050 Email: CBALLIN@GEOENGINEERS.COM

Project Name: RUFUS W/O 11
Location: SEATTLE, WA
Collected by: SLG
Project No: 20454-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	Gx/BTEX by LPA NWTP	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Chlorobenzenes (EPA 8021A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 MW 21-1 25.0	10/10/12	1133																
2 9.0	NO	SAME LE																
3 15.0		1200																
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Metals Analysis (Circle): MTCA 5 RCRA 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 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 retained after 30 days.)

Special Remarks:

Relinquished: [signature] Date/Time: 10/10/12 1505 Received: [signature] Date/Time: 10/10/12 1305

Relinquished: Date/Time: Received: Date/Time:

TAT --> Next Day 2 Day 3 Day STD

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Laboratory Project No (internal): _____

Date: 10/3/12 Page: 1 of: 3

Client: GEOENGINEERS Project Name: RUFUS W/O 11

Address: Location: SEATTLE

City, State, Zip: SEATTLE, WA Tel: 206-427-7223 Collected by: SLL

Reports To (PM): CHRIS BREWER Fax: 425-861-6050 Email: Project No: 20424-00.-11

Sample Name		Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX-OHEX by EPA 8015B	BTEX by EPA 8021B	Gasoline Range Organics	Hydrocarbon Identification (NEAT)	Diesel/Heavy Oil Range Organics	SVOA (EPA 8270)	PAH (EPA 8270) - SIM	PCBs (EPA 8082)	Organochlorine Pesticides (EPA 8081)	Chlorinated Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Arsenic (As)**	Comments/Depth
MW21-3	2.5	10/3/12	0814	S	X			X		X						XT			Hold CB
	5.0		0819																
	7.5		0828																
	10.0		0845																
	12.5		0840																
	15.0		0848																
	17.5		0855																
	20.0		0902																
	22.5	MS SAMPLE																	
	25.0	↓	0915	↓	X					X						XT			

*Metals Analysis (Circle): HCID FCRA 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 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 retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
[signature]	10/5/12 1600	[signature]	10/9/12 1637
[signature]	10/9/12 1637	[signature]	10/9/12 1637

TAT → Next Day 2 Day 3 Day STD

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Laboratory Project No (internal): _____

Date: 10/4/12 Page: 2 of 3

Client: GeoEngineers
Address:
City, State, Zip: SEATTLE, WA Tel: 206-427-7263
Reports To (PM): Chris Brown Fax: 425-861-6050 Email: CBrown@GeoEng.com

Project Name: Rufus Well
Location: SEATTLE, WA
Collected by: GLL
Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	cPAH (EPA 8270 by SIM)	PAH (EPA 8270 by SIM)	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMIVOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCB's (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Arsenic (AS)**	Comments/Depth
1 MW 21-S 40.0	10/2/12	0931	S															HOLD
2 35.0		0942																
3 45.0	NO SAMPLE																	
4 45.2		1025																
5 50.0		1040																
6 55.0		1101																
7 60.0		1133																
8 65.2		1144																
9 70.0		1201																
10 75.0	↓	1217	↓															

*Metals Analysis (Circle): 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 Si Sn 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 retained after 30 days)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1	10/3/12 1600		10/4/12 1637
2	10/4/12 1637		10/4/12 1657

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Laboratory Project No (Internal): _____

Date: 10/9/12 Page: 3 of: 3

Client: GREENGINEERS Project Name: RUFUS W/O 11

Address: Location: SEATTLE, WA

City, State, Zip: SEATTLE, WA Tel: 206.467.7223 Collected by: SLG

Report To (PM): CHRIS BROWN Fax: 425.861.6050 Email: CBROWN@GREENGINEERS.COM Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GC/MS SV (EPA 8270)	PAH by EPA 8270D	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	cPAH (EPA 8270)	PAH (EPA 8270 - SIM)	PCB's (EPA 8082)	Organochlorine Pesticides (EPA 8081)	Chlorinated Acids (EPA 8151A)	Metals* (6020 / 200.8)	Total Hg (EPA 7471A)	Arsenic (EPA 7060A)	Comments/Depth
1 MW-21-3 BG.0	10/9/12	1200																HOLD
2 BG.0		NO SAMPLE																
3 40.0		1250																
4 95.0		1305																
5 120.0		1320																
6																		
7																		
8																		
9																		
10																		

*Metals Analysis (Circle): ANION-5 RCRA-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 Sc Sr Se 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 (Archive may be assessed if samples are returned after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1	10/9/12 1600		10/9/12 1637
2	10/9/12 1637		10/9/12 1657

TAT --> Next Day 2 Day 3 Day 5 Day STD

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Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 10/5/12 Page: 1 of: 3

Client: Geoengineers Project Name: Rufus 2.0 Well

Address: Location: Seattle, WA

City, State, Zip: Seattle, WA Tel: 206 427-7706 Collected by: Claudia De La Vida

Reports To (PM): Chris Brown Fax: 425 861 6050 Email: cbrown@geoengineers.com Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020) / 245.8)	Total (T) / Dissolved (D)	Anions (IC)**	Comment:/Depth
1 B21-3-2.5	10/5	0837	S															HOLD
2 3-5.0		0930																
3 3-7.5		0933		X		X	X		X				X	T				
4 B21-4-2.5		0940																
5 4-5.0		0942		X		X	X		X				X	T				
6 4-7.5		0950																
7 B21-5-2.5		1005																
8 -5.0		1010																
9 -7.5		1025		X		X	X		X				X	T				
10 B21-6-2.5		1130																

*Metals Analysis (Circle): ARCA 6 RCRA 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 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 retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/5/12 1608	x	10/5/12 16:08
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT--> Next Day 2 Day 3 Day STD

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Laboratory Project #a (internal): _____

Date: 10/5/12

Page: 2 of: 3

Client: GeoEngineers
Address:
City, State, Zip: Seattle, WA Tel: 206 4277706

Project Name: Rufus 2.0 (W011
Location: Seattle, WA
Collected by: Claudia De La Via

Reports To (PM): Chris Brown Fax: Email: cbrown@geoengineers Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type: (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)**	Comments/Depth
1 B21-E-5.0	10/5	1133	S															HOLD
2 -7.5		1145		X			X		X	X					X	T		
3 -10.0		1150																
4 -12.5		1155			X			X							X	T		
5 B21-7-2.5		1216																
6 -5.0		1220		X			X	X		X					X	T		
7 -7.5		1223																
8 -10.0		1235																
9 -12.0		1240			X			X							X	T		
10 B21-8-2.5		1320																

*Metals Analysis (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Sulfate Sulfide 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.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/5/12 1608	x	10/5/12 16:08
x		x	

TAT --> Next Day 2Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Chain of Custody Record

1311 N. 85th Street
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Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 10/5/12 Page: 3 of: 3

Client: GeoEngineers Project Name: Ruby 2.0 CWDII

Address: Location: Seattle, WA

City, State, Zip Tel: 2064277706 Collected by: Claudia De La Vina

Reports To (PM): Chris Brown Fax: Email: cbrown@geoengineers.com Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020A / 200.8)	Total (T) | Dissolved (D)	Anions (IC)**	Comments/Depth
1 B21-8-5.0	10/5	1324	S	X			X	X		X				X	T			HOLD
2 ↓ -7.0		1330																
3 B21-9-2.5		1415					X	X		X				X	T			
4 -5.0		1420																
5 -7.5		1430																
6 -10.0		1435			X			X						X	T			
7 ↓ -12.0	↓	1438	↓															↓
8																		
9																		
10																		

*Metals Analysis (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfide 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.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/5/12 1608	x [signature]	10/5/12 16:08
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day (STD)

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Fax: 206-352-7178

Laboratory Project No (Internal): 1210020

Date: 10/4/12

Page: 1 of: 3

Client: GeoEngineers
Address:
City, State, Zip: Seattle, WA Tel: 206 427 7756

Project Name: Rubis 2012
Location: Seattle, WA
Collected by: Steve Godes / Claudia DeLuca

Reports To (PM): Chris Brown Fax: 425 861 6050 Email: cbrown@geoengineers. Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 7040)	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 B21-1-2.5	10/4	0832	S															HOLD
2 -5.0		0837																
3 -7.5		0843		X		X	X		X				X		T			
4 -10.0		0846																
5 -12.5		0850																
6 -15.0		0855																
7 -17.5		0900																
8 -20.0		0905																
9 -22.5		0910																
10 -25.0		0911		X			X						X		T			

*Metals Analysis (Circle): MTCA-5 RCRA-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 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 retained after 30 days.)

Special Remarks

Relinquished	Date/Time	Received	Date/Time
1	10/4/12 1620	1	10/4/12 16:20
Relinquished	Date/Time	Received	Date/Time
2		2	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Laboratory Project No (internal): 120020

Date: 10/4/12

Page: 2 of: 3

Client: GeoEngineers
Address:
City, State, Zip: Seattle, WA Tel: 2064277706
Reports To (PM): Chris Brown Fax: Email:

Project Name: Rubis 2.0 WDII
Location:
Collected by: Steve Gooder / Claudia De La Vara
Project No: 20434-001-11

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by EPA 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* 16020 / 200.8	Total (T) | Dissolved (D)	Anions (IC)**	Comments/Depth
1	B21-1-30.0	10/4	0931	S															HOLD
2	-35.0		0938																
3	-40.0		0950																
4	-45.0		1000																
5	-50.0		1012																
6	-55.0		1024																
7	-60.0		1035																
8	-65.0		1045																
9	-70.0		1100																
10	-75.0		1117																

*Metals Analysis (Circle): MTCA-5 RCRA-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 T 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.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/4/12 1620	x	10/4/12 16:20
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT -> Next Day 2 Day 3 Day STD

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Laboratory Project No (internal): 1210020

Date: 10/4/12

Page: 3 of: 3

Client: GeoEngineers
Address:
City, State, Zip: Seattle, WA Tel: 206 427 7706
Reports To (PM): Chris Brown Fax: Email:

Project Name: Rubus 2.0 #011
Location:
Collected by: Steve Gerkes / Claudia De La Vega
Project No: 20434-001-11

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GRO/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SemiVOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020A / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	Comments/Depth
1	B21-1-80.0	10/4	1135	S																HOLD
2	-85.0		1152																	
3	-90.0		1210																	
4	-95.0		1230																	
5	-100.0		1235																	
6	-27.5		0917																	
7																				
8																				
9																				
10																				

*Metals Analysis (Circle): MTCA5 RCRA 8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Ni P Pb Sb Se Sr Sn Ti Tl V Zn

**Anions (Circle): Nitrite Nitrate 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.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/4/12 1620	x Jay Zehn	10/4/12 16:20
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --> Next Day 2 Day 3 Day STD

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Laboratory Project No: (internal): 1210020

Date: 10/8/12 Page: 1 of: 6

Client: Geo Engineers
Address:
City, State, Zip: Seattle, WA Tel: 206 427 7706
Report To (PM): Chris Brown Fax: 425 861 6050 Email: cbrown@geoengineers.

Project Name: Rufus 2.0 NOII
Location: Seattle, WA
Collected by: Claudia De La Via
Project No: 20431-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GN/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 B21-10-2.5	10/8	0855	S	X			X		X		X				X	T		HOLD
2 -5.0		0858																
3 -7.5		0900																
4 -10.0		0905																
5 -12.5		0910																
6 -15.0		0915																
7 -17.5		0920		X			X		X						X			
8 -20.0		0924																
9 B21-11-2.5		0950		X			X		X		X				X	T		
10 -5.0		0953																

*Metals Analysis (Circle): MTCA 5 RCRA 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 Ti Tl U V Zr

**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.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/8/12 1709	x	10/8/12 17.03
Relinquished	Date/Time	Received	Date/Time
x		x	

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Laboratory Project No (internal): _____

Date: 10/8/12 Page: 2 of: 6

Client: GeoEngineers Project Name: Rufus 2.0 WO II

Address: _____ Location: _____

City, State, Zip _____ Tel: 2064277706 Collected By: Claudia De La Via

Report To (PM): Chris Brown Fax: _____ Email: _____ Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NWTPH)	Diesel/Heavy Oil Range Organics	SEMI VOA (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Pesticides (EPA 8081)	Chlorinated Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (EC)**	Comments/Depth
1 B21-11-7.5	10/8	0955	S															HOLD
2 -10.0		1000		X			X	X	X						X	T		
3 -12.5		1002																
4 -15.0		1005																
5 -17.5		1010																
6 -20.0		1015																
7 B21-12-2.5		1035																
8 -5.0		1040		X			X	X	X						X	T		4 VOAS + 2 JARS
9 -7.5		1045																
10 -10.0		1050																4 VOAS + 2 JARS

*Metals Analysis (Circle): MTCA-5 RCRA-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 Ti Tl V Y Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

Sample Disposal: ☐ Return to Client ☒ Disposal By Lab (Also may be charged if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1	10/8/12 1709	Joy Zehr	10/8/12 17:09
Relinquished	Date/Time	Received	Date/Time
2			

TAT--> Next Day 2 Day 3 Day STD

Distribution: White - Lab; Yellow - File; Pink - Originator

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Chain of Custody Record

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Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 10/18/12 Page: 3 of: 6

Client: GeoEngineers
Address:
City, State, Zip: Seattle, WA Tel: 206 4277706
Reports To (PM): Chris Brown Fax: Email:

Project Name: Rufus 2.0 #011
Location:
Collected by: Claudia De La Vega
Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SEMI VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)**	Comments/Depth
1 B21-12-12.5	10/8	1100	S															HOLD
2 -15.0		1105																4 VOAs + 2 JARS
3 -17.5		1110		X		X	X		X					X	T			
4 -20.0		1115																4 VOAs + 2 JARS
5 B21-13-2.5		1205		X		X	X		X					X	T			
6 -5.0		1208																
7 -7.5		1210																
8 -10.0		1212																
9 -12.5		1215																
10 -15.0	✓	1218	✓		X			X						X	T			✓

*Metals Analysis (Circle): MTCA-5 RCRA-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 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 retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
1	10/18/12 1709	1	10/18/12 17:09
Relinquished	Date/Time	Received	Date/Time
2		2	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab; Yellow - File, Pink - Originator

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Laboratory Project No (internal): _____

Date: 10/8/12

Page: 4 of 6

Client: GeoEngineers
Address: _____
City, State, Zip: Seattle, WA Tel: 206 427-7706
Report To (PM): Chez Brown Fax: Email: cbrown@geoengineers.com

Project Name: _____
Location: _____
Collected by: _____
Project No: 20431-001-11

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021b	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SCMS VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Pesticides (EPA 8081)	Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)**	Comments/Depth
1	B21-13-17.5	10/8	1220	S																HOLD
2	-20.0		1225																	
3	B21-14-2.5		1325		X		X	X		X					X	T				
4	-5.0		1330																	
5	-7.5		1333																	
6	-10.0		1335																	
7	-12.5		1340			X		X							X	T				
8	-15.0		1345																	
9	-17.5		1347																	
10	-20.0		1350																	

*Metals Analysis (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/8/12 1709	x	10/8/12 17:09
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT--> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

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Laboratory Project No (Internal): _____

Date: 10/8/12

Page: 5 of: 6

Client: Geo Engineers

Project Name: Ruby 2.0 WO 11

Address:

Location:

City, State, Zip:

Tel: 206 476 7706

Collected by: Claudia De La Via

Reports To (PM): Chris Brown

Fax:

Email:

Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	cPAHs by EPA 8041b	BTEX by EPA 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	Semi VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 B21-15-2.5	10/8	1425	S															H2.D
2 -5.0		1430		X			X		X		X				X	T		
3 -7.5		1433																
4 -10.0		1435																
5 -12.5		1440			X				X						X	T		
6 -15.0		1442																
7 -17.5		1443																
8 -19.0		1445																
9 B21-16-2.5		1515		X			X		X		X				X	T		
10 B21-16-5.0		1515																

*Metals Analysis (Circle): RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Ni Pb Sb Se Sr Sn Ti Tl Li 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.)

Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/8/12 1709	x	10/8/12 17:09
x		x	

TAT --> Next Day 2 Day 3 Day STD

Distribution: White - Lab; Yellow - File Pink - Originator

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Fax: 206-352-7178

Laboratory Project No (internal): _____

Date: 10/8/12 Page: 6 of 6

Client: GeoEngineers
Address:
City, State, Zip
Tel: 2064767706
Project Name: Rufus 2.0 WO 11
Location:
Collected by: Claudia De La Vara
Reports To (PM): Chris Brown
Fax:
Email: cbrown@geoengineers.com
Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260)	GX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (NCID)	Diesel/Heavy Oil Range Organics	SemiVOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	O Pesticides (EPA 8081)	O Herbicides (EPA 8151A)	Metals* (6020) / 200.8	Total (T) / Dissolved (D)	Anions (IC)**	Comments/Depth
1 B21-11-7.5	10/8	1520	S															HOLD
2 -10.0		1525		X		X	X								XT			
3 -12.5		1527																
4 -15.0		1530																
5 -17.5		1535																
6 -20.0		1545																
7																		
8																		
9																		
10																		

*Metals Analysis (Circle): MTCA-5 RCRA-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 Sn 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 retained after 30 days.)

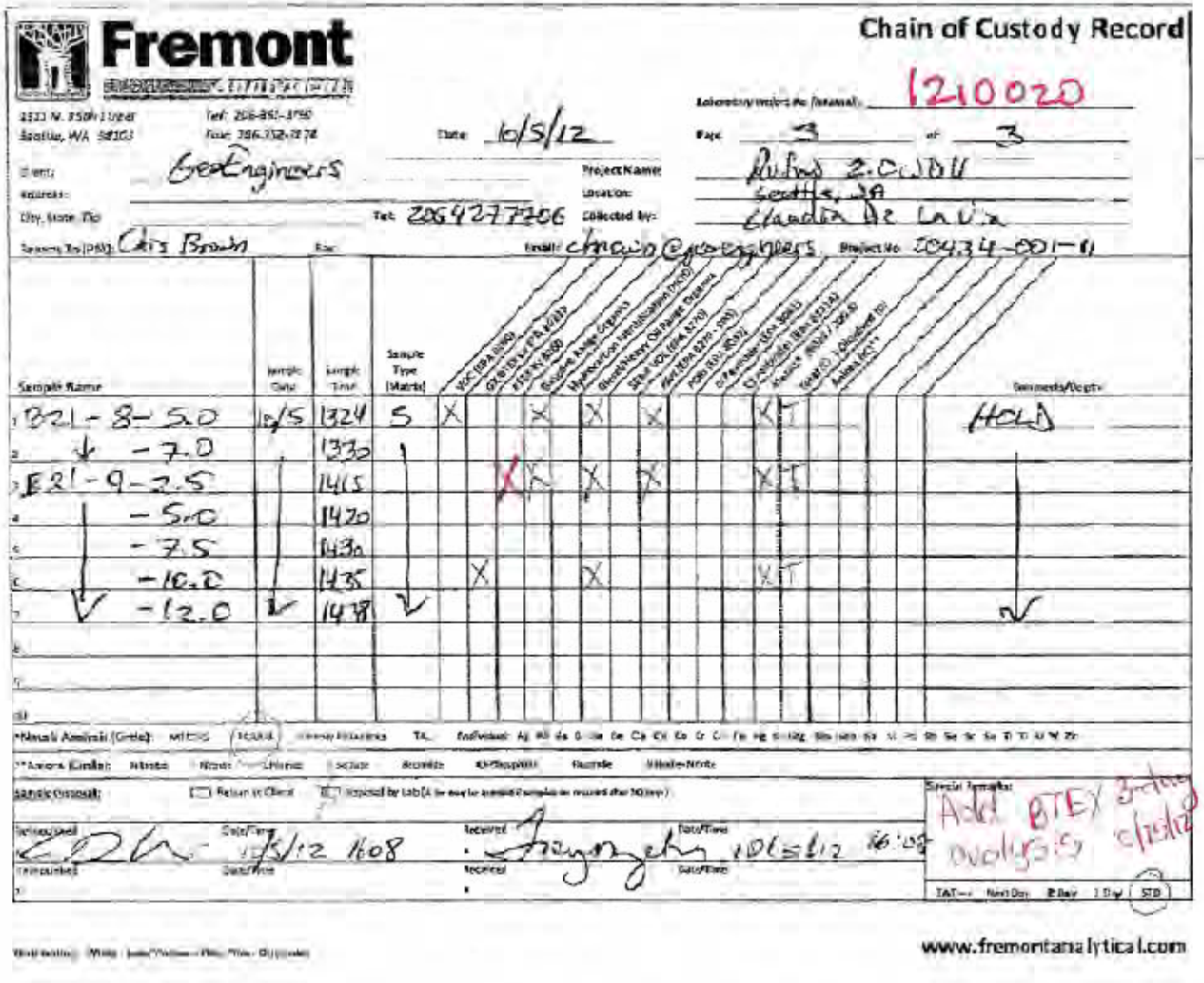
Special Remarks:

Relinquished	Date/Time	Received	Date/Time
x	10/8/12 1704	x	10/8/12 17:09
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT --- Next Day 2 Day 3 Day Std

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Fax: 206-352-7178

Laboratory Work Order Number: 1210020

Date: 10/5/12

Page: 3 of 3

Client: GeoEngineers

Project Name: Rufus 2.0 Drill

Location: Seattle, WA

Collected by: Claudia De La Vina

Address:

City, State, Zip:

Tel: 2064277206

Reports To (PM): Chris Brown

Fax:

Email: cbrown@geoengineers.com

Project No: 10434-001-01

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)															Comments/Depth
1	B2L-8-5.0	10/5	1324	S	X			X	X	X				XT					HOLD
2	↓ -7.0		1332																
3	B2L-9-2.5		1415				X	X	X	X				XT					
4	-5.0		1420																
5	-7.5		1430																
6	-10.0		1435			X			X					XT					
7	↓ -12.0	↓	1438	↓															↓
8																			
9																			
10																			

*Metals Analysis (Circle): MTCA5 RCRA8 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 Sn Sr Ti Tl V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Alkalinity Orthophosphate Fluoride Chloride-Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are retained after 30 days)

Special Remarks: Add BTEX 3-methyl naphthalene 8260C

Relinquished	Date/Time	Received	Date/Time
	10/5/12 1608		10/5/12 16:08
Relinquished	Date/Time	Received	Date/Time

TAT: Next Day 2 Day 3 Day STD

White: Laboratory Yellow: Client Pink: Originator

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F: (206) 352-7178
info@fremontanalytical.com

GeoEngineers, Inc. - Redmond
Chris Brown
8410 154th Ave. NE
Redmond, Washington 98052

RE: Rufus
Lab ID: 1210121

October 24, 2012

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 10/15/2012 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
Volatile Organic Compounds by EPA Method 8260

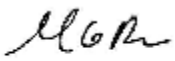
This report consists of the following:

- 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,



Michael Dee
Sr. Chemist / Principal

Date: *10/24/2012*

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus
Lab Order: 1210121

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1210121-001	MW-21-1	10/15/2012 12:36 PM	10/15/2012 2:05 PM
1210121-002	MW-21-2	10/15/2012 10:10 AM	10/15/2012 2:05 PM
1210121-003	MW-21-3	10/15/2012 11:26 AM	10/15/2012 2:05 PM

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

Case Narrative

WO#: **1210121**
Date: **10/24/2012**

CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

I. SAMPLE RECEIPT:
All samples were received intact. The internal ice chest temperatures were measured on receipt and are 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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 12:36:00 P

Project: Rufus

Lab ID: 1210121-001 **Matrix:** Water

Client Sample ID: MW-21-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3453		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	10/17/2012 3:02:00 PM
Heavy Oil	ND	100		µg/L	1	10/17/2012 3:02:00 PM
Surr: 2-Fluorobiphenyl	105	50-150		%REC	1	10/17/2012 3:02:00 PM
Surr: o-Terphenyl	105	50-150		%REC	1	10/17/2012 3:02:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6253		Analyst: EM
Gasoline	ND	50.0		µg/L	1	10/18/2012 4:49:00 AM
Surr: 1,2-Dichloroethane-d4	121	65-135		%REC	1	10/18/2012 4:49:00 AM
Surr: Fluorobenzene	103	65-135		%REC	1	10/18/2012 4:49:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Chloromethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Vinyl chloride	ND	0.200		µg/L	1	10/18/2012 4:49:00 AM
Bromomethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Chloroethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Methylene chloride	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	10/18/2012 4:49:00 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Chloroform	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Carbon tetrachloride	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Benzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Trichloroethene (TCE)	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Bromodichloromethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 12:36:00 P

Project: Rufus

Lab ID: 1210121-001 **Matrix:** Water

Client Sample ID: MW-21-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Dibromomethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Toluene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Dibromochloromethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	10/18/2012 4:49:00 AM
Chlorobenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Ethylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
m,p-Xylene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
o-Xylene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Styrene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Isopropylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Bromoform	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Bromobenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
2-Chlorotoluene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
4-Chlorotoluene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	10/18/2012 4:49:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
Hexachlorobutadiene	ND	4.00		µg/L	1	10/18/2012 4:49:00 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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 12:36:00 P

Project: Rufus

Lab ID: 1210121-001 **Matrix:** Water

Client Sample ID: MW-21-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Naphthalene	ND	1.00		µg/L	1	10/18/2012 4:49:00 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	10/18/2012 4:49:00 AM
Surr: 1-Bromo-4-fluorobenzene	90.1	79.2-120		%REC	1	10/18/2012 4:49:00 AM
Surr: Dibromofluoromethane	112	76-114		%REC	1	10/18/2012 4:49:00 AM
Surr: Toluene-d8	96.4	86.8-119		%REC	1	10/18/2012 4:49:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 3487		Analyst: SG
Arsenic	ND	1.00		µg/L	1	10/19/2012 8:42:34 PM
Barium	28.3	0.500		µg/L	1	10/23/2012 1:31:27 PM
Cadmium	ND	0.200		µg/L	1	10/19/2012 8:42:34 PM
Chromium	ND	0.500		µg/L	1	10/19/2012 8:42:34 PM
Lead	ND	1.00		µg/L	1	10/19/2012 8:42:34 PM
Selenium	1.30	1.00		µg/L	1	10/19/2012 8:42:34 PM
Silver	0.444	0.200		µg/L	1	10/19/2012 8:42:34 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 3474		Analyst: MC
Mercury	ND	0.100		µg/L	1	10/19/2012 3:12:41 PM

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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 10:10:00 A

Project: Rufus

Lab ID: 1210121-002 **Matrix:** Water

Client Sample ID: MW-21-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3453		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	10/17/2012 3:29:00 PM
Heavy Oil	ND	100		µg/L	1	10/17/2012 3:29:00 PM
Surr: 2-Fluorobiphenyl	106	50-150		%REC	1	10/17/2012 3:29:00 PM
Surr: o-Terphenyl	109	50-150		%REC	1	10/17/2012 3:29:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6253		Analyst: EM
Gasoline	ND	50.0		µg/L	1	10/18/2012 5:16:00 AM
Surr: 1,2-Dichloroethane-d4	121	65-135		%REC	1	10/18/2012 5:16:00 AM
Surr: Fluorobenzene	101	65-135		%REC	1	10/18/2012 5:16:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Chloromethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Vinyl chloride	ND	0.200		µg/L	1	10/18/2012 5:16:00 AM
Bromomethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Chloroethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Methylene chloride	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	10/18/2012 5:16:00 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Chloroform	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Carbon tetrachloride	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Benzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Trichloroethene (TCE)	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Bromodichloromethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 10:10:00 A

Project: Rufus

Lab ID: 1210121-002 **Matrix:** Water

Client Sample ID: MW-21-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Dibromomethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Toluene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Dibromochloromethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	10/18/2012 5:16:00 AM
Chlorobenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Ethylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
m,p-Xylene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
o-Xylene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Styrene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Isopropylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Bromoform	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Bromobenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
2-Chlorotoluene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
4-Chlorotoluene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	10/18/2012 5:16:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
Hexachlorobutadiene	ND	4.00		µg/L	1	10/18/2012 5:16:00 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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 10:10:00 A

Project: Rufus

Lab ID: 1210121-002 **Matrix:** Water

Client Sample ID: MW-21-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Naphthalene	ND	1.00		µg/L	1	10/18/2012 5:16:00 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	10/18/2012 5:16:00 AM
Surr: 1-Bromo-4-fluorobenzene	87.8	79.2-120		%REC	1	10/18/2012 5:16:00 AM
Surr: Dibromofluoromethane	114	76-114	S	%REC	1	10/18/2012 5:16:00 AM
Surr: Toluene-d8	96.5	86.8-119		%REC	1	10/18/2012 5:16:00 AM

NOTES:

S - Outlying QC recoveries were associated with this sample (Dibromofluoromethane). The method is in control as indicated by the LCS and Method Blank.

Dissolved Metals by EPA Method 200.8				Batch ID: 3487		Analyst: SG
Arsenic	1.06	1.00		µg/L	1	10/19/2012 9:19:43 PM
Barium	29.3	0.500		µg/L	1	10/23/2012 2:06:57 PM
Cadmium	ND	0.200		µg/L	1	10/19/2012 9:19:43 PM
Chromium	ND	0.500		µg/L	1	10/19/2012 9:19:43 PM
Lead	ND	1.00		µg/L	1	10/19/2012 9:19:43 PM
Selenium	1.19	1.00		µg/L	1	10/19/2012 9:19:43 PM
Silver	0.426	0.200		µg/L	1	10/19/2012 9:19:43 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 3474		Analyst: MC
Mercury	0.306	0.100		µg/L	1	10/19/2012 3:14:48 PM

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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 11:26:00 A

Project: Rufus

Lab ID: 1210121-003 **Matrix:** Water

Client Sample ID: MW-21-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 3453		Analyst: BR
Diesel (Fuel Oil)	ND	50.0		µg/L	1	10/17/2012 3:56:00 PM
Heavy Oil	ND	100		µg/L	1	10/17/2012 3:56:00 PM
Surr: 2-Fluorobiphenyl	94.1	50-150		%REC	1	10/17/2012 3:56:00 PM
Surr: o-Terphenyl	97.2	50-150		%REC	1	10/17/2012 3:56:00 PM
Gasoline by NWTPH-Gx				Batch ID: R6253		Analyst: EM
Gasoline	ND	50.0		µg/L	1	10/18/2012 6:37:00 AM
Surr: 1,2-Dichloroethane-d4	125	65-135		%REC	1	10/18/2012 6:37:00 AM
Surr: Fluorobenzene	102	65-135		%REC	1	10/18/2012 6:37:00 AM
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Chloromethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Vinyl chloride	ND	0.200		µg/L	1	10/18/2012 6:37:00 AM
Bromomethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Trichlorofluoromethane (CFC-11)	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Chloroethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Methylene chloride	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,1-Dichloroethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
2,2-Dichloropropane	ND	2.00		µg/L	1	10/18/2012 6:37:00 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Chloroform	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,1,1-Trichloroethane (TCA)	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,1-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Carbon tetrachloride	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2-Dichloroethane (EDC)	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Benzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Trichloroethene (TCE)	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2-Dichloropropane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Bromodichloromethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 11:26:00 A

Project: Rufus

Lab ID: 1210121-003 **Matrix:** Water

Client Sample ID: MW-21-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Dibromomethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
cis-1,3-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Toluene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
trans-1,3-Dichloropropene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,1,2-Trichloroethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,3-Dichloropropane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Dibromochloromethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2-Dibromoethane (EDB)	ND	0.0100		µg/L	1	10/18/2012 6:37:00 AM
Chlorobenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,1,1,2-Tetrachloroethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Ethylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
m,p-Xylene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
o-Xylene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Styrene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Isopropylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Bromoform	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,1,2,2-Tetrachloroethane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
n-Propylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Bromobenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,3,5-Trimethylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
2-Chlorotoluene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
4-Chlorotoluene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
tert-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2,3-Trichloropropane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2,4-Trichlorobenzene	ND	2.00		µg/L	1	10/18/2012 6:37:00 AM
sec-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
4-Isopropyltoluene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,3-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,4-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
n-Butylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2-Dichlorobenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2-Dibromo-3-chloropropane	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2,4-Trimethylbenzene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
Hexachlorobutadiene	ND	4.00		µg/L	1	10/18/2012 6:37:00 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#: **1210121**

Date Reported: **10/24/2012**

Client: GeoEngineers, Inc. - Redmond **Collection Date:** 10/15/2012 11:26:00 A

Project: Rufus

Lab ID: 1210121-003 **Matrix:** Water

Client Sample ID: MW-21-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260				Batch ID: R6252		Analyst: EM
Naphthalene	ND	1.00		µg/L	1	10/18/2012 6:37:00 AM
1,2,3-Trichlorobenzene	ND	4.00		µg/L	1	10/18/2012 6:37:00 AM
Surr: 1-Bromo-4-fluorobenzene	90.8	79.2-120		%REC	1	10/18/2012 6:37:00 AM
Surr: Dibromofluoromethane	113	76-114		%REC	1	10/18/2012 6:37:00 AM
Surr: Toluene-d8	97.1	86.8-119		%REC	1	10/18/2012 6:37:00 AM
Dissolved Metals by EPA Method 200.8				Batch ID: 3487		Analyst: SG
Arsenic	ND	1.00		µg/L	1	10/19/2012 9:28:41 PM
Barium	32.4	0.500		µg/L	1	10/23/2012 2:27:42 PM
Cadmium	ND	0.200		µg/L	1	10/19/2012 9:28:41 PM
Chromium	ND	0.500		µg/L	1	10/19/2012 9:28:41 PM
Lead	ND	1.00		µg/L	1	10/19/2012 9:28:41 PM
Selenium	2.09	1.00		µg/L	1	10/19/2012 9:28:41 PM
Silver	ND	0.200		µg/L	1	10/19/2012 9:28:41 PM
Dissolved Mercury by EPA Method 245.1				Batch ID: 3474		Analyst: MC
Mercury	0.349	0.100		µg/L	1	10/19/2012 3:21:10 PM

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

Date: *10/24/2012*

Work Order: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **MB-3487** SampType: **MBLK** Units: **µg/L** Prep Date: **10/19/2012** RunNo: **6237**
Client ID: **MBLKW** Batch ID: **3487** Analysis Date: **10/19/2012** SeqNo: **123913**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.00									
Cadmium	ND	0.200									
Chromium	ND	0.500									
Lead	ND	1.00									
Selenium	ND	1.00									
Silver	ND	0.200									

Sample ID: **LCS-3487** SampType: **LCS** Units: **µg/L** Prep Date: **10/19/2012** RunNo: **6237**
Client ID: **LCSW** Batch ID: **3487** Analysis Date: **10/19/2012** SeqNo: **123914**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	99.2	1.00	100.0	0	99.2	85	115				
Cadmium	4.99	0.200	5.000	0	99.9	85	115				
Chromium	99.5	0.500	100.0	0	99.5	85	115				
Lead	52.8	1.00	50.00	0	106	85	115				
Selenium	9.95	1.00	10.00	0	99.5	85	115				
Silver	26.5	0.200	25.00	0	106	85	115				

Sample ID: **1210121-001CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/19/2012** RunNo: **6237**
Client ID: **MW-21-1** Batch ID: **3487** Analysis Date: **10/19/2012** SeqNo: **123916**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.00						0	200	30	R
Cadmium	ND	0.200						0	0	30	
Chromium	ND	0.500						0	0	30	
Lead	ND	1.00						0	0	30	
Selenium	ND	1.00						1.300	200	30	R
Silver	ND	0.200						0.4440	200	30	R

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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **1210121-001CDUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/19/2012** RunNo: **6237**
Client ID: **MW-21-1** Batch ID: **3487** Analysis Date: **10/19/2012** SeqNo: **123916**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

Sample ID: **1210121-001CMS** SampType: **MS** Units: **µg/L** Prep Date: **10/19/2012** RunNo: **6237**
Client ID: **MW-21-1** Batch ID: **3487** Analysis Date: **10/19/2012** SeqNo: **123917**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	503	1.00	500.0	0.7395	100	70	130				
Cadmium	25.0	0.200	25.00	0	99.9	70	130				
Chromium	454	0.500	500.0	0	90.7	70	130				
Lead	253	1.00	250.0	0	101	70	130				
Selenium	49.8	1.00	50.00	1.300	97.0	70	130				
Silver	127	0.200	125.0	0.4440	101	70	130				

Sample ID: **1210121-001CMSD** SampType: **MSD** Units: **µg/L** Prep Date: **10/19/2012** RunNo: **6237**
Client ID: **MW-21-1** Batch ID: **3487** Analysis Date: **10/19/2012** SeqNo: **123918**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	507	1.00	500.0	0.7395	101	70	130	502.7	0.946	30	
Cadmium	25.4	0.200	25.00	0	102	70	130	24.98	1.58	30	
Chromium	456	0.500	500.0	0	91.1	70	130	453.7	0.427	30	
Lead	254	1.00	250.0	0	101	70	130	252.5	0.465	30	
Selenium	49.5	1.00	50.00	1.300	96.3	70	130	49.82	0.721	30	
Silver	123	0.200	125.0	0.4440	97.7	70	130	126.8	3.38	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: *10/24/2012*

Work Order: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Dissolved Metals by EPA Method 200.8

Sample ID: **MB-3487**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6274**		
Client ID: **MBLKW**	Batch ID: **3487**					Analysis Date: **10/23/2012**		SeqNo: **124535**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	0.500									

Sample ID: **LCS-3487**	SampType: **LCS**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6274**		
Client ID: **LCSW**	Batch ID: **3487**					Analysis Date: **10/23/2012**		SeqNo: **124536**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	97.9	0.500	100.0	0	97.9	85	115				

Sample ID: **1210121-001CDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6274**		
Client ID: **MW-21-1**	Batch ID: **3487**					Analysis Date: **10/23/2012**		SeqNo: **124538**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	30.5	0.500						28.27	7.57	30	

Sample ID: **1210121-001CMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6274**		
Client ID: **MW-21-1**	Batch ID: **3487**					Analysis Date: **10/23/2012**		SeqNo: **124539**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	511	0.500	500.0	28.27	96.5	70	130				

Sample ID: **1210121-001CMSD**	SampType: **MSD**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6274**		
Client ID: **MW-21-1**	Batch ID: **3487**					Analysis Date: **10/23/2012**		SeqNo: **124540**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	508	0.500	500.0	28.27	95.9	70	130	510.8	0.586	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: *10/24/2012*

Work Order: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Dissolved Mercury by EPA Method 245.1

Sample ID: **MB-3474**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6227**			
Client ID: **MBLKW**	Batch ID: **3474**					Analysis Date: **10/19/2012**		SeqNo: **123841**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100									

Sample ID: **LCS-3474**	SampType: **LCS**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6227**			
Client ID: **LCSW**	Batch ID: **3474**					Analysis Date: **10/19/2012**		SeqNo: **123842**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.09	0.100	2.000	0	104	85	115				

Sample ID: **1210099-015BDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6227**			
Client ID: **BATCH**	Batch ID: **3474**					Analysis Date: **10/19/2012**		SeqNo: **123844**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.100						0	0	20	

Sample ID: **1210099-015BMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6227**			
Client ID: **BATCH**	Batch ID: **3474**					Analysis Date: **10/19/2012**		SeqNo: **123845**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.19	0.100	2.000	0	110	80	120				

Sample ID: **1210099-015BMSD**	SampType: **MSD**			Units: **µg/L**		Prep Date: **10/19/2012**		RunNo: **6227**			
Client ID: **BATCH**	Batch ID: **3474**					Analysis Date: **10/19/2012**		SeqNo: **123846**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.20	0.100	2.000	0	110	80	120	2.190	0.456	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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

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

Sample ID: **LCS-3453**	SampType: **LCS**	Units: **µg/L**	Prep Date: **10/16/2012**	RunNo: **6175**
Client ID: **LCSW**	Batch ID: **3453**		Analysis Date: **10/17/2012**	SeqNo: **122898**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	2,360	50.0	2,000	0	118	65	135				
Surr: 2-Fluorobiphenyl	166		160.0		104	50	150				
Surr: o-Terphenyl	172		160.0		107	50	150				

Sample ID: **MB-3453**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **10/16/2012**	RunNo: **6175**
Client ID: **MBLKW**	Batch ID: **3453**		Analysis Date: **10/17/2012**	SeqNo: **122899**

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	162		160.0		101	50	150				
Surr: o-Terphenyl	167		160.0		104	50	150				

Sample ID: **1210121-003BDUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **10/16/2012**	RunNo: **6175**
Client ID: **MW-21-3**	Batch ID: **3453**		Analysis Date: **10/17/2012**	SeqNo: **123274**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	50.0						0	0	30	
Heavy Oil	ND	100						0	0	30	
Surr: 2-Fluorobiphenyl	179		160.0		112	50	150		0		
Surr: o-Terphenyl	181		160.0		113	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

Date: *10/24/2012*

Work Order: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID: **1210141-035ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **10/18/2012**		RunNo: **6253**			
Client ID: **BATCH**	Batch ID: **R6253**					Analysis Date: **10/18/2012**		SeqNo: **124215**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0						0	0	30	
Surr: 1,2-Dichloroethane-d4	11.7		10.00		117	65	135		0		
Surr: Fluorobenzene	9.80		10.00		98.0	65	135		0		

Sample ID: **LCS-R6253**	SampType: **LCS**			Units: **µg/L**		Prep Date: **10/17/2012**		RunNo: **6253**			
Client ID: **LCSW**	Batch ID: **R6253**					Analysis Date: **10/17/2012**		SeqNo: **124218**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	503	50.0	500.0	0	101	65	135				
Surr: 1,2-Dichloroethane-d4	12.2		10.00		122	65	135				
Surr: Fluorobenzene	10.0		10.00		100	65	135				

Sample ID: **MB-R6253**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **10/17/2012**		RunNo: **6253**			
Client ID: **MBLKW**	Batch ID: **R6253**					Analysis Date: **10/17/2012**		SeqNo: **124219**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	50.0									
Surr: 1,2-Dichloroethane-d4	11.3		10.00		113	65	135				
Surr: Fluorobenzene	11.3		10.00		113	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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210121-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **10/18/2012** RunNo: **6252**
Client ID: **MW-21-2** Batch ID: **R6252** Analysis Date: **10/18/2012** SeqNo: **124201**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	16.7	1.00	20.00	0	83.6	33.3	122				
Chloromethane	24.8	0.500	20.00	0	124	48.2	145				
Vinyl chloride	23.8	0.200	20.00	0	119	45.6	149				
Bromomethane	27.8	0.500	20.00	0	139	31.5	135				S
Trichlorofluoromethane (CFC-11)	22.9	0.500	20.00	0	114	54.7	138				
Chloroethane	28.8	0.500	20.00	0	144	52.7	140				S
1,1-Dichloroethene	26.8	0.500	20.00	0	134	58.2	146				
Methylene chloride	24.9	1.00	20.00	0	124	65.1	127				
trans-1,2-Dichloroethene	19.5	0.500	20.00	0	97.4	69	132				
Methyl tert-butyl ether (MTBE)	20.2	1.00	20.00	0	101	70	130				
1,1-Dichloroethane	24.9	0.500	20.00	0	125	74.7	133				
2,2-Dichloropropane	16.5	1.00	20.00	0	82.5	31.5	121				
cis-1,2-Dichloroethene	20.9	0.500	20.00	0	105	67.1	123				
Chloroform	20.1	1.00	20.00	0	100	58.6	123				
1,1,1-Trichloroethane (TCA)	23.2	0.500	20.00	0	116	64.2	146				
1,1-Dichloropropene	21.1	0.500	20.00	0	106	73.8	136				
Carbon tetrachloride	25.5	0.500	20.00	0	128	69.2	141				
1,2-Dichloroethane (EDC)	24.5	0.500	20.00	0	123	62.3	130				
Benzene	20.9	1.00	20.00	0	105	68.7	132				
Trichloroethene (TCE)	18.1	0.500	20.00	0	90.7	65.7	133				
1,2-Dichloropropane	23.9	0.500	20.00	0	119	70	130				
Bromodichloromethane	19.8	0.500	20.00	0	99.1	59.4	139				
Dibromomethane	19.5	0.500	20.00	0	97.6	65.5	130				
cis-1,3-Dichloropropene	19.6	0.500	20.00	0	98.0	63.3	124				
Toluene	19.2	1.00	20.00	0	96.0	68.4	133				
trans-1,3-Dichloropropene	14.6	0.500	20.00	0	72.9	57.7	125				
1,1,2-Trichloroethane	18.3	0.500	20.00	0	91.7	59.4	127				
1,3-Dichloropropane	19.2	0.500	20.00	0	96.1	68.2	134				
Tetrachloroethene (PCE)	14.4	0.500	20.00	0	72.2	51.5	109				

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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210121-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **10/18/2012** RunNo: **6252**
Client ID: **MW-21-2** Batch ID: **R6252** Analysis Date: **10/18/2012** SeqNo: **124201**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	23.4	0.500	20.00	0	117	66.2	138				
1,2-Dibromoethane (EDB)	20.9	0.200	20.00	0	104	68.9	124				
Chlorobenzene	19.0	0.500	20.00	0	95.2	68.9	128				
1,1,1,2-Tetrachloroethane	23.4	0.500	20.00	0	117	67.3	135				
Ethylbenzene	18.0	1.00	20.00	0	90.0	67.3	135				
m,p-Xylene	35.2	1.00	40.00	0	87.9	63.3	135				
o-Xylene	18.2	1.00	20.00	0	90.9	67.8	131				
Styrene	18.2	1.00	20.00	0	90.8	67.2	123				
Isopropylbenzene	19.2	1.00	20.00	0	96.2	56	147				
Bromoform	23.4	0.500	20.00	0	117	61.4	136				
1,1,2,2-Tetrachloroethane	20.0	0.500	20.00	0	99.9	59.1	137				
n-Propylbenzene	17.0	1.00	20.00	0	84.8	57.6	142				
Bromobenzene	22.6	0.500	20.00	0	113	63.6	130				
1,3,5-Trimethylbenzene	18.8	1.00	20.00	0	94.0	59.9	136				
2-Chlorotoluene	17.2	0.500	20.00	0	86.0	63.4	134				
4-Chlorotoluene	16.8	0.500	20.00	0	84.0	58.4	134				
tert-Butylbenzene	25.9	1.00	20.00	0	130	74.2	141				
1,2,3-Trichloropropane	19.5	0.500	20.00	0	97.4	62.4	129				
1,2,4-Trichlorobenzene	18.5	1.00	20.00	0	92.3	53.7	120				
sec-Butylbenzene	18.3	1.00	20.00	0	91.3	56	146				
4-Isopropyltoluene	19.1	1.00	20.00	0	95.3	62.4	134				
1,3-Dichlorobenzene	20.2	0.500	20.00	0	101	58.2	128				
1,4-Dichlorobenzene	19.7	0.500	20.00	0	98.4	60.1	123				
n-Butylbenzene	13.9	1.00	20.00	0	69.6	54.6	135				
1,2-Dichlorobenzene	20.0	0.500	20.00	0	100	62.6	124				
1,2-Dibromo-3-chloropropane	16.8	0.500	20.00	0	84.2	51.8	142				
1,2,4-Trimethylbenzene	18.8	1.00	20.00	0	93.9	63.7	132				
Hexachlorobutadiene	19.3	2.00	20.00	0	96.5	62.1	121				
Naphthalene	19.5	1.00	20.00	0	97.6	58.7	119				

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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210121-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **10/18/2012** RunNo: **6252**
Client ID: **MW-21-2** Batch ID: **R6252** Analysis Date: **10/18/2012** SeqNo: **124201**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	19.3	2.00	20.00	0	96.5	50.7	113				
Surr: 1-Bromo-4-fluorobenzene	9.15		10.00		91.5	79.2	120				
Surr: Dibromofluoromethane	11.1		10.00		111	76	114				
Surr: Toluene-d8	9.71		10.00		97.1	86.8	119				

NOTES:
S - Outlying QC recoveries were associated with this sample. The method is in control as indicated by the LCS.

Sample ID: **1210141-035ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/18/2012** RunNo: **6252**
Client ID: **BATCH** Batch ID: **R6252** Analysis Date: **10/18/2012** SeqNo: **124204**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	1.00						0	0	30	
Chloromethane	ND	0.500						0	0	30	
Vinyl chloride	ND	0.200						0	0	30	
Bromomethane	ND	0.500						0	0	30	
Trichlorofluoromethane (CFC-11)	ND	0.500						0	0	30	
Chloroethane	ND	0.500						0	0	30	
1,1-Dichloroethene	ND	0.500						0	0	30	
Methylene chloride	ND	1.00						0	0	30	
trans-1,2-Dichloroethene	ND	0.500						0	0	30	
Methyl tert-butyl ether (MTBE)	ND	1.00						0	0	30	
1,1-Dichloroethane	ND	0.500						0	0	30	
2,2-Dichloropropane	ND	1.00						0	0	30	
cis-1,2-Dichloroethene	ND	0.500						0	0	30	
Chloroform	ND	1.00						0	0	30	
1,1,1-Trichloroethane (TCA)	ND	0.500						0	0	30	
1,1-Dichloropropene	ND	0.500						0	0	30	
Carbon tetrachloride	ND	0.500						0	0	30	
1,2-Dichloroethane (EDC)	ND	0.500						0	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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210141-035ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/18/2012** RunNo: **6252**
Client ID: **BATCH** Batch ID: **R6252** Analysis Date: **10/18/2012** SeqNo: **124204**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.00						0	0	30	
Trichloroethene (TCE)	ND	0.500						0	0	30	
1,2-Dichloropropane	ND	0.500						0	0	30	
Bromodichloromethane	ND	0.500						0	0	30	
Dibromomethane	ND	0.500						0	0	30	
cis-1,3-Dichloropropene	ND	0.500						0	0	30	
Toluene	ND	1.00						0	0	30	
trans-1,3-Dichloropropene	ND	0.500						0	0	30	
1,1,2-Trichloroethane	ND	0.500						0	0	30	
1,3-Dichloropropane	ND	0.500						0	0	30	
Tetrachloroethene (PCE)	ND	0.500						0	0	30	
Dibromochloromethane	ND	0.500						0	0	30	
1,2-Dibromoethane (EDB)	ND	0.200						0	0	30	
Chlorobenzene	ND	0.500						0	0	30	
1,1,1,2-Tetrachloroethane	ND	0.500						0	0	30	
Ethylbenzene	ND	1.00						0	0	30	
m,p-Xylene	ND	1.00						0	0	30	
o-Xylene	ND	1.00						0	0	30	
Styrene	ND	1.00						0	0	30	
Isopropylbenzene	ND	1.00						0	0	30	
Bromoform	ND	0.500						0	0	30	
1,1,2,2-Tetrachloroethane	ND	0.500						0	0	30	
n-Propylbenzene	ND	1.00						0	0	30	
Bromobenzene	ND	0.500						0	0	30	
1,3,5-Trimethylbenzene	ND	1.00						0	0	30	
2-Chlorotoluene	ND	0.500						0	0	30	
4-Chlorotoluene	ND	0.500						0	0	30	
tert-Butylbenzene	ND	1.00						0	0	30	
1,2,3-Trichloropropane	ND	0.500						0	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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **1210141-035ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/18/2012** RunNo: **6252**
Client ID: **BATCH** Batch ID: **R6252** Analysis Date: **10/18/2012** SeqNo: **124204**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	ND	1.00						0	0	30	
sec-Butylbenzene	ND	1.00						0	0	30	
4-Isopropyltoluene	ND	1.00						0	0	30	
1,3-Dichlorobenzene	ND	0.500						0	0	30	
1,4-Dichlorobenzene	ND	0.500						0	0	30	
n-Butylbenzene	ND	1.00						0	0	30	
1,2-Dichlorobenzene	ND	0.500						0	0	30	
1,2-Dibromo-3-chloropropane	ND	0.500						0	0	30	
1,2,4-Trimethylbenzene	ND	1.00						0	0	30	
Hexachlorobutadiene	ND	2.00						0	0	30	
Naphthalene	ND	1.00						0	0	30	
1,2,3-Trichlorobenzene	ND	2.00						0	0	30	
Surr: 1-Bromo-4-fluorobenzene	9.06		10.00		90.6	79.2	120		0		
Surr: Dibromofluoromethane	11.4		10.00		114	76	114		0		
Surr: Toluene-d8	9.73		10.00		97.3	86.8	119		0		

Sample ID: **LCS-R6252** SampType: **LCS** Units: **µg/L** Prep Date: **10/17/2012** RunNo: **6252**
Client ID: **LCSW** Batch ID: **R6252** Analysis Date: **10/17/2012** SeqNo: **124208**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	18.7	1.00	20.00	0	93.6	45.1	121				
Chloromethane	20.7	0.500	20.00	0	104	42.5	131				
Vinyl chloride	19.8	0.200	20.00	0	98.8	56.2	130				
Bromomethane	22.8	0.500	20.00	0	114	45.4	138				
Trichlorofluoromethane (CFC-11)	22.1	0.500	20.00	0	110	64.7	129				
Chloroethane	19.2	0.500	20.00	0	96.0	62.5	123				
1,1-Dichloroethene	20.9	0.500	20.00	0	104	60.7	146				
Methylene chloride	20.2	1.00	20.00	0	101	60.3	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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-R6252** SampType: **LCS** Units: **µg/L** Prep Date: **10/17/2012** RunNo: **6252**
Client ID: **LCSW** Batch ID: **R6252** Analysis Date: **10/17/2012** SeqNo: **124208**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	21.0	0.500	20.00	0	105	71.3	129				
Methyl tert-butyl ether (MTBE)	19.8	1.00	20.00	0	99.1	75.4	123				
1,1-Dichloroethane	20.0	0.500	20.00	0	99.8	71.3	129				
2,2-Dichloropropane	18.0	1.00	20.00	0	89.8	37.8	132				
cis-1,2-Dichloroethene	20.0	0.500	20.00	0	100	67.5	127				
Chloroform	20.6	1.00	20.00	0	103	70.3	123				
1,1,1-Trichloroethane (TCA)	20.4	0.500	20.00	0	102	67.9	134				
1,1-Dichloropropene	20.8	0.500	20.00	0	104	72.1	133				
Carbon tetrachloride	20.2	0.500	20.00	0	101	68	136				
1,2-Dichloroethane (EDC)	20.3	0.500	20.00	0	101	65.8	126				
Benzene	20.5	1.00	20.00	0	102	75.2	124				
Trichloroethene (TCE)	21.3	0.500	20.00	0	106	71.9	130				
1,2-Dichloropropane	19.8	0.500	20.00	0	98.8	71.9	131				
Bromodichloromethane	19.8	0.500	20.00	0	99.0	70	130				
Dibromomethane	19.8	0.500	20.00	0	99.1	74.2	125				
cis-1,3-Dichloropropene	19.6	0.500	20.00	0	97.9	62.8	135				
Toluene	19.9	1.00	20.00	0	99.3	75.2	129				
trans-1,3-Dichloropropene	20.8	0.500	20.00	0	104	58.1	138				
1,1,2-Trichloroethane	19.7	0.500	20.00	0	98.6	65.4	128				
1,3-Dichloropropane	19.7	0.500	20.00	0	98.6	71.9	131				
Tetrachloroethene (PCE)	20.4	0.500	20.00	0	102	52.4	140				
Dibromochloromethane	19.6	0.500	20.00	0	98.2	68.7	139				
1,2-Dibromoethane (EDB)	19.7	0.200	20.00	0	98.5	71.2	129				
Chlorobenzene	20.0	0.500	20.00	0	99.8	77.2	122				
1,1,1,2-Tetrachloroethane	19.9	0.500	20.00	0	99.6	76.2	130				
Ethylbenzene	19.9	1.00	20.00	0	99.7	78	127				
m,p-Xylene	40.4	1.00	40.00	0	101	77.5	130				
o-Xylene	20.4	1.00	20.00	0	102	77.6	126				
Styrene	20.4	1.00	20.00	0	102	66.8	137				

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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **LCS-R6252** SampType: **LCS** Units: **µg/L** Prep Date: **10/17/2012** RunNo: **6252**
Client ID: **LCSW** Batch ID: **R6252** Analysis Date: **10/17/2012** SeqNo: **124208**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Isopropylbenzene	20.2	1.00	20.00	0	101	75.9	133				
Bromoform	19.8	0.500	20.00	0	99.2	69.9	142				
1,1,2,2-Tetrachloroethane	18.1	0.500	20.00	0	90.4	68	134				
n-Propylbenzene	20.0	1.00	20.00	0	100	77.1	133				
Bromobenzene	20.0	0.500	20.00	0	100	71.1	131				
1,3,5-Trimethylbenzene	19.7	1.00	20.00	0	98.6	76.2	133				
2-Chlorotoluene	20.0	0.500	20.00	0	100	67.1	137				
4-Chlorotoluene	19.7	0.500	20.00	0	98.6	70.7	132				
tert-Butylbenzene	19.4	1.00	20.00	0	96.8	71.3	139				
1,2,3-Trichloropropane	20.4	0.500	20.00	0	102	70.8	132				
1,2,4-Trichlorobenzene	20.5	1.00	20.00	0	103	61.4	139				
sec-Butylbenzene	19.4	1.00	20.00	0	97.1	77.4	136				
4-Isopropyltoluene	20.0	1.00	20.00	0	100	78.1	131				
1,3-Dichlorobenzene	20.7	0.500	20.00	0	104	73.5	125				
1,4-Dichlorobenzene	20.8	0.500	20.00	0	104	71.4	125				
n-Butylbenzene	20.5	1.00	20.00	0	103	69.8	138				
1,2-Dichlorobenzene	20.7	0.500	20.00	0	104	74.2	123				
1,2-Dibromo-3-chloropropane	20.7	0.500	20.00	0	103	66.1	138				
1,2,4-Trimethylbenzene	19.6	1.00	20.00	0	98.2	72.3	133				
Hexachlorobutadiene	19.9	2.00	20.00	0	99.4	60.9	141				
Naphthalene	20.7	1.00	20.00	0	104	58.2	140				
1,2,3-Trichlorobenzene	20.3	2.00	20.00	0	102	61.3	133				
Surr: 1-Bromo-4-fluorobenzene	10.2		10.00		103	79.2	120				
Surr: Dibromofluoromethane	10.0		10.00		100	76	114				
Surr: Toluene-d8	10.0		10.00		101	86.8	119				

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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R6252** SampType: **MBLK** Units: **µg/L** Prep Date: **10/17/2012** RunNo: **6252**
Client ID: **MBLKW** Batch ID: **R6252** Analysis Date: **10/17/2012** SeqNo: **124209**

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	0.500									
Vinyl chloride	ND	0.200									
Bromomethane	ND	0.500									
Trichlorofluoromethane (CFC-11)	ND	0.500									
Chloroethane	ND	0.500									
1,1-Dichloroethene	ND	0.500									
Methylene chloride	ND	1.00									
trans-1,2-Dichloroethene	ND	0.500									
Methyl tert-butyl ether (MTBE)	ND	1.00									
1,1-Dichloroethane	ND	0.500									
2,2-Dichloropropane	ND	1.00									
cis-1,2-Dichloroethene	ND	0.500									
Chloroform	ND	1.00									
1,1,1-Trichloroethane (TCA)	ND	0.500									
1,1-Dichloropropene	ND	0.500									
Carbon tetrachloride	ND	0.500									
1,2-Dichloroethane (EDC)	ND	0.500									
Benzene	ND	1.00									
Trichloroethene (TCE)	ND	0.500									
1,2-Dichloropropane	ND	0.500									
Bromodichloromethane	ND	0.500									
Dibromomethane	ND	0.500									
cis-1,3-Dichloropropene	ND	0.500									
Toluene	ND	1.00									
trans-1,3-Dichloropropene	ND	0.500									
1,1,2-Trichloroethane	ND	0.500									
1,3-Dichloropropane	ND	0.500									
Tetrachloroethene (PCE)	ND	0.500									

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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R6252** SampType: **MBLK** Units: **µg/L** Prep Date: **10/17/2012** RunNo: **6252**
Client ID: **MBLKW** Batch ID: **R6252** Analysis Date: **10/17/2012** SeqNo: **124209**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibromochloromethane	ND	0.500									
1,2-Dibromoethane (EDB)	ND	0.200									
Chlorobenzene	ND	0.500									
1,1,1,2-Tetrachloroethane	ND	0.500									
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	0.500									
1,1,2,2-Tetrachloroethane	ND	0.500									
n-Propylbenzene	ND	1.00									
Bromobenzene	ND	0.500									
1,3,5-Trimethylbenzene	ND	1.00									
2-Chlorotoluene	ND	0.500									
4-Chlorotoluene	ND	0.500									
tert-Butylbenzene	ND	1.00									
1,2,3-Trichloropropane	ND	0.500									
1,2,4-Trichlorobenzene	ND	1.00									
sec-Butylbenzene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
1,3-Dichlorobenzene	ND	0.500									
1,4-Dichlorobenzene	ND	0.500									
n-Butylbenzene	ND	1.00									
1,2-Dichlorobenzene	ND	0.500									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	2.00									
Naphthalene	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: 1210121
CLIENT: GeoEngineers, Inc. - Redmond
Project: Rufus

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260

Sample ID: **MB-R6252** SampType: **MBLK** Units: **µg/L** Prep Date: **10/17/2012** RunNo: **6252**
Client ID: **MBLKW** Batch ID: **R6252** Analysis Date: **10/17/2012** SeqNo: **124209**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichlorobenzene	ND	2.00									
Surr: 1-Bromo-4-fluorobenzene	10.0		10.00		100	79.2	120				
Surr: Dibromofluoromethane	10.1		10.00		101	76	114				
Surr: Toluene-d8	9.87		10.00		98.7	86.8	119				

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

Sample Log-In Check List

Client Name: **GEI1**	Work Order Number: **1210121**
Logged by: **Troy Zehr**	Date Received: **10/15/2012 2:05:00 PM**

Chain of Custody

1.	Were custodial seals present?	Yes	☐	No	☐	Not Required	☑
2.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present	☐
3.	How was the sample delivered?	Client					

Log In

4.	Coolers are present?	Yes	☑	No	☐	NA	☐
5.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA	☐
6.	Were all coolers received at a temperature of >0° C to 10.0°C	Yes	☑	No	☐	NA	☐
7.	Sample(s) in proper container(s)?	Yes	☑	No	☐		
8.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐		
9.	Are samples properly preserved?	Yes	☑	No	☐		
10.	Was preservative added to bottles?	Yes	☐	No	☑	NA	☐
11.	Is there headspace present in VOA vials?	Yes	☐	No	☑	NA	☐
12.	Did all sample containers arrive in good condition?(unbroken)	Yes	☑	No	☐		
13.	Does paperwork match bottle labels?	Yes	☑	No	☐		
14.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐		
15.	Is it clear what analyses were requested?	Yes	☑	No	☐		
16.	Were all holding times able to be met?	Yes	☑	No	☐		

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	NA	☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

18. Additional remarks/Disrepancies

Item Information

Item #	Temp ºC	Condition
Cooler	3.2	Good
Temp Blank	5.9	Good

Fremont Analytical

Chain of Custody Record

1311 N. 35th Street
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 121012

Date: 10-15-12

Page: _____ of: _____

Client: GEOENGINEERS
Address:
City, State, Zip: REDMOND, WA Tel: 425-861-6000
Reports To (PM): CHAS BROWN Fax: Email:

Project Name: RUFUS
Location: SEATTLE, WA.
Collected by: BRIAN ANDERSON

Project No: 20434-001-11

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)	VOC (EPA 8260) B	GX/BTEX by EPA 8021B	BTEX by 8260	Gasoline Range Organics	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics	SEMI VOC (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8082)	Cl Pesticides (EPA 8081)	Cl Herbicides (EPA 8151A)	Metals* (6020 / 200.8)	Total (T) - Dissolved (D)	Anions (EC)*	NWTPH - Dx	NWTPH-Gx	RCRA 8 METALS 0.45 FILTERED	Comments/Depth
1 MW-21-1	10-15-12	1236	W	X														X	X	X	
2 MW-21-2	10-15-12	1010	W	X														X	X	X	
3 MW-21-3	10-15-12	1126	W	X														X	X	X	
4																					
5																					
6																					
7																					
8																					
9																					
10																					

*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Antimony Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Si Sn Tl Ti U V Zn

**Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Ortho-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal: Return to Client Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)

Relinquished: Brian Anderson Date/Time: 10-15-12
Received: Date/Time: 10/15/12 1405
Relinquished: Date/Time:
Received: Date/Time:

Special Remarks:
*DISSOLVED METALS SAMPLES NEED TO BE FILTERED.
6000 / 7000 SERIES

TAT -> Next Day 2 Day 3 Day STD

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21-Test Pit Explorations
Work Order Number: 1708281

September 22, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 15 sample(s) on 8/17/2017 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
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

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
Laboratory Director

Date: *09/22/2017*

CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations
Work Order: 1708281

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1708281-001	TP21-1-5.0	08/17/2017 12:55 PM	08/17/2017 3:54 PM
1708281-002	TP21-1-8.0	08/17/2017 1:10 PM	08/17/2017 3:54 PM
1708281-003	TP21-2-2.5	08/17/2017 1:40 PM	08/17/2017 3:54 PM
1708281-004	TP21-2-5.0	08/17/2017 1:55 PM	08/17/2017 3:54 PM
1708281-005	TP21-3-7.5	08/17/2017 8:20 AM	08/17/2017 3:54 PM
1708281-006	TP21-3-10.0	08/17/2017 8:35 AM	08/17/2017 3:54 PM
1708281-007	TP21-4-5.0	08/17/2017 9:25 AM	08/17/2017 3:54 PM
1708281-008	TP21-4-7.0	08/17/2017 9:35 AM	08/17/2017 3:54 PM
1708281-009	TP21-5-2.5	08/17/2017 10:15 AM	08/17/2017 3:54 PM
1708281-010	TP21-5-7.0	08/17/2017 10:30 AM	08/17/2017 3:54 PM
1708281-011	TP21-8-2.5	08/17/2017 12:00 PM	08/17/2017 3:54 PM
1708281-012	TP21-8-5.0	08/17/2017 12:10 PM	08/17/2017 3:54 PM
1708281-013	TP21-9-2.5	08/17/2017 11:15 AM	08/17/2017 3:54 PM
1708281-014	TP21-9-5.0	08/17/2017 11:30 AM	08/17/2017 3:54 PM
1708281-015	Trip Blank	08/10/2017 10:22 AM	08/17/2017 3:54 PM

Case Narrative

WO#: **1708281**

Date: **9/22/2017**

CLIENT: GeoEngineers

Project: Block 21-Test Pit Explorations

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 12:55:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-001
Matrix: Soil
Client Sample ID: **TP21-1-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18001		Analyst: SB
Diesel (Fuel Oil)	ND	18.7		mg/Kg-dry	1	8/25/2017 7:39:33 AM
Heavy Oil	ND	46.7		mg/Kg-dry	1	8/25/2017 7:39:33 AM
Surr: 2-Fluorobiphenyl	94.6	50 - 150		%Rec	1	8/25/2017 7:39:33 AM
Surr: o-Terphenyl	101	50 - 150		%Rec	1	8/25/2017 7:39:33 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18010		Analyst: SG
Naphthalene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
2-Methylnaphthalene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
1-Methylnaphthalene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Acenaphthylene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Acenaphthene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Fluorene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Phenanthrene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Anthracene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Fluoranthene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Pyrene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Benz(a)anthracene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Chrysene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Benzo(b)fluoranthene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Benzo(j,k)fluoranthene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Benzo(a)pyrene	ND	38.8		µg/L-dry	1	8/25/2017 12:31:57 AM
Indeno(1,2,3-cd)pyrene	ND	38.8	Q	µg/L-dry	1	8/25/2017 12:31:57 AM
Dibenz(a,h)anthracene	ND	38.8	Q	µg/L-dry	1	8/25/2017 12:31:57 AM
Benzo(g,h,i)perylene	ND	38.8	Q	µg/L-dry	1	8/25/2017 12:31:57 AM
Surr: 2-Fluorobiphenyl	67.0	20 - 128		%Rec	1	8/25/2017 12:31:57 AM
Surr: Terphenyl-d14 (surr)	87.3	46.2 - 179		%Rec	1	8/25/2017 12:31:57 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18011		Analyst: MW
Gasoline	ND	5.35		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Surr: Toluene-d8	97.3	65 - 135		%Rec	1	8/29/2017 10:22:05 AM
Surr: 4-Bromofluorobenzene	98.1	65 - 135		%Rec	1	8/29/2017 10:22:05 AM

Client: GeoEngineers
Collection Date: 8/17/2017 12:55:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-001
Matrix: Soil
Client Sample ID: **TP21-1-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
Dichlorodifluoromethane (CFC-12)	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Chloromethane	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Vinyl chloride	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Bromomethane	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Trichlorofluoromethane (CFC-11)	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Chloroethane	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,1-Dichloroethene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Methylene chloride	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
trans-1,2-Dichloroethene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Methyl tert-butyl ether (MTBE)	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,1-Dichloroethane	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
2,2-Dichloropropane	ND	0.107	Q	mg/Kg-dry	1	8/29/2017 10:22:05 AM
cis-1,2-Dichloroethene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Chloroform	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,1,1-Trichloroethane (TCA)	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,1-Dichloropropene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Carbon tetrachloride	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2-Dichloroethane (EDC)	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Benzene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Trichloroethene (TCE)	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2-Dichloropropane	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Bromodichloromethane	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Dibromomethane	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
cis-1,3-Dichloropropene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Toluene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
trans-1,3-Dichloropropylene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,1,2-Trichloroethane	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,3-Dichloropropane	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Tetrachloroethene (PCE)	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Dibromochloromethane	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2-Dibromoethane (EDB)	ND	0.00535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Chlorobenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,1,1,2-Tetrachloroethane	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Ethylbenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
m,p-Xylene	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
o-Xylene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Styrene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Isopropylbenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Bromoform	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 12:55:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-001
Matrix: Soil
Client Sample ID: **TP21-1-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
n-Propylbenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Bromobenzene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,3,5-Trimethylbenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
2-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
4-Chlorotoluene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
tert-Butylbenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2,3-Trichloropropane	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2,4-Trichlorobenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
sec-Butylbenzene	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
4-Isopropyltoluene	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,3-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,4-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
n-Butylbenzene	ND	0.0267		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2-Dibromo-3-chloropropane	ND	0.535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2,4-Trimethylbenzene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Hexachlorobutadiene	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Naphthalene	ND	0.0535		mg/Kg-dry	1	8/29/2017 10:22:05 AM
1,2,3-Trichlorobenzene	ND	0.0214		mg/Kg-dry	1	8/29/2017 10:22:05 AM
Surr: Dibromofluoromethane	94.6	56.5 - 129		%Rec	1	8/29/2017 10:22:05 AM
Surr: Toluene-d8	103	64.5 - 151		%Rec	1	8/29/2017 10:22:05 AM
Surr: 1-Bromo-4-fluorobenzene	98.1	63.1 - 141		%Rec	1	8/29/2017 10:22:05 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18003		Analyst: WF
Mercury	ND	0.272		mg/Kg-dry	1	8/24/2017 5:25:02 PM
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Arsenic	2.64	0.0889		mg/Kg-dry	1	8/28/2017 10:41:31 AM
Barium	49.4	0.444		mg/Kg-dry	1	8/28/2017 10:41:31 AM
Cadmium	ND	0.178		mg/Kg-dry	1	8/28/2017 10:41:31 AM
Chromium	34.5	0.0889		mg/Kg-dry	1	8/28/2017 10:41:31 AM
Lead	2.31	0.178		mg/Kg-dry	1	8/28/2017 10:41:31 AM
Selenium	1.06	0.444		mg/Kg-dry	1	8/28/2017 10:41:31 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 12:55:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-001
Matrix: Soil
Client Sample ID: **TP21-1-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Silver	ND	0.0889		mg/Kg-dry	1	8/28/2017 10:41:31 AM
Sample Moisture (Percent Moisture)				Batch ID: R38193		Analyst: CG
Percent Moisture	9.97			wt%	1	8/24/2017 9:02:15 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 1:40:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-003
Matrix: Soil
Client Sample ID: **TP21-2-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18001		Analyst: SB
Diesel (Fuel Oil)	ND	22.2		mg/Kg-dry	1	8/25/2017 8:09:12 AM
Heavy Oil	ND	55.5		mg/Kg-dry	1	8/25/2017 8:09:12 AM
Surr: 2-Fluorobiphenyl	92.4	50 - 150		%Rec	1	8/25/2017 8:09:12 AM
Surr: o-Terphenyl	98.6	50 - 150		%Rec	1	8/25/2017 8:09:12 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18010		Analyst: SG
Naphthalene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
2-Methylnaphthalene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
1-Methylnaphthalene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Acenaphthylene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Acenaphthene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Fluorene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Phenanthrene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Anthracene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Fluoranthene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Pyrene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Benz(a)anthracene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Chrysene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Benzo(b)fluoranthene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Benzo(j,k)fluoranthene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Benzo(a)pyrene	ND	39.6		µg/L-dry	1	8/25/2017 12:54:01 AM
Indeno(1,2,3-cd)pyrene	ND	39.6	Q	µg/L-dry	1	8/25/2017 12:54:01 AM
Dibenz(a,h)anthracene	ND	39.6	Q	µg/L-dry	1	8/25/2017 12:54:01 AM
Benzo(g,h,i)perylene	ND	39.6	Q	µg/L-dry	1	8/25/2017 12:54:01 AM
Surr: 2-Fluorobiphenyl	62.2	20 - 128		%Rec	1	8/25/2017 12:54:01 AM
Surr: Terphenyl-d14 (surr)	85.7	46.2 - 179		%Rec	1	8/25/2017 12:54:01 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18011		Analyst: MW
Gasoline	ND	5.04		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Surr: Toluene-d8	102	65 - 135		%Rec	1	8/29/2017 10:52:07 AM
Surr: 4-Bromofluorobenzene	94.5	65 - 135		%Rec	1	8/29/2017 10:52:07 AM

Client: GeoEngineers **Collection Date:** 8/17/2017 1:40:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-003 **Matrix:** Soil
Client Sample ID: **TP21-2-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
Dichlorodifluoromethane (CFC-12)	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Chloromethane	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Vinyl chloride	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Bromomethane	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Trichlorofluoromethane (CFC-11)	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Chloroethane	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,1-Dichloroethene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Methylene chloride	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
trans-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Methyl tert-butyl ether (MTBE)	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,1-Dichloroethane	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
2,2-Dichloropropane	ND	0.101	Q	mg/Kg-dry	1	8/29/2017 10:52:07 AM
cis-1,2-Dichloroethene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Chloroform	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,1,1-Trichloroethane (TCA)	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,1-Dichloropropene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Carbon tetrachloride	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2-Dichloroethane (EDC)	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Benzene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Trichloroethene (TCE)	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2-Dichloropropane	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Bromodichloromethane	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Dibromomethane	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
cis-1,3-Dichloropropene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Toluene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
trans-1,3-Dichloropropylene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,1,2-Trichloroethane	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,3-Dichloropropane	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Tetrachloroethene (PCE)	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Dibromochloromethane	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2-Dibromoethane (EDB)	ND	0.00504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Chlorobenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,1,1,2-Tetrachloroethane	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Ethylbenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
m,p-Xylene	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
o-Xylene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Styrene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Isopropylbenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Bromoform	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 1:40:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-003
Matrix: Soil
Client Sample ID: **TP21-2-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
n-Propylbenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Bromobenzene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,3,5-Trimethylbenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
2-Chlorotoluene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
4-Chlorotoluene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
tert-Butylbenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2,3-Trichloropropane	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2,4-Trichlorobenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
sec-Butylbenzene	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
4-Isopropyltoluene	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,3-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,4-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
n-Butylbenzene	ND	0.0252		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2-Dichlorobenzene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2-Dibromo-3-chloropropane	ND	0.504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2,4-Trimethylbenzene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Hexachlorobutadiene	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Naphthalene	ND	0.0504		mg/Kg-dry	1	8/29/2017 10:52:07 AM
1,2,3-Trichlorobenzene	ND	0.0202		mg/Kg-dry	1	8/29/2017 10:52:07 AM
Surr: Dibromofluoromethane	94.7	56.5 - 129		%Rec	1	8/29/2017 10:52:07 AM
Surr: Toluene-d8	100	64.5 - 151		%Rec	1	8/29/2017 10:52:07 AM
Surr: 1-Bromo-4-fluorobenzene	94.6	63.1 - 141		%Rec	1	8/29/2017 10:52:07 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18003		Analyst: WF
Mercury	ND	0.255		mg/Kg-dry	1	8/24/2017 5:31:32 PM
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Arsenic	4.42	0.0897		mg/Kg-dry	1	8/28/2017 10:45:32 AM
Barium	72.4	0.449		mg/Kg-dry	1	8/28/2017 10:45:32 AM
Cadmium	ND	0.179		mg/Kg-dry	1	8/28/2017 10:45:32 AM
Chromium	41.7	0.0897		mg/Kg-dry	1	8/28/2017 10:45:32 AM
Lead	4.26	0.179		mg/Kg-dry	1	8/28/2017 10:45:32 AM
Selenium	1.36	0.449		mg/Kg-dry	1	8/28/2017 10:45:32 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 1:40:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-003
Matrix: Soil
Client Sample ID: **TP21-2-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Silver	ND	0.0897		mg/Kg-dry	1	8/28/2017 10:45:32 AM
Sample Moisture (Percent Moisture)				Batch ID: R38193		Analyst: CG
Percent Moisture	10.8			wt%	1	8/24/2017 9:02:15 AM

Client: GeoEngineers
Collection Date: 8/17/2017 8:20:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-005
Matrix: Soil
Client Sample ID: **TP21-3-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18001		Analyst: SB
Diesel (Fuel Oil)	ND	20.8		mg/Kg-dry	1	8/29/2017 3:17:50 AM
Heavy Oil	ND	52.1		mg/Kg-dry	1	8/29/2017 3:17:50 AM
Surr: 2-Fluorobiphenyl	93.9	50 - 150		%Rec	1	8/29/2017 3:17:50 AM
Surr: o-Terphenyl	100	50 - 150		%Rec	1	8/29/2017 3:17:50 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18010		Analyst: SG
Naphthalene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
2-Methylnaphthalene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
1-Methylnaphthalene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Acenaphthylene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Acenaphthene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Fluorene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Phenanthrene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Anthracene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Fluoranthene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Pyrene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Benz(a)anthracene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Chrysene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Benzo(b)fluoranthene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Benzo(j,k)fluoranthene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Benzo(a)pyrene	ND	45.9		µg/L-dry	1	8/25/2017 1:16:06 AM
Indeno(1,2,3-cd)pyrene	ND	45.9	Q	µg/L-dry	1	8/25/2017 1:16:06 AM
Dibenz(a,h)anthracene	ND	45.9	Q	µg/L-dry	1	8/25/2017 1:16:06 AM
Benzo(g,h,i)perylene	ND	45.9	Q	µg/L-dry	1	8/25/2017 1:16:06 AM
Surr: 2-Fluorobiphenyl	68.3	20 - 128		%Rec	1	8/25/2017 1:16:06 AM
Surr: Terphenyl-d14 (surr)	89.1	46.2 - 179		%Rec	1	8/25/2017 1:16:06 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18011		Analyst: MW
Gasoline	ND	4.89		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Surr: Toluene-d8	99.4	65 - 135		%Rec	1	8/29/2017 11:52:00 AM
Surr: 4-Bromofluorobenzene	97.3	65 - 135		%Rec	1	8/29/2017 11:52:00 AM

Client: GeoEngineers
Collection Date: 8/17/2017 8:20:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-005
Matrix: Soil
Client Sample ID: **TP21-3-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
Dichlorodifluoromethane (CFC-12)	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Chloromethane	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Vinyl chloride	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Bromomethane	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Chloroethane	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,1-Dichloroethene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Methylene chloride	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
trans-1,2-Dichloroethene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Methyl tert-butyl ether (MTBE)	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,1-Dichloroethane	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
2,2-Dichloropropane	ND	0.0978	Q	mg/Kg-dry	1	8/29/2017 11:52:00 AM
cis-1,2-Dichloroethene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Chloroform	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,1-Dichloropropene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Carbon tetrachloride	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2-Dichloroethane (EDC)	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Benzene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Trichloroethene (TCE)	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2-Dichloropropane	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Bromodichloromethane	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Dibromomethane	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
cis-1,3-Dichloropropene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Toluene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
trans-1,3-Dichloropropylene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,1,2-Trichloroethane	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,3-Dichloropropane	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Tetrachloroethene (PCE)	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Dibromochloromethane	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2-Dibromoethane (EDB)	ND	0.00489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Chlorobenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Ethylbenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
m,p-Xylene	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
o-Xylene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Styrene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Isopropylbenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Bromoform	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM

Client: GeoEngineers
Collection Date: 8/17/2017 8:20:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-005
Matrix: Soil
Client Sample ID: **TP21-3-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
n-Propylbenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Bromobenzene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,3,5-Trimethylbenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
2-Chlorotoluene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
4-Chlorotoluene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
tert-Butylbenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2,3-Trichloropropane	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2,4-Trichlorobenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
sec-Butylbenzene	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
4-Isopropyltoluene	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,3-Dichlorobenzene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,4-Dichlorobenzene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
n-Butylbenzene	ND	0.0245		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2-Dichlorobenzene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2-Dibromo-3-chloropropane	ND	0.489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2,4-Trimethylbenzene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Hexachlorobutadiene	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Naphthalene	ND	0.0489		mg/Kg-dry	1	8/29/2017 11:52:00 AM
1,2,3-Trichlorobenzene	ND	0.0196		mg/Kg-dry	1	8/29/2017 11:52:00 AM
Surr: Dibromofluoromethane	96.2	56.5 - 129		%Rec	1	8/29/2017 11:52:00 AM
Surr: Toluene-d8	101	64.5 - 151		%Rec	1	8/29/2017 11:52:00 AM
Surr: 1-Bromo-4-fluorobenzene	97.2	63.1 - 141		%Rec	1	8/29/2017 11:52:00 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18003		Analyst: WF
Mercury	ND	0.294		mg/Kg-dry	1	8/24/2017 5:33:07 PM
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Arsenic	3.49	0.0937		mg/Kg-dry	1	8/28/2017 10:49:34 AM
Barium	77.7	0.469		mg/Kg-dry	1	8/28/2017 10:49:34 AM
Cadmium	ND	0.187		mg/Kg-dry	1	8/28/2017 10:49:34 AM
Chromium	37.2	0.0937		mg/Kg-dry	1	8/28/2017 10:49:34 AM
Lead	7.67	0.187		mg/Kg-dry	1	8/28/2017 10:49:34 AM
Selenium	1.07	0.469		mg/Kg-dry	1	8/28/2017 10:49:34 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 8:20:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-005
Matrix: Soil
Client Sample ID: **TP21-3-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Silver	ND	0.0937		mg/Kg-dry	1	8/28/2017 10:49:34 AM
Sample Moisture (Percent Moisture)				Batch ID: R38193		Analyst: CG
Percent Moisture	16.7			wt%	1	8/24/2017 9:02:15 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 9:25:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-007
Matrix: Soil
Client Sample ID: **TP21-4-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18001		Analyst: SB
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	8/29/2017 3:48:04 AM
Heavy Oil	ND	55.2		mg/Kg-dry	1	8/29/2017 3:48:04 AM
Surr: 2-Fluorobiphenyl	95.4	50 - 150		%Rec	1	8/29/2017 3:48:04 AM
Surr: o-Terphenyl	102	50 - 150		%Rec	1	8/29/2017 3:48:04 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18010		Analyst: SG
Naphthalene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
2-Methylnaphthalene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
1-Methylnaphthalene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Acenaphthylene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Acenaphthene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Fluorene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Phenanthrene	49.8	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Anthracene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Fluoranthene	76.4	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Pyrene	97.8	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Benz(a)anthracene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Chrysene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Benzo(b)fluoranthene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Benzo(j,k)fluoranthene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Benzo(a)pyrene	ND	46.6		µg/L-dry	1	8/25/2017 1:38:06 AM
Indeno(1,2,3-cd)pyrene	ND	46.6	Q	µg/L-dry	1	8/25/2017 1:38:06 AM
Dibenz(a,h)anthracene	ND	46.6	Q	µg/L-dry	1	8/25/2017 1:38:06 AM
Benzo(g,h,i)perylene	ND	46.6	Q	µg/L-dry	1	8/25/2017 1:38:06 AM
Surr: 2-Fluorobiphenyl	67.8	20 - 128		%Rec	1	8/25/2017 1:38:06 AM
Surr: Terphenyl-d14 (surr)	86.6	46.2 - 179		%Rec	1	8/25/2017 1:38:06 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18011		Analyst: MW
Gasoline	ND	6.11		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Surr: Toluene-d8	97.1	65 - 135		%Rec	1	8/29/2017 12:21:57 PM
Surr: 4-Bromofluorobenzene	98.4	65 - 135		%Rec	1	8/29/2017 12:21:57 PM

Client: GeoEngineers
Collection Date: 8/17/2017 9:25:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-007
Matrix: Soil
Client Sample ID: **TP21-4-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
Dichlorodifluoromethane (CFC-12)	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Chloromethane	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Vinyl chloride	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Bromomethane	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Trichlorofluoromethane (CFC-11)	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Chloroethane	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,1-Dichloroethene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Methylene chloride	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
trans-1,2-Dichloroethene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Methyl tert-butyl ether (MTBE)	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,1-Dichloroethane	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
2,2-Dichloropropane	ND	0.122	Q	mg/Kg-dry	1	8/29/2017 12:21:57 PM
cis-1,2-Dichloroethene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Chloroform	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,1,1-Trichloroethane (TCA)	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,1-Dichloropropene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Carbon tetrachloride	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2-Dichloroethane (EDC)	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Benzene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Trichloroethene (TCE)	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2-Dichloropropane	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Bromodichloromethane	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Dibromomethane	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
cis-1,3-Dichloropropene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Toluene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
trans-1,3-Dichloropropylene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,1,2-Trichloroethane	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,3-Dichloropropane	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Tetrachloroethene (PCE)	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Dibromochloromethane	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2-Dibromoethane (EDB)	ND	0.00611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Chlorobenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,1,1,2-Tetrachloroethane	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Ethylbenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
m,p-Xylene	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
o-Xylene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Styrene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Isopropylbenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Bromoform	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM

Client: GeoEngineers
Collection Date: 8/17/2017 9:25:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-007
Matrix: Soil
Client Sample ID: **TP21-4-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
n-Propylbenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Bromobenzene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,3,5-Trimethylbenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
2-Chlorotoluene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
4-Chlorotoluene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
tert-Butylbenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2,3-Trichloropropane	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2,4-Trichlorobenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
sec-Butylbenzene	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
4-Isopropyltoluene	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,3-Dichlorobenzene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,4-Dichlorobenzene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
n-Butylbenzene	ND	0.0305		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2-Dichlorobenzene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2-Dibromo-3-chloropropane	ND	0.611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2,4-Trimethylbenzene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Hexachlorobutadiene	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Naphthalene	ND	0.0611		mg/Kg-dry	1	8/29/2017 12:21:57 PM
1,2,3-Trichlorobenzene	ND	0.0244		mg/Kg-dry	1	8/29/2017 12:21:57 PM
Surr: Dibromofluoromethane	95.3	56.5 - 129		%Rec	1	8/29/2017 12:21:57 PM
Surr: Toluene-d8	104	64.5 - 151		%Rec	1	8/29/2017 12:21:57 PM
Surr: 1-Bromo-4-fluorobenzene	98.4	63.1 - 141		%Rec	1	8/29/2017 12:21:57 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18003		Analyst: WF
Mercury	ND	0.296		mg/Kg-dry	1	8/24/2017 5:34:43 PM
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Arsenic	3.16	0.0898		mg/Kg-dry	1	8/28/2017 10:53:35 AM
Barium	73.4	0.449		mg/Kg-dry	1	8/28/2017 10:53:35 AM
Cadmium	ND	0.180		mg/Kg-dry	1	8/28/2017 10:53:35 AM
Chromium	44.9	0.0898		mg/Kg-dry	1	8/28/2017 10:53:35 AM
Lead	5.25	0.180		mg/Kg-dry	1	8/28/2017 10:53:35 AM
Selenium	1.12	0.449		mg/Kg-dry	1	8/28/2017 10:53:35 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 9:25:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-007
Matrix: Soil
Client Sample ID: **TP21-4-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Silver	ND	0.0898		mg/Kg-dry	1	8/28/2017 10:53:35 AM
Sample Moisture (Percent Moisture)				Batch ID: R38193		Analyst: CG
Percent Moisture	15.7			wt%	1	8/24/2017 9:02:15 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 9:35:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-008
Matrix: Soil
Client Sample ID: **TP21-4-7.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18269		Analyst: BT
Naphthalene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
2-Methylnaphthalene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
1-Methylnaphthalene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Acenaphthylene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Acenaphthene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Fluorene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Phenanthrene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Anthracene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Fluoranthene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Pyrene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Benz(a)anthracene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Chrysene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Benzo(b)fluoranthene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Benzo(j,k)fluoranthene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Benzo(a)pyrene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Indeno(1,2,3-cd)pyrene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Dibenz(a,h)anthracene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Benzo(g,h,i)perylene	ND	40.0	H	µg/Kg-dry	1	9/21/2017 7:58:37 PM
Surr: 2-Fluorobiphenyl	16.0	10 - 123	H	%Rec	1	9/21/2017 7:58:37 PM
Surr: Terphenyl-d14 (surr)	104	46.2 - 179	H	%Rec	1	9/21/2017 7:58:37 PM
Sample Moisture (Percent Moisture)				Batch ID: R38704		Analyst: CO
Percent Moisture	5.83	0.500		wt%	1	9/20/2017 9:29:45 AM

Client: GeoEngineers
Collection Date: 8/17/2017 10:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-009
Matrix: Soil
Client Sample ID: **TP21-5-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18001		Analyst: SB
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	8/29/2017 4:18:10 AM
Heavy Oil	ND	53.8		mg/Kg-dry	1	8/29/2017 4:18:10 AM
Surr: 2-Fluorobiphenyl	77.6	50 - 150		%Rec	1	8/29/2017 4:18:10 AM
Surr: o-Terphenyl	82.5	50 - 150		%Rec	1	8/29/2017 4:18:10 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18010		Analyst: SG
Naphthalene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
2-Methylnaphthalene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
1-Methylnaphthalene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Acenaphthylene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Acenaphthene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Fluorene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Phenanthrene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Anthracene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Fluoranthene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Pyrene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Benz(a)anthracene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Chrysene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Benzo(b)fluoranthene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Benzo(j,k)fluoranthene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Benzo(a)pyrene	ND	40.9		µg/L-dry	1	8/25/2017 2:00:05 AM
Indeno(1,2,3-cd)pyrene	ND	40.9	Q	µg/L-dry	1	8/25/2017 2:00:05 AM
Dibenz(a,h)anthracene	ND	40.9	Q	µg/L-dry	1	8/25/2017 2:00:05 AM
Benzo(g,h,i)perylene	ND	40.9	Q	µg/L-dry	1	8/25/2017 2:00:05 AM
Surr: 2-Fluorobiphenyl	67.4	20 - 128		%Rec	1	8/25/2017 2:00:05 AM
Surr: Terphenyl-d14 (surr)	82.1	46.2 - 179		%Rec	1	8/25/2017 2:00:05 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18011		Analyst: MW
Gasoline	ND	5.54		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Surr: Toluene-d8	96.1	65 - 135		%Rec	1	8/29/2017 12:51:59 PM
Surr: 4-Bromofluorobenzene	98.3	65 - 135		%Rec	1	8/29/2017 12:51:59 PM

Client: GeoEngineers **Collection Date:** 8/17/2017 10:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-009 **Matrix:** Soil
Client Sample ID: **TP21-5-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
Dichlorodifluoromethane (CFC-12)	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Chloromethane	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Vinyl chloride	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Bromomethane	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Trichlorofluoromethane (CFC-11)	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Chloroethane	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,1-Dichloroethene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Methylene chloride	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
trans-1,2-Dichloroethene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Methyl tert-butyl ether (MTBE)	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,1-Dichloroethane	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
2,2-Dichloropropane	ND	0.111	Q	mg/Kg-dry	1	8/29/2017 12:51:59 PM
cis-1,2-Dichloroethene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Chloroform	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,1,1-Trichloroethane (TCA)	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,1-Dichloropropene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Carbon tetrachloride	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2-Dichloroethane (EDC)	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Benzene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Trichloroethene (TCE)	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2-Dichloropropane	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Bromodichloromethane	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Dibromomethane	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
cis-1,3-Dichloropropene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Toluene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
trans-1,3-Dichloropropylene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,1,2-Trichloroethane	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,3-Dichloropropane	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Tetrachloroethene (PCE)	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Dibromochloromethane	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2-Dibromoethane (EDB)	ND	0.00554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Chlorobenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,1,1,2-Tetrachloroethane	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Ethylbenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
m,p-Xylene	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
o-Xylene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Styrene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Isopropylbenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Bromoform	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM

Client: GeoEngineers
Collection Date: 8/17/2017 10:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-009
Matrix: Soil
Client Sample ID: **TP21-5-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
n-Propylbenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Bromobenzene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,3,5-Trimethylbenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
2-Chlorotoluene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
4-Chlorotoluene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
tert-Butylbenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2,3-Trichloropropane	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2,4-Trichlorobenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
sec-Butylbenzene	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
4-Isopropyltoluene	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,3-Dichlorobenzene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,4-Dichlorobenzene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
n-Butylbenzene	ND	0.0277		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2-Dichlorobenzene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2-Dibromo-3-chloropropane	ND	0.554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2,4-Trimethylbenzene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Hexachlorobutadiene	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Naphthalene	ND	0.0554		mg/Kg-dry	1	8/29/2017 12:51:59 PM
1,2,3-Trichlorobenzene	ND	0.0222		mg/Kg-dry	1	8/29/2017 12:51:59 PM
Surr: Dibromofluoromethane	94.0	56.5 - 129		%Rec	1	8/29/2017 12:51:59 PM
Surr: Toluene-d8	105	64.5 - 151		%Rec	1	8/29/2017 12:51:59 PM
Surr: 1-Bromo-4-fluorobenzene	98.3	63.1 - 141		%Rec	1	8/29/2017 12:51:59 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18003		Analyst: WF
Mercury	ND	0.284		mg/Kg-dry	1	8/24/2017 5:36:19 PM
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Arsenic	4.33	0.0873		mg/Kg-dry	1	8/28/2017 11:05:42 AM
Barium	65.6	0.436		mg/Kg-dry	1	8/28/2017 11:05:42 AM
Cadmium	ND	0.175		mg/Kg-dry	1	8/28/2017 11:05:42 AM
Chromium	40.2	0.0873		mg/Kg-dry	1	8/28/2017 11:05:42 AM
Lead	4.73	0.175		mg/Kg-dry	1	8/28/2017 11:05:42 AM
Selenium	1.16	0.436		mg/Kg-dry	1	8/28/2017 11:05:42 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 10:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-009
Matrix: Soil
Client Sample ID: **TP21-5-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Silver	ND	0.0873		mg/Kg-dry	1	8/28/2017 11:05:42 AM
Sample Moisture (Percent Moisture)				Batch ID: R38193		Analyst: CG
Percent Moisture	11.9			wt%	1	8/24/2017 9:02:15 AM

Client: GeoEngineers
Collection Date: 8/17/2017 12:00:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-011
Matrix: Soil
Client Sample ID: **TP21-8-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18001		Analyst: SB
Diesel (Fuel Oil)	ND	23.7		mg/Kg-dry	1	8/29/2017 4:48:25 AM
Heavy Oil	ND	59.2		mg/Kg-dry	1	8/29/2017 4:48:25 AM
Surr: 2-Fluorobiphenyl	72.4	50 - 150		%Rec	1	8/29/2017 4:48:25 AM
Surr: o-Terphenyl	76.2	50 - 150		%Rec	1	8/29/2017 4:48:25 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18010		Analyst: SG
Naphthalene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
2-Methylnaphthalene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
1-Methylnaphthalene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Acenaphthylene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Acenaphthene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Fluorene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Phenanthrene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Anthracene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Fluoranthene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Pyrene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Benz(a)anthracene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Chrysene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Benzo(b)fluoranthene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Benzo(j,k)fluoranthene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Benzo(a)pyrene	ND	51.2		µg/L-dry	1	8/25/2017 2:22:07 AM
Indeno(1,2,3-cd)pyrene	ND	51.2	Q	µg/L-dry	1	8/25/2017 2:22:07 AM
Dibenz(a,h)anthracene	ND	51.2	Q	µg/L-dry	1	8/25/2017 2:22:07 AM
Benzo(g,h,i)perylene	ND	51.2	Q	µg/L-dry	1	8/25/2017 2:22:07 AM
Surr: 2-Fluorobiphenyl	48.3	20 - 128		%Rec	1	8/25/2017 2:22:07 AM
Surr: Terphenyl-d14 (surr)	71.4	46.2 - 179		%Rec	1	8/25/2017 2:22:07 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18011		Analyst: MW
Gasoline	ND	5.98		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Surr: Toluene-d8	97.8	65 - 135		%Rec	1	8/29/2017 1:21:55 PM
Surr: 4-Bromofluorobenzene	98.5	65 - 135		%Rec	1	8/29/2017 1:21:55 PM

Client: GeoEngineers
Collection Date: 8/17/2017 12:00:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-011
Matrix: Soil
Client Sample ID: **TP21-8-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
Dichlorodifluoromethane (CFC-12)	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Chloromethane	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Vinyl chloride	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Bromomethane	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Trichlorofluoromethane (CFC-11)	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Chloroethane	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,1-Dichloroethene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Methylene chloride	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
trans-1,2-Dichloroethene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Methyl tert-butyl ether (MTBE)	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,1-Dichloroethane	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
2,2-Dichloropropane	ND	0.120	Q	mg/Kg-dry	1	8/29/2017 1:21:55 PM
cis-1,2-Dichloroethene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Chloroform	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,1,1-Trichloroethane (TCA)	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,1-Dichloropropene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Carbon tetrachloride	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2-Dichloroethane (EDC)	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Benzene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Trichloroethene (TCE)	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2-Dichloropropane	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Bromodichloromethane	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Dibromomethane	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
cis-1,3-Dichloropropene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Toluene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
trans-1,3-Dichloropropylene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,1,2-Trichloroethane	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,3-Dichloropropane	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Tetrachloroethene (PCE)	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Dibromochloromethane	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2-Dibromoethane (EDB)	ND	0.00598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Chlorobenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,1,1,2-Tetrachloroethane	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Ethylbenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
m,p-Xylene	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
o-Xylene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Styrene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Isopropylbenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Bromoform	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM

Client: GeoEngineers
Collection Date: 8/17/2017 12:00:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-011
Matrix: Soil
Client Sample ID: **TP21-8-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
n-Propylbenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Bromobenzene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,3,5-Trimethylbenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
2-Chlorotoluene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
4-Chlorotoluene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
tert-Butylbenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2,3-Trichloropropane	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2,4-Trichlorobenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
sec-Butylbenzene	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
4-Isopropyltoluene	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,3-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,4-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
n-Butylbenzene	ND	0.0299		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2-Dichlorobenzene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2-Dibromo-3-chloropropane	ND	0.598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2,4-Trimethylbenzene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Hexachlorobutadiene	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Naphthalene	ND	0.0598		mg/Kg-dry	1	8/29/2017 1:21:55 PM
1,2,3-Trichlorobenzene	ND	0.0239		mg/Kg-dry	1	8/29/2017 1:21:55 PM
Surr: Dibromofluoromethane	96.3	56.5 - 129		%Rec	1	8/29/2017 1:21:55 PM
Surr: Toluene-d8	103	64.5 - 151		%Rec	1	8/29/2017 1:21:55 PM
Surr: 1-Bromo-4-fluorobenzene	98.5	63.1 - 141		%Rec	1	8/29/2017 1:21:55 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18003		Analyst: WF
Mercury	ND	0.306		mg/Kg-dry	1	8/24/2017 5:41:47 PM
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Arsenic	5.97	0.103		mg/Kg-dry	1	8/28/2017 11:09:43 AM
Barium	104	0.513		mg/Kg-dry	1	8/28/2017 11:09:43 AM
Cadmium	ND	0.205		mg/Kg-dry	1	8/28/2017 11:09:43 AM
Chromium	78.5	0.103		mg/Kg-dry	1	8/28/2017 11:09:43 AM
Lead	6.16	0.205		mg/Kg-dry	1	8/28/2017 11:09:43 AM
Selenium	2.18	0.513		mg/Kg-dry	1	8/28/2017 11:09:43 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 12:00:00 PM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-011
Matrix: Soil
Client Sample ID: **TP21-8-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Silver	ND	0.103		mg/Kg-dry	1	8/28/2017 11:09:43 AM
Sample Moisture (Percent Moisture)				Batch ID: R38193		Analyst: CG
Percent Moisture	24.4			wt%	1	8/24/2017 9:02:15 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 11:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-013
Matrix: Soil
Client Sample ID: **TP21-9-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18001		Analyst: SB
Diesel (Fuel Oil)	ND	22.4		mg/Kg-dry	1	8/29/2017 5:18:31 AM
Heavy Oil	ND	56.0		mg/Kg-dry	1	8/29/2017 5:18:31 AM
Surr: 2-Fluorobiphenyl	83.9	50 - 150		%Rec	1	8/29/2017 5:18:31 AM
Surr: o-Terphenyl	93.4	50 - 150		%Rec	1	8/29/2017 5:18:31 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18010		Analyst: SG
Naphthalene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
2-Methylnaphthalene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
1-Methylnaphthalene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Acenaphthylene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Acenaphthene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Fluorene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Phenanthrene	86.3	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Anthracene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Fluoranthene	146	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Pyrene	125	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Benz(a)anthracene	65.8	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Chrysene	60.1	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Benzo(b)fluoranthene	ND	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Benzo(j,k)fluoranthene	52.2	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Benzo(a)pyrene	55.4	46.2		µg/L-dry	1	8/25/2017 2:44:07 AM
Indeno(1,2,3-cd)pyrene	ND	46.2	Q	µg/L-dry	1	8/25/2017 2:44:07 AM
Dibenz(a,h)anthracene	ND	46.2	Q	µg/L-dry	1	8/25/2017 2:44:07 AM
Benzo(g,h,i)perylene	ND	46.2	Q	µg/L-dry	1	8/25/2017 2:44:07 AM
Surr: 2-Fluorobiphenyl	57.6	20 - 128		%Rec	1	8/25/2017 2:44:07 AM
Surr: Terphenyl-d14 (surr)	72.3	46.2 - 179		%Rec	1	8/25/2017 2:44:07 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18011		Analyst: MW
Gasoline	ND	5.14		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Surr: Toluene-d8	96.6	65 - 135		%Rec	1	8/29/2017 1:52:01 PM
Surr: 4-Bromofluorobenzene	98.1	65 - 135		%Rec	1	8/29/2017 1:52:01 PM

Client: GeoEngineers
Collection Date: 8/17/2017 11:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-013
Matrix: Soil
Client Sample ID: **TP21-9-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
Dichlorodifluoromethane (CFC-12)	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Chloromethane	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Vinyl chloride	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Bromomethane	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Trichlorofluoromethane (CFC-11)	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Chloroethane	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,1-Dichloroethene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Methylene chloride	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
trans-1,2-Dichloroethene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Methyl tert-butyl ether (MTBE)	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,1-Dichloroethane	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
2,2-Dichloropropane	ND	0.103	Q	mg/Kg-dry	1	8/29/2017 1:52:01 PM
cis-1,2-Dichloroethene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Chloroform	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,1,1-Trichloroethane (TCA)	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,1-Dichloropropene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Carbon tetrachloride	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2-Dichloroethane (EDC)	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Benzene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Trichloroethene (TCE)	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2-Dichloropropane	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Bromodichloromethane	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Dibromomethane	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
cis-1,3-Dichloropropene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Toluene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
trans-1,3-Dichloropropylene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,1,2-Trichloroethane	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,3-Dichloropropane	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Tetrachloroethene (PCE)	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Dibromochloromethane	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2-Dibromoethane (EDB)	ND	0.00514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Chlorobenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,1,1,2-Tetrachloroethane	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Ethylbenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
m,p-Xylene	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
o-Xylene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Styrene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Isopropylbenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Bromoform	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM

Client: GeoEngineers
Collection Date: 8/17/2017 11:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-013
Matrix: Soil
Client Sample ID: **TP21-9-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18011		Analyst: MW
1,1,2,2-Tetrachloroethane	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
n-Propylbenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Bromobenzene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,3,5-Trimethylbenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
2-Chlorotoluene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
4-Chlorotoluene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
tert-Butylbenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2,3-Trichloropropane	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2,4-Trichlorobenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
sec-Butylbenzene	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
4-Isopropyltoluene	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,3-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,4-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
n-Butylbenzene	ND	0.0257		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2-Dibromo-3-chloropropane	ND	0.514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2,4-Trimethylbenzene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Hexachlorobutadiene	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Naphthalene	ND	0.0514		mg/Kg-dry	1	8/29/2017 1:52:01 PM
1,2,3-Trichlorobenzene	ND	0.0205		mg/Kg-dry	1	8/29/2017 1:52:01 PM
Surr: Dibromofluoromethane	95.1	56.5 - 129		%Rec	1	8/29/2017 1:52:01 PM
Surr: Toluene-d8	105	64.5 - 151		%Rec	1	8/29/2017 1:52:01 PM
Surr: 1-Bromo-4-fluorobenzene	98.1	63.1 - 141		%Rec	1	8/29/2017 1:52:01 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18003		Analyst: WF
Mercury	ND	0.306		mg/Kg-dry	1	8/24/2017 5:43:25 PM
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Arsenic	5.95	0.0972		mg/Kg-dry	1	8/28/2017 11:13:44 AM
Barium	125	0.486		mg/Kg-dry	1	8/28/2017 11:13:44 AM
Cadmium	0.208	0.194		mg/Kg-dry	1	8/28/2017 11:13:44 AM
Chromium	48.9	0.0972		mg/Kg-dry	1	8/28/2017 11:13:44 AM
Lead	73.7	0.194		mg/Kg-dry	1	8/28/2017 11:13:44 AM
Selenium	1.58	0.486		mg/Kg-dry	1	8/28/2017 11:13:44 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 11:15:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-013
Matrix: Soil
Client Sample ID: **TP21-9-2.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18019		Analyst: TN
Silver	ND	0.0972		mg/Kg-dry	1	8/28/2017 11:13:44 AM
Sample Moisture (Percent Moisture)				Batch ID: R38193		Analyst: CG
Percent Moisture	18.4			wt%	1	8/24/2017 9:02:15 AM

Analytical Report

Work Order: **1708281**
Date Reported: **9/22/2017**

Client: GeoEngineers
Collection Date: 8/17/2017 11:30:00 AM
Project: Block 21-Test Pit Explorations
Lab ID: 1708281-014
Matrix: Soil
Client Sample ID: **TP21-9-5.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18269		Analyst: BT
Naphthalene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
2-Methylnaphthalene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
1-Methylnaphthalene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Acenaphthylene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Acenaphthene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Fluorene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Phenanthrene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Anthracene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Fluoranthene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Pyrene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Benz(a)anthracene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Chrysene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Benzo(b)fluoranthene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Benzo(j,k)fluoranthene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Benzo(a)pyrene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Indeno(1,2,3-cd)pyrene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Dibenz(a,h)anthracene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Benzo(g,h,i)perylene	ND	40.6	H	µg/Kg-dry	1	9/21/2017 9:25:54 PM
Surr: 2-Fluorobiphenyl	41.5	10 - 123	H	%Rec	1	9/21/2017 9:25:54 PM
Surr: Terphenyl-d14 (surr)	106	46.2 - 179	H	%Rec	1	9/21/2017 9:25:54 PM
Sample Moisture (Percent Moisture)				Batch ID: R38704		Analyst: CO
Percent Moisture	5.67	0.500		wt%	1	9/20/2017 9:29:45 AM

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

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

Sample ID **MB-18001**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **8/24/2017**	RunNo: **38205**
Client ID: **MBLKS**	Batch ID: **18001**		Analysis Date: **8/24/2017**	SeqNo: **734151**

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	17.8		20.00		89.2	50	150				
Surr: o-Terphenyl	18.7		20.00		93.5	50	150				

Sample ID **LCS-18001**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **8/24/2017**	RunNo: **38205**
Client ID: **LCSS**	Batch ID: **18001**		Analysis Date: **8/24/2017**	SeqNo: **734152**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	497	20.0	500.0	0	99.5	65	135				
Surr: 2-Fluorobiphenyl	18.5		20.00		92.4	50	150				
Surr: o-Terphenyl	21.2		20.00		106	50	150				

Sample ID **1708196-012ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **8/24/2017**	RunNo: **38205**
Client ID: **BATCH**	Batch ID: **18001**		Analysis Date: **8/24/2017**	SeqNo: **734543**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.7						0		30	
Heavy Oil	ND	46.7						0		30	
Surr: 2-Fluorobiphenyl	36.3		37.40		97.1	50	150		0		
Surr: o-Terphenyl	38.0		37.40		102	50	150		0		

Sample ID **1708196-012AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **8/24/2017**	RunNo: **38205**
Client ID: **BATCH**	Batch ID: **18001**		Analysis Date: **8/24/2017**	SeqNo: **734546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	503	19.5	486.5	0	103	65	135				
Surr: 2-Fluorobiphenyl	18.5		19.46		95.2	50	150				
Surr: o-Terphenyl	21.0		19.46		108	50	150				

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

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

Sample ID **1708196-012AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38205**
Client ID: **BATCH** Batch ID: **18001** Analysis Date: **8/24/2017** SeqNo: **734546**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1708196-012AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38205**
Client ID: **BATCH** Batch ID: **18001** Analysis Date: **8/24/2017** SeqNo: **734547**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	449	18.2	455.7	0	98.5	65	135	503.1	11.4	30	
Surr: 2-Fluorobiphenyl	16.3		18.23		89.4	50	150		0		
Surr: o-Terphenyl	19.1		18.23		105	50	150		0		

Sample ID **1708285-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38205**
Client ID: **BATCH** Batch ID: **18001** Analysis Date: **8/29/2017** SeqNo: **735578**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.9						0		30	
Heavy Oil	ND	52.3						0		30	
Surr: 2-Fluorobiphenyl	21.4		20.91		102	50	150		0		
Surr: o-Terphenyl	22.1		20.91		106	50	150		0		

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	**LCS-18011**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **8/24/2017**		RunNo: **38315**			
Client ID:	**LCSS**	Batch ID: **18011**				Analysis Date: **8/25/2017**		SeqNo: **736216**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	20.5	5.00	25.00	0	82.2	65	135				
Surr: Toluene-d8	1.19		1.250		95.1	65	135				
Surr: 4-Bromofluorobenzene	1.27		1.250		102	65	135				

Sample ID	**MB-18011**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **8/24/2017**		RunNo: **38315**			
Client ID:	**MBLKS**	Batch ID: **18011**				Analysis Date: **8/25/2017**		SeqNo: **736217**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.19		1.250		95.3	65	135				
Surr: 4-Bromofluorobenzene	1.26		1.250		101	65	135				

Sample ID	**1708196-021BDUP**	SampType: **DUP**		Units: **mg/Kg-dry**		Prep Date: **8/24/2017**		RunNo: **38315**			
Client ID:	**BATCH**	Batch ID: **18011**				Analysis Date: **8/29/2017**		SeqNo: **736220**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.28						0		30	
Surr: Toluene-d8	0.832		0.8202		101	65	135		0		
Surr: 4-Bromofluorobenzene	0.780		0.8202		95.1	65	135		0		

Sample ID	**1708281-005BMS**	SampType: **MS**		Units: **mg/Kg-dry**		Prep Date: **8/24/2017**		RunNo: **38315**			
Client ID:	**TP21-3-7.5**	Batch ID: **18011**				Analysis Date: **8/29/2017**		SeqNo: **736224**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	11.9	4.89	24.46	0	48.5	65	135				S
Surr: Toluene-d8	1.16		1.223		94.8	65	135				
Surr: 4-Bromofluorobenzene	1.24		1.223		101	65	135				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1708281-005BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38315**
Client ID: **TP21-3-7.5** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736225**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	10.1	4.89	24.46	0	41.1	65	135	11.87	16.5	30	S
Surr: Toluene-d8	1.17		1.223		95.3	65	135		0		
Surr: 4-Bromofluorobenzene	1.24		1.223		102	65	135		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-18003**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**8/24/2017**		RunNo:	**38195**	
Client ID:	**MBLKS**	Batch ID:	**18003**					Analysis Date:	**8/24/2017**		SeqNo:	**734381**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.240										

Sample ID	**LCS-18003**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**8/24/2017**		RunNo:	**38195**	
Client ID:	**LCSS**	Batch ID:	**18003**					Analysis Date:	**8/24/2017**		SeqNo:	**734382**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.496	0.240	0.4808	0	103	80	120					

Sample ID	**1708281-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**8/24/2017**		RunNo:	**38195**	
Client ID:	**TP21-1-5.0**	Batch ID:	**18003**					Analysis Date:	**8/24/2017**		SeqNo:	**734384**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		ND	0.278						0		20		

Sample ID	**1708281-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**8/24/2017**		RunNo:	**38195**	
Client ID:	**TP21-1-5.0**	Batch ID:	**18003**					Analysis Date:	**8/24/2017**		SeqNo:	**734385**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.568	0.267	0.5340	0.01830	103	70	130					

Sample ID	**1708281-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**8/24/2017**		RunNo:	**38195**	
Client ID:	**TP21-1-5.0**	Batch ID:	**18003**					Analysis Date:	**8/24/2017**		SeqNo:	**734386**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Mercury		0.538	0.252	0.5049	0.01830	103	70	130	0.5682	5.42	20		

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18269**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **9/21/2017**	RunNo: **38769**
Client ID: **MBLKS**	Batch ID: **18269**		Analysis Date: **9/21/2017**	SeqNo: **745041**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	121		500.0		24.2	10	123				
Surr: Terphenyl-d14 (surr)	601		500.0		120	46.2	179				

Sample ID **LCS-18269**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **9/21/2017**	RunNo: **38769**
Client ID: **LCSS**	Batch ID: **18269**		Analysis Date: **9/21/2017**	SeqNo: **745042**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	954	40.0	1,000	0	95.4	46.4	125				
2-Methylnaphthalene	1,050	40.0	1,000	0	105	45.1	135				
1-Methylnaphthalene	1,030	40.0	1,000	0	103	46.2	133				
Acenaphthylene	1,100	40.0	1,000	0	110	32.8	136				
Acenaphthene	1,110	40.0	1,000	0	111	38.7	129				

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18269** SampType: **LCS** Units: **µg/Kg** Prep Date: **9/21/2017** RunNo: **38769**
Client ID: **LCSS** Batch ID: **18269** Analysis Date: **9/21/2017** SeqNo: **745042**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,140	40.0	1,000	0	114	41.4	144				
Phenanthrene	1,140	40.0	1,000	0	114	43.9	133				
Anthracene	1,130	40.0	1,000	0	113	44.2	136				
Fluoranthene	1,190	40.0	1,000	0	119	45.9	137				
Pyrene	1,030	40.0	1,000	0	103	46.2	137				
Benz(a)anthracene	1,170	40.0	1,000	0	117	41.2	141				
Chrysene	1,200	40.0	1,000	0	120	46.9	138				
Benzo(b)fluoranthene	1,200	40.0	1,000	0	120	41	155				
Benzo(j,k)fluoranthene	1,170	40.0	1,000	0	117	41.8	153				
Benzo(a)pyrene	1,190	40.0	1,000	0	119	30.2	171				
Indeno(1,2,3-cd)pyrene	1,180	40.0	1,000	0	118	31.3	159				
Dibenz(a,h)anthracene	1,180	40.0	1,000	0	118	28	158				
Benzo(g,h,i)perylene	1,160	40.0	1,000	0	116	32.4	144				
Surr: 2-Fluorobiphenyl	138		500.0		27.6	10	123				
Surr: Terphenyl-d14 (surr)	596		500.0		119	46.2	179				

Sample ID **1708281-008AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **9/21/2017** RunNo: **38769**
Client ID: **TP21-4-7.0** Batch ID: **18269** Analysis Date: **9/21/2017** SeqNo: **745044**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	782	39.9	998.1	0	78.4	42.9	138				H
2-Methylnaphthalene	881	39.9	998.1	0	88.3	42.8	151				H
1-Methylnaphthalene	865	39.9	998.1	0	86.6	41.6	148				H
Acenaphthylene	929	39.9	998.1	0	93.0	32.6	160				H
Acenaphthene	934	39.9	998.1	0	93.6	46.3	142				H
Fluorene	949	39.9	998.1	0	95.1	43.4	153				H
Phenanthrene	969	39.9	998.1	0	97.1	45.5	140				H
Anthracene	950	39.9	998.1	0	95.2	32.6	160				H
Fluoranthene	1,040	39.9	998.1	0	104	44.6	161				H
Pyrene	930	39.9	998.1	0	93.2	48.3	158				H

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1708281-008AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **9/21/2017** RunNo: **38769**
Client ID: **TP21-4-7.0** Batch ID: **18269** Analysis Date: **9/21/2017** SeqNo: **745044**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,080	39.9	998.1	0	108	34.9	139				H
Chrysene	1,040	39.9	998.1	0	104	45.2	146				H
Benzo(b)fluoranthene	1,060	39.9	998.1	0	106	42.2	168				H
Benzo(j,k)fluoranthene	1,010	39.9	998.1	0	102	34.8	147				H
Benzo(a)pyrene	1,030	39.9	998.1	0	103	34.4	179				H
Indeno(1,2,3-cd)pyrene	979	39.9	998.1	0	98.1	5	113				H
Dibenz(a,h)anthracene	977	39.9	998.1	0	97.9	17.3	156				H
Benzo(g,h,i)perylene	949	39.9	998.1	0	95.0	24.9	119				H
Surr: 2-Fluorobiphenyl	119		499.0		23.8	10	123				H
Surr: Terphenyl-d14 (surr)	564		499.0		113	46.2	179				H

Sample ID **1708281-008AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **9/21/2017** RunNo: **38769**
Client ID: **TP21-4-7.0** Batch ID: **18269** Analysis Date: **9/21/2017** SeqNo: **745045**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	860	38.3	958.4	0	89.7	42.9	138	782.0	9.48	30	H
2-Methylnaphthalene	910	38.3	958.4	0	94.9	42.8	151	881.4	3.14	30	H
1-Methylnaphthalene	660	38.3	958.4	0	68.8	41.6	148	864.7	26.9	30	H
Acenaphthylene	960	38.3	958.4	0	100	32.6	160	928.5	3.32	30	H
Acenaphthene	951	38.3	958.4	0	99.3	46.3	142	934.2	1.83	30	H
Fluorene	973	38.3	958.4	0	102	43.4	153	949.3	2.47	30	H
Phenanthrene	996	38.3	958.4	0	104	45.5	140	969.5	2.70	30	H
Anthracene	976	38.3	958.4	0	102	32.6	160	950.4	2.64	30	H
Fluoranthene	1,060	38.3	958.4	0	110	44.6	161	1,037	2.01	30	H
Pyrene	932	38.3	958.4	0	97.2	48.3	158	930.4	0.182	30	H
Benz(a)anthracene	1,090	38.3	958.4	0	114	34.9	139	1,080	0.771	30	H
Chrysene	1,070	38.3	958.4	0	111	45.2	146	1,041	2.62	30	H
Benzo(b)fluoranthene	1,040	38.3	958.4	0	109	42.2	168	1,061	1.65	30	H
Benzo(j,k)fluoranthene	1,070	38.3	958.4	0	111	34.8	147	1,014	5.22	30	H
Benzo(a)pyrene	1,050	38.3	958.4	0	109	34.4	179	1,029	1.89	30	H

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1708281-008AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **9/21/2017** RunNo: **38769**
Client ID: **TP21-4-7.0** Batch ID: **18269** Analysis Date: **9/21/2017** SeqNo: **745045**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,000	38.3	958.4	0	104	5	113	979.1	2.20	30	H
Dibenz(a,h)anthracene	1,000	38.3	958.4	0	104	17.3	156	976.8	2.43	30	H
Benzo(g,h,i)perylene	962	38.3	958.4	0	100	24.9	119	948.5	1.40	30	H
Surr: 2-Fluorobiphenyl	206		479.2		43.0	10	123		0		H
Surr: Terphenyl-d14 (surr)	549		479.2		115	46.2	179		0		H

Sample ID **1708281-008ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **9/21/2017** RunNo: **38769**
Client ID: **TP21-4-7.0** Batch ID: **18269** Analysis Date: **9/21/2017** SeqNo: **745046**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	39.9						0		30	H
2-Methylnaphthalene	ND	39.9						0		30	H
1-Methylnaphthalene	ND	39.9						0		30	H
Acenaphthylene	ND	39.9						0		30	H
Acenaphthene	ND	39.9						0		30	H
Fluorene	ND	39.9						0		30	H
Phenanthrene	ND	39.9						0		30	H
Anthracene	ND	39.9						0		30	H
Fluoranthene	ND	39.9						0		30	H
Pyrene	ND	39.9						0		30	H
Benz(a)anthracene	ND	39.9						0		30	H
Chrysene	ND	39.9						0		30	H
Benzo(b)fluoranthene	ND	39.9						0		30	H
Benzo(j,k)fluoranthene	ND	39.9						0		30	H
Benzo(a)pyrene	ND	39.9						0		30	H
Indeno(1,2,3-cd)pyrene	ND	39.9						0		30	H
Dibenz(a,h)anthracene	ND	39.9						0		30	H
Benzo(g,h,i)perylene	ND	39.9						0		30	H
Surr: 2-Fluorobiphenyl	75.0		499.0		15.0	10	123		0		H
Surr: Terphenyl-d14 (surr)	520		499.0		104	46.2	179		0		H

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID	**1708281-008ADUP**	SampType:	**DUP**			Units:	**µg/Kg-dry**	Prep Date:	**9/21/2017**		RunNo:	**38769**
Client ID:	**TP21-4-7.0**	Batch ID:	**18269**					Analysis Date:	**9/21/2017**		SeqNo:	**745046**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18010**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **8/24/2017**	RunNo: **38225**
Client ID: **MBLKS**	Batch ID: **18010**		Analysis Date: **8/24/2017**	SeqNo: **734527**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									Q
Dibenz(a,h)anthracene	ND	40.0									Q
Benzo(g,h,i)perylene	ND	40.0									Q
Surr: 2-Fluorobiphenyl	463		500.0		92.5	20	128				
Surr: Terphenyl-d14 (surr)	516		500.0		103	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18010**	SampType: **LCS**	Units: **µg/L**	Prep Date: **8/24/2017**	RunNo: **38225**
Client ID: **LCSS**	Batch ID: **18010**		Analysis Date: **8/24/2017**	SeqNo: **734528**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	868	40.0	1,000	0	86.8	46.4	125				
2-Methylnaphthalene	878	40.0	1,000	0	87.8	45.1	135				
1-Methylnaphthalene	841	40.0	1,000	0	84.1	46.2	133				
Acenaphthylene	933	40.0	1,000	0	93.3	32.8	136				

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CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18010** SampType: **LCS** Units: **µg/L** Prep Date: **8/24/2017** RunNo: **38225**
Client ID: **LCSS** Batch ID: **18010** Analysis Date: **8/24/2017** SeqNo: **734528**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	876	40.0	1,000	0	87.6	38.7	129				
Fluorene	901	40.0	1,000	0	90.1	41.4	144				
Phenanthrene	860	40.0	1,000	0	86.0	43.9	133				
Anthracene	980	40.0	1,000	0	98.0	44.2	136				
Fluoranthene	927	40.0	1,000	0	92.7	45.9	137				
Pyrene	892	40.0	1,000	0	89.2	46.2	137				
Benz(a)anthracene	890	40.0	1,000	0	89.0	41.2	141				
Chrysene	891	40.0	1,000	0	89.1	46.9	138				
Benzo(b)fluoranthene	815	40.0	1,000	0	81.5	41	155				
Benzo(j,k)fluoranthene	960	40.0	1,000	0	96.0	41.8	153				
Benzo(a)pyrene	901	40.0	1,000	0	90.1	30.2	171				
Indeno(1,2,3-cd)pyrene	739	40.0	1,000	0	73.9	31.3	159				
Dibenz(a,h)anthracene	734	40.0	1,000	0	73.4	28	158				
Benzo(g,h,i)perylene	684	40.0	1,000	0	68.4	32.4	144				
Surr: 2-Fluorobiphenyl	487		500.0		97.4	20	128				
Surr: Terphenyl-d14 (surr)	517		500.0		103	46.2	179				

Sample ID **1708240-001ADUP** SampType: **DUP** Units: **µg/L-dry** Prep Date: **8/24/2017** RunNo: **38225**
Client ID: **BATCH** Batch ID: **18010** Analysis Date: **8/24/2017** SeqNo: **734530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	38.4						0		30	
2-Methylnaphthalene	ND	38.4						0		30	
1-Methylnaphthalene	ND	38.4						0		30	
Acenaphthylene	ND	38.4						0		30	
Acenaphthene	ND	38.4						0		30	
Fluorene	ND	38.4						0		30	
Phenanthrene	68.6	38.4						56.92	18.6	30	
Anthracene	ND	38.4						0		30	
Fluoranthene	59.9	38.4						53.06	12.0	30	

Work Order: 1708281
CLIENT: GeoEngineers
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Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1708240-001ADUP** SampType: **DUP** Units: **µg/L-dry** Prep Date: **8/24/2017** RunNo: **38225**
Client ID: **BATCH** Batch ID: **18010** Analysis Date: **8/24/2017** SeqNo: **734530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	62.4	38.4						55.18	12.2	30	
Benz(a)anthracene	ND	38.4						0		30	
Chrysene	ND	38.4						0		30	
Benzo(b)fluoranthene	ND	38.4						0		30	
Benzo(j,k)fluoranthene	ND	38.4						0		30	
Benzo(a)pyrene	ND	38.4						0		30	
Indeno(1,2,3-cd)pyrene	ND	38.4						0		30	Q
Dibenz(a,h)anthracene	ND	38.4						0		30	Q
Benzo(g,h,i)perylene	ND	38.4						0		30	Q
Surr: 2-Fluorobiphenyl	354		479.6		73.9	20	128		0		
Surr: Terphenyl-d14 (surr)	379		479.6		79.1	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1708240-001AMS** SampType: **MS** Units: **µg/L-dry** Prep Date: **8/24/2017** RunNo: **38225**
Client ID: **BATCH** Batch ID: **18010** Analysis Date: **8/24/2017** SeqNo: **734531**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	774	40.3	1,007	13.96	75.5	42.9	138				
2-Methylnaphthalene	788	40.3	1,007	18.63	76.4	42.8	151				
1-Methylnaphthalene	762	40.3	1,007	13.75	74.3	41.6	148				
Acenaphthylene	847	40.3	1,007	4.701	83.6	32.6	160				
Acenaphthene	785	40.3	1,007	18.28	76.1	46.3	142				
Fluorene	827	40.3	1,007	19.97	80.1	43.4	153				
Phenanthrene	808	40.3	1,007	56.92	74.5	45.5	140				
Anthracene	892	40.3	1,007	9.507	87.6	32.6	160				
Fluoranthene	880	40.3	1,007	53.06	82.1	44.6	161				
Pyrene	847	40.3	1,007	55.18	78.6	48.3	158				
Benz(a)anthracene	799	40.3	1,007	19.59	77.4	34.9	139				
Chrysene	797	40.3	1,007	29.26	76.2	45.2	146				
Benzo(b)fluoranthene	744	40.3	1,007	0	73.8	42.2	168				

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1708240-001AMS** SampType: **MS** Units: **µg/L-dry** Prep Date: **8/24/2017** RunNo: **38225**
Client ID: **BATCH** Batch ID: **18010** Analysis Date: **8/24/2017** SeqNo: **734531**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(j,k)fluoranthene	814	40.3	1,007	0	80.8	34.8	147				
Benzo(a)pyrene	813	40.3	1,007	29.78	77.8	34.4	179				
Indeno(1,2,3-cd)pyrene	576	40.3	1,007	16.66	55.5	5	113				
Dibenz(a,h)anthracene	572	40.3	1,007	11.27	55.7	17.3	156				
Benzo(g,h,i)perylene	485	40.3	1,007	19.06	46.3	24.9	119				
Surr: 2-Fluorobiphenyl	419		503.7		83.2	20	128				
Surr: Terphenyl-d14 (surr)	438		503.7		86.9	46.2	179				

Sample ID **1708240-001AMSD** SampType: **MSD** Units: **µg/L-dry** Prep Date: **8/24/2017** RunNo: **38225**
Client ID: **BATCH** Batch ID: **18010** Analysis Date: **8/24/2017** SeqNo: **734532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	761	41.1	1,028	13.96	72.6	42.9	138	774.3	1.77	30	
2-Methylnaphthalene	780	41.1	1,028	18.63	74.0	42.8	151	788.2	1.07	30	
1-Methylnaphthalene	741	41.1	1,028	13.75	70.7	41.6	148	762.2	2.83	30	
Acenaphthylene	819	41.1	1,028	4.701	79.1	32.6	160	847.4	3.47	30	
Acenaphthene	756	41.1	1,028	18.28	71.7	46.3	142	784.9	3.75	30	
Fluorene	803	41.1	1,028	19.97	76.1	43.4	153	826.6	2.92	30	
Phenanthrene	795	41.1	1,028	56.92	71.8	45.5	140	807.5	1.50	30	
Anthracene	869	41.1	1,028	9.507	83.6	32.6	160	892.4	2.64	30	
Fluoranthene	865	41.1	1,028	53.06	79.0	44.6	161	880.1	1.72	30	
Pyrene	831	41.1	1,028	55.18	75.5	48.3	158	847.3	1.93	30	
Benz(a)anthracene	761	41.1	1,028	19.59	72.1	34.9	139	799.5	4.96	30	
Chrysene	780	41.1	1,028	29.26	73.0	45.2	146	796.7	2.09	30	
Benzo(b)fluoranthene	717	41.1	1,028	0	69.7	42.2	168	743.9	3.75	30	
Benzo(j,k)fluoranthene	783	41.1	1,028	0	76.2	34.8	147	813.7	3.81	30	
Benzo(a)pyrene	782	41.1	1,028	29.78	73.2	34.4	179	813.2	3.92	30	
Indeno(1,2,3-cd)pyrene	556	41.1	1,028	16.66	52.5	5	113	576.2	3.55	30	
Dibenz(a,h)anthracene	555	41.1	1,028	11.27	52.9	17.3	156	572.3	3.08	30	
Benzo(g,h,i)perylene	498	41.1	1,028	19.06	46.5	24.9	119	485.4	2.50	30	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1708240-001AMSD** SampType: **MSD** Units: **µg/L-dry** Prep Date: **8/24/2017** RunNo: **38225**
Client ID: **BATCH** Batch ID: **18010** Analysis Date: **8/24/2017** SeqNo: **734532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	435		514.1		84.7	20	128		0		
Surr: Terphenyl-d14 (surr)	444		514.1		86.4	46.2	179		0		

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1709184-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **9/20/2017** RunNo: **38704**
Client ID: **BATCH** Batch ID: **R38704** Analysis Date: **9/20/2017** SeqNo: **743669**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	8.74	0.500						8.008	8.76	20	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1708196-034ADUP** SampType: **DUP** Units: **wt%** Prep Date: **8/24/2017** RunNo: **38193**
Client ID: **BATCH** Batch ID: **R38193** Analysis Date: **8/24/2017** SeqNo: **733856**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.20	0.500						9.830	6.57	20	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-18019** SampType: **MBLK** Units: **mg/Kg** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **MBLKS** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734975**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0800									
Barium	ND	0.400									
Cadmium	ND	0.160									
Chromium	ND	0.0800									
Lead	ND	0.160									
Selenium	ND	0.400									
Silver	ND	0.0800									

Sample ID **LCS-18019** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **LCSS** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734976**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.6	0.0806	40.32	0	98.1	80	120				
Barium	39.4	0.403	40.32	0	97.7	80	120				
Cadmium	2.10	0.161	2.016	0	104	80	120				
Chromium	43.2	0.0806	40.32	0	107	80	120				
Lead	20.6	0.161	20.16	0	102	80	120				
Selenium	3.90	0.403	4.032	0	96.8	80	120				
Silver	10.2	0.0806	10.08	0	101	80	120				

Sample ID **1708264-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **BATCH** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734978**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.52	0.147						10.90	24.5	20	R
Barium	156	0.737						185.8	17.7	20	
Cadmium	2.67	0.295						2.775	3.74	20	
Chromium	53.8	0.147						166.8	102	20	R
Lead	72.3	0.295						87.19	18.7	20	
Selenium	1.32	0.737						1.378	4.18	20	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1708264-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **BATCH** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734978**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.147						0.2118	70.6	20	

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1708264-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **BATCH** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734980**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	78.2	0.142	71.05	10.90	94.7	75	125				
Barium	236	0.711	71.05	185.8	70.5	75	125				S
Cadmium	6.77	0.284	3.553	2.775	113	75	125				
Chromium	138	0.142	71.05	166.8	-40.6	75	125				S
Lead	106	0.284	35.53	87.19	53.2	75	125				S
Selenium	8.49	0.711	7.105	1.378	100	75	125				
Silver	14.6	0.142	17.76	0.2118	81.2	75	125				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID **1708264-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **BATCH** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734981**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	84.8	0.148	74.21	10.90	99.5	75	125	78.17	8.08	20	
Barium	285	0.742	74.21	185.8	134	75	125	235.9	18.9	20	S
Cadmium	6.69	0.297	3.711	2.775	105	75	125	6.773	1.30	20	
Chromium	220	0.148	74.21	166.8	71.8	75	125	138.0	45.9	20	RS
Lead	118	0.297	37.11	87.19	82.2	75	125	106.1	10.4	20	
Selenium	8.37	0.742	7.421	1.378	94.2	75	125	8.490	1.42	20	
Silver	15.7	0.148	18.55	0.2118	83.4	75	125	14.63	7.00	20	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1708264-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **BATCH** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734981**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1708264-001APDS** SampType: **PDS** Units: **mg/Kg-dry** Prep Date: **8/25/2017** RunNo: **38245**
Client ID: **BATCH** Batch ID: **18019** Analysis Date: **8/25/2017** SeqNo: **734982**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	256	0.731	73.1	186	96.0	80	120				
Chromium	262	0.146	73.1	167	130	80	120				S

NOTES:
S - Spike recovery indicates a possible matrix effect. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18011** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **LCSS** Batch ID: **18011** Analysis Date: **8/25/2017** SeqNo: **734810**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.786	0.0200	1.000	0	78.6	14.3	167				
Chloromethane	0.879	0.0500	1.000	0	87.9	46	144				
Vinyl chloride	0.896	0.0250	1.000	0	89.6	43.4	151				
Bromomethane	0.366	0.0500	1.000	0	36.6	35	155				
Trichlorofluoromethane (CFC-11)	0.536	0.0200	1.000	0	53.6	33.8	156				
Chloroethane	0.433	0.0500	1.000	0	43.3	33.1	147				
1,1-Dichloroethene	1.08	0.0200	1.000	0	108	39	144				
Methylene chloride	0.958	0.0200	1.000	0	95.8	46.3	140				
trans-1,2-Dichloroethene	1.04	0.0200	1.000	0	104	68	130				
Methyl tert-butyl ether (MTBE)	1.11	0.0500	1.000	0	111	66.3	145				
1,1-Dichloroethane	1.05	0.0200	1.000	0	105	61.9	137				
2,2-Dichloropropane	1.35	0.100	1.000	0	135	35.5	186				
cis-1,2-Dichloroethene	1.03	0.0200	1.000	0	103	71.3	135				
Chloroform	1.01	0.0200	1.000	0	101	69	145				
1,1,1-Trichloroethane (TCA)	0.961	0.0250	1.000	0	96.1	69	132				
1,1-Dichloropropene	1.01	0.0200	1.000	0	101	72.7	131				
Carbon tetrachloride	0.920	0.0250	1.000	0	92.0	63.4	137				
1,2-Dichloroethane (EDC)	1.01	0.0200	1.000	0	101	50.9	162				
Benzene	1.03	0.0200	1.000	0	103	64.3	133				
Trichloroethene (TCE)	1.01	0.0200	1.000	0	101	65.5	137				
1,2-Dichloropropane	1.01	0.0200	1.000	0	101	63.2	142				
Bromodichloromethane	0.958	0.0200	1.000	0	95.8	53.4	131				
Dibromomethane	0.986	0.0200	1.000	0	98.6	60.1	146				
cis-1,3-Dichloropropene	1.10	0.0200	1.000	0	110	59.1	143				
Toluene	0.993	0.0200	1.000	0	99.3	67.3	138				
trans-1,3-Dichloropropylene	1.12	0.0200	1.000	0	112	49.2	149				
1,1,2-Trichloroethane	0.963	0.0200	1.000	0	96.3	56.9	147				
1,3-Dichloropropane	0.998	0.0250	1.000	0	99.8	56.1	153				
Tetrachloroethene (PCE)	1.01	0.0250	1.000	0	101	52.7	150				
Dibromochloromethane	0.884	0.0250	1.000	0	88.4	70.6	144				
1,2-Dibromoethane (EDB)	0.963	0.00500	1.000	0	96.3	50.5	154				

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18011** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **LCSS** Batch ID: **18011** Analysis Date: **8/25/2017** SeqNo: **734810**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.01	0.0250	1.000	0	101	76.1	123				
1,1,1,2-Tetrachloroethane	0.995	0.0250	1.000	0	99.5	65.9	141				
Ethylbenzene	1.09	0.0250	1.000	0	109	74	129				
m,p-Xylene	2.10	0.0500	2.000	0	105	70	124				
o-Xylene	0.998	0.0250	1.000	0	99.8	68.1	139				
Styrene	1.00	0.0250	1.000	0	100	73.3	146				
Isopropylbenzene	0.959	0.0250	1.000	0	95.9	70	130				
Bromoform	0.828	0.0500	1.000	0	82.8	67	154				
1,1,2,2-Tetrachloroethane	0.877	0.0200	1.000	0	87.7	44.8	165				
n-Propylbenzene	1.01	0.0250	1.000	0	101	74.8	125				
Bromobenzene	0.945	0.0200	1.000	0	94.5	49.2	144				
1,3,5-Trimethylbenzene	0.995	0.0250	1.000	0	99.5	74.6	123				
2-Chlorotoluene	0.913	0.0250	1.000	0	91.3	76.7	129				
4-Chlorotoluene	0.955	0.0250	1.000	0	95.5	77.5	125				
tert-Butylbenzene	1.00	0.0250	1.000	0	100	66.2	130				
1,2,3-Trichloropropane	0.943	0.0250	1.000	0	94.3	67.9	136				
1,2,4-Trichlorobenzene	1.19	0.0250	1.000	0	119	62.6	143				
sec-Butylbenzene	1.05	0.0500	1.000	0	105	75.6	133				
4-Isopropyltoluene	1.03	0.0500	1.000	0	103	76.8	131				
1,3-Dichlorobenzene	1.03	0.0200	1.000	0	103	72.8	128				
1,4-Dichlorobenzene	1.03	0.0200	1.000	0	103	72.6	126				
n-Butylbenzene	1.13	0.0250	1.000	0	113	65.3	136				
1,2-Dichlorobenzene	1.03	0.0200	1.000	0	103	72.8	126				
1,2-Dibromo-3-chloropropane	0.973	0.500	1.000	0	97.3	40.2	155				
1,2,4-Trimethylbenzene	0.999	0.0200	1.000	0	99.9	77.5	129				
Hexachlorobutadiene	1.16	0.0500	1.000	0	116	42	151				
Naphthalene	1.12	0.0500	1.000	0	112	58.4	160				
1,2,3-Trichlorobenzene	1.18	0.0200	1.000	0	118	54.8	143				
Surr: Dibromofluoromethane	1.29		1.250		103	56.5	129				
Surr: Toluene-d8	1.26		1.250		101	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.26		1.250		101	63.1	141				

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**LCS-18011**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **8/24/2017**		RunNo: **38236**	
Client ID:	**LCSS**	Batch ID: **18011**				Analysis Date: **8/25/2017**		SeqNo: **734810**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**MB-18011**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **8/24/2017**		RunNo: **38236**	
Client ID:	**MBLKS**	Batch ID: **18011**				Analysis Date: **8/25/2017**		SeqNo: **734811**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0200									
Chloromethane	ND	0.0500									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.0500									
Trichlorofluoromethane (CFC-11)	ND	0.0200									
Chloroethane	ND	0.0500									
1,1-Dichloroethene	ND	0.0200									
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	0.100									Q
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0250									
1,2-Dichloroethane (EDC)	ND	0.0200									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18011** SampType: **MBLK** Units: **mg/Kg** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **MBLKS** Batch ID: **18011** Analysis Date: **8/25/2017** SeqNo: **734811**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.0200									
1,1,2-Trichloroethane	ND	0.0200									
1,3-Dichloropropane	ND	0.0250									
Tetrachloroethene (PCE)	ND	0.0250									
Dibromochloromethane	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0250									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Bromoform	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0250									
Bromobenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0250									
4-Chlorotoluene	ND	0.0250									
tert-Butylbenzene	ND	0.0250									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0250									
sec-Butylbenzene	ND	0.0500									
4-Isopropyltoluene	ND	0.0500									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0250									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									

Work Order: 1708281
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Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18011** SampType: **MBLK** Units: **mg/Kg** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **MBLKS** Batch ID: **18011** Analysis Date: **8/25/2017** SeqNo: **734811**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.0500									
Naphthalene	ND	0.0500									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.16		1.250		93.0	56.5	129				
Surr: Toluene-d8	1.24		1.250		98.9	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.26		1.250		101	63.1	141				

Sample ID **1708286-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/25/2017** SeqNo: **734813**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0196						0		30	
Chloromethane	ND	0.0489						0		30	
Vinyl chloride	ND	0.0244						0		30	
Bromomethane	ND	0.0489						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0196						0		30	
Chloroethane	ND	0.0489						0		30	
1,1-Dichloroethene	ND	0.0196						0		30	
Methylene chloride	ND	0.0196						0		30	
trans-1,2-Dichloroethene	ND	0.0196						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0489						0		30	
1,1-Dichloroethane	ND	0.0196						0		30	
2,2-Dichloropropane	ND	0.0978						0		30	Q
cis-1,2-Dichloroethene	ND	0.0196						0		30	
Chloroform	ND	0.0196						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0244						0		30	
1,1-Dichloropropene	ND	0.0196						0		30	
Carbon tetrachloride	ND	0.0244						0		30	
1,2-Dichloroethane (EDC)	ND	0.0196						0		30	
Benzene	ND	0.0196						0		30	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708286-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/25/2017** SeqNo: **734813**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	ND	0.0196						0		30	
1,2-Dichloropropane	ND	0.0196						0		30	
Bromodichloromethane	ND	0.0196						0		30	
Dibromomethane	ND	0.0196						0		30	
cis-1,3-Dichloropropene	ND	0.0196						0		30	
Toluene	ND	0.0196						0		30	
trans-1,3-Dichloropropylene	ND	0.0196						0		30	
1,1,2-Trichloroethane	ND	0.0196						0		30	
1,3-Dichloropropane	ND	0.0244						0		30	
Tetrachloroethene (PCE)	0.310	0.0244						0.3135	1.27	30	
Dibromochloromethane	ND	0.0244						0		30	
1,2-Dibromoethane (EDB)	ND	0.00489						0		30	
Chlorobenzene	ND	0.0244						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0244						0		30	
Ethylbenzene	ND	0.0244						0		30	
m,p-Xylene	ND	0.0489						0		30	
o-Xylene	ND	0.0244						0		30	
Styrene	ND	0.0244						0		30	
Isopropylbenzene	ND	0.0244						0		30	
Bromoform	ND	0.0489						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0196						0		30	
n-Propylbenzene	ND	0.0244						0		30	
Bromobenzene	ND	0.0196						0		30	
1,3,5-Trimethylbenzene	ND	0.0244						0		30	
2-Chlorotoluene	ND	0.0244						0		30	
4-Chlorotoluene	ND	0.0244						0		30	
tert-Butylbenzene	ND	0.0244						0		30	
1,2,3-Trichloropropane	ND	0.0244						0		30	
1,2,4-Trichlorobenzene	ND	0.0244						0		30	
sec-Butylbenzene	ND	0.0489						0		30	
4-Isopropyltoluene	ND	0.0489						0		30	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708286-001BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/25/2017** SeqNo: **734813**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3-Dichlorobenzene	ND	0.0196						0		30	
1,4-Dichlorobenzene	ND	0.0196						0		30	
n-Butylbenzene	ND	0.0244						0		30	
1,2-Dichlorobenzene	ND	0.0196						0		30	
1,2-Dibromo-3-chloropropane	ND	0.489						0		30	
1,2,4-Trimethylbenzene	ND	0.0196						0		30	
Hexachlorobutadiene	ND	0.0489						0		30	
Naphthalene	ND	0.0489						0		30	
1,2,3-Trichlorobenzene	ND	0.0196						0		30	
Surr: Dibromofluoromethane	1.17		1.222		95.4	56.5	129		0		
Surr: Toluene-d8	1.16		1.222		95.1	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.19		1.222		97.0	63.1	141		0		

Sample ID **1708196-021BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736196**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0131						0		30	
Chloromethane	ND	0.0328						0		30	
Vinyl chloride	ND	0.0164						0		30	
Bromomethane	ND	0.0328						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0131						0		30	
Chloroethane	ND	0.0328						0		30	
1,1-Dichloroethene	ND	0.0131						0		30	
Methylene chloride	ND	0.0131						0		30	
trans-1,2-Dichloroethene	ND	0.0131						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0328						0		30	
1,1-Dichloroethane	ND	0.0131						0		30	
2,2-Dichloropropane	ND	0.0656						0		30	Q
cis-1,2-Dichloroethene	ND	0.0131						0		30	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708196-021BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736196**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloroform	ND	0.0131						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0164						0		30	
1,1-Dichloropropene	ND	0.0131						0		30	
Carbon tetrachloride	ND	0.0164						0		30	
1,2-Dichloroethane (EDC)	ND	0.0131						0		30	
Benzene	ND	0.0131						0		30	
Trichloroethene (TCE)	ND	0.0131						0		30	
1,2-Dichloropropane	ND	0.0131						0		30	
Bromodichloromethane	ND	0.0131						0		30	
Dibromomethane	ND	0.0131						0		30	
cis-1,3-Dichloropropene	ND	0.0131						0		30	
Toluene	ND	0.0131						0		30	
trans-1,3-Dichloropropylene	ND	0.0131						0		30	
1,1,2-Trichloroethane	ND	0.0131						0		30	
1,3-Dichloropropane	ND	0.0164						0		30	
Tetrachloroethene (PCE)	0.0259	0.0164						0.02581	0.180	30	
Dibromochloromethane	ND	0.0164						0		30	
1,2-Dibromoethane (EDB)	ND	0.00328						0		30	
Chlorobenzene	ND	0.0164						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0164						0		30	
Ethylbenzene	ND	0.0164						0		30	
m,p-Xylene	ND	0.0328						0		30	
o-Xylene	ND	0.0164						0		30	
Styrene	ND	0.0164						0		30	
Isopropylbenzene	ND	0.0164						0		30	
Bromoform	ND	0.0328						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0131						0		30	
n-Propylbenzene	0.0223	0.0164						0.02291	2.71	30	
Bromobenzene	ND	0.0131						0		30	
1,3,5-Trimethylbenzene	ND	0.0164						0		30	
2-Chlorotoluene	ND	0.0164						0		30	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708196-021BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736196**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.0164						0		30	
tert-Butylbenzene	ND	0.0164						0		30	
1,2,3-Trichloropropane	ND	0.0164						0		30	
1,2,4-Trichlorobenzene	ND	0.0164						0		30	
sec-Butylbenzene	ND	0.0328						0		30	
4-Isopropyltoluene	ND	0.0328						0		30	
1,3-Dichlorobenzene	ND	0.0131						0		30	
1,4-Dichlorobenzene	ND	0.0131						0		30	
n-Butylbenzene	ND	0.0164						0		30	
1,2-Dichlorobenzene	ND	0.0131						0		30	
1,2-Dibromo-3-chloropropane	ND	0.328						0		30	
1,2,4-Trimethylbenzene	ND	0.0131						0		30	
Hexachlorobutadiene	ND	0.0328						0		30	
Naphthalene	ND	0.0328						0		30	
1,2,3-Trichlorobenzene	ND	0.0131						0		30	
Surr: Dibromofluoromethane	0.795		0.8202		96.9	56.5	129		0		
Surr: Toluene-d8	0.817		0.8202		99.6	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	0.780		0.8202		95.1	63.1	141		0		

Sample ID **1708196-028BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.926	0.0210	1.051	0	88.1	43.5	121				
Chloromethane	1.10	0.0525	1.051	0	104	45	130				
Vinyl chloride	1.03	0.0263	1.051	0	98.1	43.6	150				
Bromomethane	0.284	0.0525	1.051	0	27.0	21.3	120				
Trichlorofluoromethane (CFC-11)	0.360	0.0210	1.051	0	34.2	35	131				S
Chloroethane	0.244	0.0525	1.051	0	23.2	31.9	123				S
1,1-Dichloroethene	1.03	0.0210	1.051	0	98.2	47.3	147				

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708196-028BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methylene chloride	1.07	0.0210	1.051	0	102	54.7	142				
trans-1,2-Dichloroethene	1.08	0.0210	1.051	0	103	52	136				
Methyl tert-butyl ether (MTBE)	1.26	0.0525	1.051	0	120	58.5	167				
1,1-Dichloroethane	1.12	0.0210	1.051	0	107	51.8	141				
2,2-Dichloropropane	1.55	0.105	1.051	0	148	36	123				S
cis-1,2-Dichloroethene	1.11	0.0210	1.051	0	106	58.6	136				
Chloroform	1.08	0.0210	1.051	0	103	53.2	129				
1,1,1-Trichloroethane (TCA)	0.980	0.0263	1.051	0	93.2	58.3	145				
1,1-Dichloropropene	1.07	0.0210	1.051	0	102	55.1	138				
Carbon tetrachloride	0.910	0.0263	1.051	0	86.6	53.3	144				
1,2-Dichloroethane (EDC)	1.11	0.0210	1.051	0	106	51.3	139				
Benzene	1.12	0.0210	1.051	0	107	63.5	133				
Trichloroethene (TCE)	1.14	0.0210	1.051	0	108	61.6	147				
1,2-Dichloropropane	1.11	0.0210	1.051	0	105	59	136				
Bromodichloromethane	0.978	0.0210	1.051	0	93.1	50.7	141				
Dibromomethane	1.13	0.0210	1.051	0	108	50.6	137				
cis-1,3-Dichloropropene	1.14	0.0210	1.051	0	109	50.4	138				
Toluene	1.06	0.0210	1.051	0	101	63.4	132				
trans-1,3-Dichloropropylene	1.15	0.0210	1.051	0	109	44.1	147				
1,1,2-Trichloroethane	1.14	0.0210	1.051	0	109	51.6	137				
1,3-Dichloropropane	1.19	0.0263	1.051	0	113	53.1	134				
Tetrachloroethene (PCE)	1.07	0.0263	1.051	0.03785	98.3	35.6	158				
Dibromochloromethane	0.881	0.0263	1.051	0	83.8	55.3	140				
1,2-Dibromoethane (EDB)	1.15	0.00525	1.051	0	110	50.4	136				
Chlorobenzene	1.04	0.0263	1.051	0	98.5	60	133				
1,1,1,2-Tetrachloroethane	0.925	0.0263	1.051	0	88.0	53.1	142				
Ethylbenzene	1.11	0.0263	1.051	0	105	54.5	134				
m,p-Xylene	2.12	0.0525	2.102	0	101	53.1	132				
o-Xylene	1.02	0.0263	1.051	0	96.8	53.3	139				
Styrene	1.06	0.0263	1.051	0	101	51.1	132				
Isopropylbenzene	0.998	0.0263	1.051	0	95.0	58.9	138				

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708196-028BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736199**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromoform	0.771	0.0525	1.051	0	73.4	57.9	130				
1,1,2,2-Tetrachloroethane	1.05	0.0210	1.051	0	99.5	51.9	131				
n-Propylbenzene	1.08	0.0263	1.051	0	103	53.6	140				
Bromobenzene	1.01	0.0210	1.051	0	96.5	54.2	140				
1,3,5-Trimethylbenzene	1.07	0.0263	1.051	0	102	51.8	136				
2-Chlorotoluene	0.986	0.0263	1.051	0	93.8	51.6	136				
4-Chlorotoluene	1.04	0.0263	1.051	0	98.8	50.1	139				
tert-Butylbenzene	1.07	0.0263	1.051	0	102	50.5	135				
1,2,3-Trichloropropane	1.18	0.0263	1.051	0	113	50.5	131				
1,2,4-Trichlorobenzene	1.28	0.0263	1.051	0	122	50.8	130				
sec-Butylbenzene	1.13	0.0525	1.051	0	107	52.6	141				
4-Isopropyltoluene	1.11	0.0525	1.051	0	106	52.9	134				
1,3-Dichlorobenzene	1.08	0.0210	1.051	0	103	52.6	131				
1,4-Dichlorobenzene	1.08	0.0210	1.051	0	103	52.9	129				
n-Butylbenzene	1.17	0.0263	1.051	0	111	52.6	130				
1,2-Dichlorobenzene	1.11	0.0210	1.051	0	106	55.8	129				
1,2-Dibromo-3-chloropropane	1.08	0.525	1.051	0	103	40.5	131				
1,2,4-Trimethylbenzene	1.08	0.0210	1.051	0	103	50.6	137				
Hexachlorobutadiene	1.25	0.0525	1.051	0	119	40.6	158				
Naphthalene	1.37	0.0525	1.051	0	131	52.3	124				S
1,2,3-Trichlorobenzene	1.37	0.0210	1.051	0	130	54.4	124				S
Surr: Dibromofluoromethane	1.34		1.314		102	56.5	129				
Surr: Toluene-d8	1.38		1.314		105	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.37		1.314		105	63.1	141				

NOTES:
S - Outlying spike recovery(ies) observed.

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708196-028BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.963	0.0210	1.051	0	91.6	43.5	121	0.9259	3.93	30	
Chloromethane	1.15	0.0525	1.051	0	110	45	130	1.095	5.28	30	
Vinyl chloride	1.06	0.0263	1.051	0	101	43.6	150	1.031	2.85	30	
Bromomethane	0.285	0.0525	1.051	0	27.2	21.3	120	0.2840	0.485	30	
Trichlorofluoromethane (CFC-11)	0.430	0.0210	1.051	0	41.0	35	131	0.3596	17.9	30	
Chloroethane	0.342	0.0525	1.051	0	32.5	31.9	123	0.2442	33.2	30	R
1,1-Dichloroethene	1.11	0.0210	1.051	0	106	47.3	147	1.032	7.47	30	
Methylene chloride	1.04	0.0210	1.051	0	98.9	54.7	142	1.068	2.67	30	
trans-1,2-Dichloroethene	1.09	0.0210	1.051	0	104	52	136	1.078	1.58	30	
Methyl tert-butyl ether (MTBE)	1.28	0.0525	1.051	0	122	58.5	167	1.264	1.23	30	
1,1-Dichloroethane	1.13	0.0210	1.051	0	107	51.8	141	1.122	0.555	30	
2,2-Dichloropropane	1.57	0.105	1.051	0	149	36	123	1.552	0.917	30	S
cis-1,2-Dichloroethene	1.10	0.0210	1.051	0	105	58.6	136	1.110	0.883	30	
Chloroform	1.09	0.0210	1.051	0	104	53.2	129	1.084	0.465	30	
1,1,1-Trichloroethane (TCA)	1.01	0.0263	1.051	0	96.0	58.3	145	0.9798	2.92	30	
1,1-Dichloropropene	1.09	0.0210	1.051	0	103	55.1	138	1.069	1.62	30	
Carbon tetrachloride	0.940	0.0263	1.051	0	89.5	53.3	144	0.9099	3.29	30	
1,2-Dichloroethane (EDC)	1.09	0.0210	1.051	0	104	51.3	139	1.110	1.98	30	
Benzene	1.10	0.0210	1.051	0	105	63.5	133	1.121	1.63	30	
Trichloroethene (TCE)	1.12	0.0210	1.051	0	107	61.6	147	1.139	1.68	30	
1,2-Dichloropropane	1.09	0.0210	1.051	0	103	59	136	1.108	1.89	30	
Bromodichloromethane	0.973	0.0210	1.051	0	92.6	50.7	141	0.9784	0.550	30	
Dibromomethane	1.12	0.0210	1.051	0	106	50.6	137	1.132	1.49	30	
cis-1,3-Dichloropropene	1.15	0.0210	1.051	0	109	50.4	138	1.145	0.351	30	
Toluene	1.06	0.0210	1.051	0	101	63.4	132	1.057	0.0596	30	
trans-1,3-Dichloropropylene	1.15	0.0210	1.051	0	109	44.1	147	1.147	0.0679	30	
1,1,2-Trichloroethane	1.12	0.0210	1.051	0	107	51.6	137	1.144	1.88	30	
1,3-Dichloropropane	1.18	0.0263	1.051	0	112	53.1	134	1.193	1.29	30	
Tetrachloroethene (PCE)	1.06	0.0263	1.051	0.03785	97.7	35.6	158	1.071	0.631	30	
Dibromochloromethane	0.876	0.0263	1.051	0	83.3	55.3	140	0.8805	0.544	30	
1,2-Dibromoethane (EDB)	1.13	0.00525	1.051	0	108	50.4	136	1.155	2.09	30	

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1708196-028BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **8/24/2017** RunNo: **38236**
Client ID: **BATCH** Batch ID: **18011** Analysis Date: **8/29/2017** SeqNo: **736200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.04	0.0263	1.051	0	98.7	60	133	1.035	0.181	30	
1,1,1,2-Tetrachloroethane	0.925	0.0263	1.051	0	88.0	53.1	142	0.9245	0.0521	30	
Ethylbenzene	1.12	0.0263	1.051	0	106	54.5	134	1.108	0.816	30	
m,p-Xylene	2.13	0.0525	2.102	0	101	53.1	132	2.116	0.574	30	
o-Xylene	1.02	0.0263	1.051	0	97.2	53.3	139	1.018	0.371	30	
Styrene	1.07	0.0263	1.051	0	102	51.1	132	1.056	1.15	30	
Isopropylbenzene	1.01	0.0263	1.051	0	95.8	58.9	138	0.9983	0.816	30	
Bromoform	0.769	0.0525	1.051	0	73.2	57.9	130	0.7709	0.263	30	
1,1,2,2-Tetrachloroethane	1.08	0.0210	1.051	0	103	51.9	131	1.046	3.03	30	
n-Propylbenzene	1.10	0.0263	1.051	0	104	53.6	140	1.085	1.08	30	
Bromobenzene	1.02	0.0210	1.051	0	96.6	54.2	140	1.014	0.138	30	
1,3,5-Trimethylbenzene	1.07	0.0263	1.051	0	102	51.8	136	1.070	0.121	30	
2-Chlorotoluene	0.981	0.0263	1.051	0	93.3	51.6	136	0.9861	0.541	30	
4-Chlorotoluene	1.04	0.0263	1.051	0	98.8	50.1	139	1.038	0.0429	30	
tert-Butylbenzene	1.09	0.0263	1.051	0	104	50.5	135	1.075	1.27	30	
1,2,3-Trichloropropane	1.18	0.0263	1.051	0	113	50.5	131	1.185	0.116	30	
1,2,4-Trichlorobenzene	1.32	0.0263	1.051	0	126	50.8	130	1.280	3.18	30	
sec-Butylbenzene	1.15	0.0525	1.051	0	110	52.6	141	1.129	1.89	30	
4-Isopropyltoluene	1.11	0.0525	1.051	0	106	52.9	134	1.110	0.393	30	
1,3-Dichlorobenzene	1.08	0.0210	1.051	0	102	52.6	131	1.084	0.819	30	
1,4-Dichlorobenzene	1.07	0.0210	1.051	0	102	52.9	129	1.082	0.828	30	
n-Butylbenzene	1.17	0.0263	1.051	0	111	52.6	130	1.170	0.0497	30	
1,2-Dichlorobenzene	1.10	0.0210	1.051	0	105	55.8	129	1.110	0.911	30	
1,2-Dibromo-3-chloropropane	1.11	0.525	1.051	0	106	40.5	131	1.078	3.10	30	
1,2,4-Trimethylbenzene	1.09	0.0210	1.051	0	103	50.6	137	1.085	0.147	30	
Hexachlorobutadiene	1.28	0.0525	1.051	0	122	40.6	158	1.254	2.31	30	
Naphthalene	1.53	0.0525	1.051	0	146	52.3	124	1.372	11.1	30	S
1,2,3-Trichlorobenzene	1.43	0.0210	1.051	0	136	54.4	124	1.367	4.79	30	S
Surr: Dibromofluoromethane	1.36		1.314		104	56.5	129		0		
Surr: Toluene-d8	1.36		1.314		104	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.38		1.314		105	63.1	141		0		

Work Order: 1708281
CLIENT: GeoEngineers
Project: Block 21-Test Pit Explorations

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID	**1708196-028BMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**8/24/2017**		RunNo:	**38236**
Client ID:	**BATCH**	Batch ID:	**18011**					Analysis Date:	**8/29/2017**		SeqNo:	**736200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1708281**
Logged by:	**Clare Griggs**	Date Received:	**8/17/2017 3:54:00 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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	29.4
Sample	30.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 8.17.17 Page: 1 of: 2

Project Name: Block 21 - Test Pit Explorations

Project No: 20434-001-30 Task 1000

Collected by: Arthur Clauss

Location: 7th Ave & Bell Street (Block 21)

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com

Laboratory Project No (internal): 1708281

Special Remarks: Analysis requested 8/21/17 by CTB cg

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: GEI

Address: 8410 154th Ave NE

City, State, Zip: Redmond, WA, 98052

Telephone: (425) 861-6000

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Hold	Comments
1	TP21-1-5.0	8.17.17	1255	soil	X			X		X	X		X	T		X		2 VOAs & 1 4oz Jar
2	TP21-1-8.0		1310	soil												X		
3	TP21-2-2.5		1340	soil	X			X		X	X		X	T		X		
4	TP21-2-5.0		1355	soil												X		
5	TP21-3-7.5		0820	soil	X			X		X	X		X	T		X		
6	TP21-3-10.0		0835	soil												X		
7	TP21-4-5.0		0925	soil	X			X		X	X		X	T		X		
8	TP21-4-7.0		0935	soil												X		
9	TP21-5-2.5		1015	soil	X			X		X	X		X	T		X		
10	TP21-5-7.0		1030	soil												X		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	8.17.17 / 1554	x [signature]	8/17/2017 1554
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:
- [X] Standard
- [ ] 3 Day
- [ ] 2 Day
- [ ] Next Day
- Same Day ____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 8.17.17 | Page: 2 of: 2 | Laboratory Project No (internal):

Project Name: Block 21 - Test Pit Explorations | Special Remarks:

Client: GEI

Project No: 20434 .001-30 Task 1000

Address: 8410 154th Ave NE

Collected by: Arthur Claus

City, State, Zip: Redmond WA 98052

Location: 7th Ave & Bell St. (Block 21)

Telephone: (425) 861-6000

Report To (PM): Chris Brown | Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Hold				Comments
1	TP21-8-2.5	8.17.17	1200	Soil	X			X		X		X		X	T							2 VOA's & 1 4oz jar
2	TP21-8-5.0	↓	1210	Soil																		↓
3	TP21-9-2.5		1115	Soil	X			X		X		X		X	T							
4	TP21-9-5.0	↓	1130	Soil																		
5																						
6																						
7																						
8																						
9																						
10																						

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Relinquished	Date/Time	Received	Date/Time
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Turn-around Time:

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Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 8.17.17 | Page: 1 of: 2 | Laboratory Project No (internal): 708281

Special Remarks: Analysis requested 8/21/17 by CB cg

Project Name: Block 21 - Test Pit Explorations

Project No: 20434-001-30 Task 1000

Client: GEI

Address: 8410 154th Ave NE

City, State, Zip: Redmond, WA, 98052

Telephone: (425) 861-6000

Fax:

Collected by: Arthur Clauss

Location: 7th Ave & Bell Street (Block 21)

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Hold	Comments
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2	TP21-1-8.0		1310	soil														X		
3	TP21-2-2.5		1340	soil	X			X		X	X		X	T				X		
4	TP21-2-5.0		1355	soil														X		
5	TP21-3-7.5		0820	soil	X			X		X	X		X	T				X		
6	TP21-3-10.0		0835	soil														X		
7	TP21-4-5.0		0925	soil	X			X		X	X		X	T				X		
8	TP21-4-7.0		0935	soil							⊗							X		Run per CB 3 Day 9/19/17 cg
9	TP21-5-2.5		1015	soil	X			X		X	X		X	T				X		
10	TP21-5-7.0		1030	soil														X		

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***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

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x		x	

Chain of Custody Record & Laboratory Services Agreement

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3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 8.17.17 Page: 2 of: 2

Laboratory Project No (internal):

Special Remarks:

Project Name: Block 21 - Test Pit Explorations

Project No: 20434 -001-30 Task 1000

Collected by: Arthur Clauss

Location: 7th Ave ? Bell St. (Block 21)

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: GEI

Address: 8410 154th Ave NE

City, State, Zip: Redmond WA 98052

Telephone: (425) 861-6000

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Hold	Comments
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3	TP21-9-2.5		1115	Soil	X			X		X	X		X	T				X		
4	TP21-9-5.0	↓	1130	Soil							(X)							X		Run per CB 3 Day 9/19 cg
5																				
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7																				
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10																				

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

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Relinquished	Date/Time	Received	Date/Time
x		x	

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1709102

September 15, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 9/13/2017 for the analyses presented in the following report.

Hydrocarbon Identification by NWTPH-HCID

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
Laboratory Director

Date: *09/15/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1709102

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1709102-001	UST-1-PR	09/12/2017 2:00 PM	09/13/2017 11:55 AM

Case Narrative

WO#: **1709102**
Date: **9/15/2017**

CLIENT: GeoEngineers
Project: Block 21

WorkOrder Narrative:
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").

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 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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1709102**
Date Reported: **9/15/2017**

Client: GeoEngineers
Collection Date: 9/12/2017 2:00:00 PM
Project: Block 21
Lab ID: 1709102-001
Matrix: Product
Client Sample ID: **UST-1-PR**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 18185		Analyst: SB
Gasoline	ND	18,900	D	mg/Kg	100	9/13/2017 8:33:37 PM
Mineral Spirits	ND	28,300	D	mg/Kg	100	9/13/2017 8:33:37 PM
Kerosene	ND	47,200	D	mg/Kg	100	9/13/2017 8:33:37 PM
Diesel (Fuel Oil)	DETECT	47,200	D	mg/Kg	100	9/13/2017 8:33:37 PM
Heavy Oil	ND	94,300	D	mg/Kg	100	9/13/2017 8:33:37 PM
Mineral Oil	ND	94,300	D	mg/Kg	100	9/13/2017 8:33:37 PM
Surr: 2-Fluorobiphenyl	315	50 - 150	DS	%Rec	100	9/13/2017 8:33:37 PM
Surr: o-Terphenyl	320	50 - 150	DS	%Rec	100	9/13/2017 8:33:37 PM

NOTES:
S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Work Order: 1709102
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Hydrocarbon Identification by NWTPH-HCID

Sample ID **MB-18185**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **9/13/2017**	RunNo: **38589**
Client ID: **MBLKS**	Batch ID: **18185**		Analysis Date: **9/13/2017**	SeqNo: **741456**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	17.3		20.00		86.5	50	150				
Surr: o-Terphenyl	17.4		20.00		87.2	50	150				

Sample ID **LCS-18185**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **9/13/2017**	RunNo: **38589**
Client ID: **LCSS**	Batch ID: **18185**		Analysis Date: **9/13/2017**	SeqNo: **741457**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	486	50.0	500.0	0	97.2	65	135				
Surr: 2-Fluorobiphenyl	17.0		20.00		85.2	50	150				
Surr: o-Terphenyl	18.2		20.00		91.2	50	150				

Sample ID **LCSD-18185**	SampType: **LCSD**	Units: **mg/Kg**	Prep Date: **9/13/2017**	RunNo: **38589**
Client ID: **LCSS02**	Batch ID: **18185**		Analysis Date: **9/13/2017**	SeqNo: **741460**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	467	50.0	500.0	0	93.3	65	135	485.8	4.05	30	
Surr: 2-Fluorobiphenyl	17.2		20.00		85.8	50	150		0		
Surr: o-Terphenyl	18.3		20.00		91.7	50	150		0		

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1709102**
Logged by:	**Brianna Barnes**	Date Received:	**9/13/2017 11:55:00 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 ☐
		Product Sample		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	21.7

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/13/17 | Page: 1 of 1 | Laboratory Project No (internal): 1709102

Project Name: Block 21 | Special Remarks:

Project No: 20434-001-28

Client: Geo Engineers, Inc. | Collected by: Jamie Fox

Address: 600 Stewart St., Suite 1700 | Location: Hurricane Bldg - Block 21

City, State, Zip: Seattle WA 98101 | Sample Disposal: ☐ Return to client ☑ Disposal by lab (after 30 days)

Telephone: 206.728.2674 | Report To (PM): Chris Brown

Fax: | PM Email: cbrown@geoengineers.com

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	9/12/17	14:00	P				X		X								
2 UST-1-PR	9/12/17	14:00	P				X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:
- ☐ Standard
- ☑ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Rebecca Bennett	09/13/17 11:55 AM	x	9/13/2017 1155
x		x	

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1709309

September 27, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 9/26/2017 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
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

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
Laboratory Director

Date: *02/02/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1709309

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1709309-001	SC-W9S38	09/26/2017 12:00 AM	09/26/2017 2:29 PM
1709309-002	SC-W10S40	09/26/2017 12:00 AM	09/26/2017 2:29 PM

Case Narrative

WO#: **1709309**

Date: **9/27/2017**

CLIENT: GeoEngineers

Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1709309**
Date Reported: **9/27/2017**

Client: GeoEngineers
Collection Date: 9/26/2017
Project: Block 21
Lab ID: 1709309-001
Matrix: Soil
Client Sample ID: **SC-W9S38**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18311		Analyst: SB
Diesel 1/ Kerosene	30.3	20.6		mg/Kg-dry	1	9/27/2017 10:07:18 AM
Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	9/27/2017 10:07:18 AM
Heavy Oil	ND	51.5		mg/Kg-dry	1	9/27/2017 10:07:18 AM
Surr: 2-Fluorobiphenyl	127	50 - 150		%Rec	1	9/27/2017 10:07:18 AM
Surr: o-Terphenyl	130	50 - 150		%Rec	1	9/27/2017 10:07:18 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18312		Analyst: BT
Naphthalene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
2-Methylnaphthalene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
1-Methylnaphthalene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Acenaphthylene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Acenaphthene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Fluorene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Phenanthrene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Anthracene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Fluoranthene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Pyrene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Benz(a)anthracene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Chrysene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Benzo(b)fluoranthene	ND	41.8	Q	µg/Kg-dry	1	9/26/2017 4:47:59 PM
Benzo(k)fluoranthene	ND	41.8	Q	µg/Kg-dry	1	9/26/2017 4:47:59 PM
Benzo(a)pyrene	ND	41.8	Q	µg/Kg-dry	1	9/26/2017 4:47:59 PM
Indeno(1,2,3-cd)pyrene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Dibenz(a,h)anthracene	ND	41.8		µg/Kg-dry	1	9/26/2017 4:47:59 PM
Benzo(g,h,i)perylene	ND	41.8	Q	µg/Kg-dry	1	9/26/2017 4:47:59 PM
Surr: 2-Fluorobiphenyl	97.3	10 - 123		%Rec	1	9/26/2017 4:47:59 PM
Surr: Terphenyl-d14 (surr)	98.3	46.2 - 179		%Rec	1	9/26/2017 4:47:59 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18320		Analyst: NG
Gasoline	ND	5.36		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Surr: Toluene-d8	104	65 - 135		%Rec	1	9/26/2017 7:13:40 PM
Surr: 4-Bromofluorobenzene	94.2	65 - 135		%Rec	1	9/26/2017 7:13:40 PM

Client: GeoEngineers
Project: Block 21
Lab ID: 1709309-001
Client Sample ID: **SC-W9S38**

Collection Date: 9/26/2017
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C Batch ID: 18320 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0215	Q	mg/Kg-dry	1	9/26/2017 7:13:40 PM
Chloromethane	ND	0.0536	Q	mg/Kg-dry	1	9/26/2017 7:13:40 PM
Vinyl chloride	ND	0.0268	Q	mg/Kg-dry	1	9/26/2017 7:13:40 PM
Bromomethane	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Trichlorofluoromethane (CFC-11)	ND	0.0215	Q	mg/Kg-dry	1	9/26/2017 7:13:40 PM
Chloroethane	ND	0.0536	Q	mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,1-Dichloroethene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Methylene chloride	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
trans-1,2-Dichloroethene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Methyl tert-butyl ether (MTBE)	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,1-Dichloroethane	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
2,2-Dichloropropane	ND	0.107		mg/Kg-dry	1	9/26/2017 7:13:40 PM
cis-1,2-Dichloroethene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Chloroform	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,1,1-Trichloroethane (TCA)	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,1-Dichloropropene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Carbon tetrachloride	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2-Dichloroethane (EDC)	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Benzene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Trichloroethene (TCE)	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2-Dichloropropane	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Bromodichloromethane	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Dibromomethane	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
cis-1,3-Dichloropropene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Toluene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
trans-1,3-Dichloropropylene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,1,2-Trichloroethane	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,3-Dichloropropane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Tetrachloroethene (PCE)	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Dibromochloromethane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2-Dibromoethane (EDB)	ND	0.00536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Chlorobenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,1,1,2-Tetrachloroethane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Ethylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
m,p-Xylene	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
o-Xylene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Styrene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Isopropylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Bromoform	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM

Client: GeoEngineers
Project: Block 21
Lab ID: 1709309-001
Client Sample ID: **SC-W9S38**

Collection Date: 9/26/2017
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18320		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
n-Propylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Bromobenzene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,3,5-Trimethylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
2-Chlorotoluene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
4-Chlorotoluene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
tert-Butylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2,3-Trichloropropane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2,4-Trichlorobenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
sec-Butylbenzene	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
4-Isopropyltoluene	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,3-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,4-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
n-Butylbenzene	0.0403	0.0268		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2-Dichlorobenzene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2-Dibromo-3-chloropropane	ND	0.536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2,4-Trimethylbenzene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Hexachlorobutadiene	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Naphthalene	ND	0.0536		mg/Kg-dry	1	9/26/2017 7:13:40 PM
1,2,3-Trichlorobenzene	ND	0.0215		mg/Kg-dry	1	9/26/2017 7:13:40 PM
Surr: Dibromofluoromethane	84.8	56.5 - 129		%Rec	1	9/26/2017 7:13:40 PM
Surr: Toluene-d8	89.6	64.5 - 151		%Rec	1	9/26/2017 7:13:40 PM
Surr: 1-Bromo-4-fluorobenzene	95.0	63.1 - 141		%Rec	1	9/26/2017 7:13:40 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18306		Analyst: WF
Mercury	ND	0.265		mg/Kg-dry	1	9/26/2017 4:57:00 PM
Total Metals by EPA Method 6020				Batch ID: 18323		Analyst: TN
Arsenic	4.66	0.0880		mg/Kg-dry	1	9/27/2017 2:08:27 PM
Barium	69.5	0.440		mg/Kg-dry	1	9/27/2017 2:08:27 PM
Cadmium	ND	0.176		mg/Kg-dry	1	9/27/2017 2:08:27 PM
Chromium	45.1	0.0880		mg/Kg-dry	1	9/27/2017 2:08:27 PM
Lead	13.0	0.176		mg/Kg-dry	1	9/27/2017 2:08:27 PM
Selenium	1.04	0.440		mg/Kg-dry	1	9/27/2017 3:51:50 PM

Analytical Report

Work Order: **1709309**
Date Reported: **9/27/2017**

Client: GeoEngineers
Collection Date: 9/26/2017
Project: Block 21
Lab ID: 1709309-001
Matrix: Soil
Client Sample ID: **SC-W9S38**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18323		Analyst: TN
Silver	ND	0.0880		mg/Kg-dry	1	9/27/2017 2:08:27 PM
Sample Moisture (Percent Moisture)				Batch ID: R38855		Analyst: CO
Percent Moisture	9.12			wt%	1	9/27/2017 10:16:27 AM

Analytical Report

Work Order: **1709309**
Date Reported: **9/27/2017**

Client: GeoEngineers
Collection Date: 9/26/2017
Project: Block 21
Lab ID: 1709309-002
Matrix: Soil
Client Sample ID: **SC-W10S40**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18311		Analyst: SB
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	9/27/2017 1:04:14 AM
Heavy Oil	ND	53.0		mg/Kg-dry	1	9/27/2017 1:04:14 AM
Surr: 2-Fluorobiphenyl	140	50 - 150		%Rec	1	9/27/2017 1:04:14 AM
Surr: o-Terphenyl	144	50 - 150		%Rec	1	9/27/2017 1:04:14 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18312		Analyst: BT
Naphthalene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
2-Methylnaphthalene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
1-Methylnaphthalene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Acenaphthylene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Acenaphthene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Fluorene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Phenanthrene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Anthracene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Fluoranthene	52.2	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Pyrene	60.2	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Benz(a)anthracene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Chrysene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Benzo(b)fluoranthene	ND	40.2	Q	µg/Kg-dry	1	9/26/2017 5:10:22 PM
Benzo(k)fluoranthene	ND	40.2	Q	µg/Kg-dry	1	9/26/2017 5:10:22 PM
Benzo(a)pyrene	ND	40.2	Q	µg/Kg-dry	1	9/26/2017 5:10:22 PM
Indeno(1,2,3-cd)pyrene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Dibenz(a,h)anthracene	ND	40.2		µg/Kg-dry	1	9/26/2017 5:10:22 PM
Benzo(g,h,i)perylene	ND	40.2	Q	µg/Kg-dry	1	9/26/2017 5:10:22 PM
Surr: 2-Fluorobiphenyl	104	10 - 123		%Rec	1	9/26/2017 5:10:22 PM
Surr: Terphenyl-d14 (surr)	107	46.2 - 179		%Rec	1	9/26/2017 5:10:22 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18320		Analyst: NG
Gasoline	ND	5.35		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Surr: Toluene-d8	104	65 - 135		%Rec	1	9/26/2017 7:42:06 PM
Surr: 4-Bromofluorobenzene	94.6	65 - 135		%Rec	1	9/26/2017 7:42:06 PM

Client: GeoEngineers
Project: Block 21
Lab ID: 1709309-002
Client Sample ID: **SC-W10S40**

Collection Date: 9/26/2017
Matrix: Soil

Volatile Organic Compounds by EPA Method 8260C Batch ID: 18320 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Dichlorodifluoromethane (CFC-12)	ND	0.0214	Q	mg/Kg-dry	1	9/26/2017 7:42:06 PM
Chloromethane	ND	0.0535	Q	mg/Kg-dry	1	9/26/2017 7:42:06 PM
Vinyl chloride	ND	0.0268	Q	mg/Kg-dry	1	9/26/2017 7:42:06 PM
Bromomethane	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Trichlorofluoromethane (CFC-11)	ND	0.0214	Q	mg/Kg-dry	1	9/26/2017 7:42:06 PM
Chloroethane	ND	0.0535	Q	mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,1-Dichloroethene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Methylene chloride	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
trans-1,2-Dichloroethene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Methyl tert-butyl ether (MTBE)	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,1-Dichloroethane	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
2,2-Dichloropropane	ND	0.107		mg/Kg-dry	1	9/26/2017 7:42:06 PM
cis-1,2-Dichloroethene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Chloroform	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,1,1-Trichloroethane (TCA)	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,1-Dichloropropene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Carbon tetrachloride	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2-Dichloroethane (EDC)	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Benzene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Trichloroethene (TCE)	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2-Dichloropropane	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Bromodichloromethane	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Dibromomethane	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
cis-1,3-Dichloropropene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Toluene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
trans-1,3-Dichloropropylene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,1,2-Trichloroethane	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,3-Dichloropropane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Tetrachloroethene (PCE)	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Dibromochloromethane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2-Dibromoethane (EDB)	ND	0.00535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Chlorobenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,1,1,2-Tetrachloroethane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Ethylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
m,p-Xylene	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
o-Xylene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Styrene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Isopropylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Bromoform	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM

Client: GeoEngineers
Project: Block 21
Lab ID: 1709309-002
Client Sample ID: **SC-W10S40**

Collection Date: 9/26/2017
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18320		Analyst: NG
1,1,2,2-Tetrachloroethane	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
n-Propylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Bromobenzene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,3,5-Trimethylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
2-Chlorotoluene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
4-Chlorotoluene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
tert-Butylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2,3-Trichloropropane	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2,4-Trichlorobenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
sec-Butylbenzene	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
4-Isopropyltoluene	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,3-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,4-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
n-Butylbenzene	ND	0.0268		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2-Dichlorobenzene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2-Dibromo-3-chloropropane	ND	0.535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2,4-Trimethylbenzene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Hexachlorobutadiene	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Naphthalene	ND	0.0535		mg/Kg-dry	1	9/26/2017 7:42:06 PM
1,2,3-Trichlorobenzene	ND	0.0214		mg/Kg-dry	1	9/26/2017 7:42:06 PM
Surr: Dibromofluoromethane	83.7	56.5 - 129		%Rec	1	9/26/2017 7:42:06 PM
Surr: Toluene-d8	90.2	64.5 - 151		%Rec	1	9/26/2017 7:42:06 PM
Surr: 1-Bromo-4-fluorobenzene	95.4	63.1 - 141		%Rec	1	9/26/2017 7:42:06 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Mercury by EPA Method 7471				Batch ID: 18306		Analyst: WF
Mercury	ND	0.264		mg/Kg-dry	1	9/26/2017 4:58:00 PM
Total Metals by EPA Method 6020				Batch ID: 18323		Analyst: TN
Arsenic	2.68	0.0797		mg/Kg-dry	1	9/27/2017 2:12:28 PM
Barium	54.8	0.399		mg/Kg-dry	1	9/27/2017 2:12:28 PM
Cadmium	ND	0.159		mg/Kg-dry	1	9/27/2017 2:12:28 PM
Chromium	30.2	0.0797		mg/Kg-dry	1	9/27/2017 2:12:28 PM
Lead	21.7	0.159		mg/Kg-dry	1	9/27/2017 2:12:28 PM
Selenium	0.691	0.399		mg/Kg-dry	1	9/27/2017 3:55:52 PM

Analytical Report

Work Order: **1709309**
Date Reported: **9/27/2017**

Client: GeoEngineers
Collection Date: 9/26/2017
Project: Block 21
Lab ID: 1709309-002
Matrix: Soil
Client Sample ID: **SC-W10S40**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 18323		Analyst: TN
Silver	ND	0.0797		mg/Kg-dry	1	9/27/2017 2:12:28 PM
Sample Moisture (Percent Moisture)				Batch ID: R38855		Analyst: CO
Percent Moisture	9.09			wt%	1	9/27/2017 10:16:27 AM

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18311**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/26/2017**		RunNo: **38852**		
Client ID: **MBLKS**	Batch ID: **18311**					Analysis Date: **9/26/2017**		SeqNo: **746944**		
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	21.0		20.00		105	50	150				
Surr: o-Terphenyl	21.3		20.00		106	50	150				

Sample ID **LCS-18311**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **9/26/2017**		RunNo: **38852**		
Client ID: **LCSS**	Batch ID: **18311**					Analysis Date: **9/26/2017**		SeqNo: **746945**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	482	20.0	500.0	0	96.4	65	135				
Surr: 2-Fluorobiphenyl	20.9		20.00		105	50	150				
Surr: o-Terphenyl	23.0		20.00		115	50	150				

Sample ID **1709300-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **9/26/2017**		RunNo: **38852**		
Client ID: **BATCH**	Batch ID: **18311**					Analysis Date: **9/26/2017**		SeqNo: **746949**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel 1/ Kerosene	1,090	19.8						1,194	9.27	30	
Diesel (Fuel Oil)	ND	19.8						0		30	
Heavy Oil	4,090	49.5						4,435	8.07	30	E
Surr: 2-Fluorobiphenyl	20.6		19.81		104	50	150		0		
Surr: o-Terphenyl	21.7		19.81		109	50	150		0		

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1709300-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **9/26/2017**		RunNo: **38852**		
Client ID: **BATCH**	Batch ID: **18311**					Analysis Date: **9/26/2017**		SeqNo: **746950**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,520	20.2	504.8	1,194	64.3	65	135				S

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1709300-001AMS**	SampType: **MS**		Units: **mg/Kg-dry**	Prep Date: **9/26/2017**	RunNo: **38852**
Client ID:	**BATCH**	Batch ID: **18311**			Analysis Date: **9/26/2017**	SeqNo: **746950**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	21.7		20.19		108	50	150				
Surr: o-Terphenyl	23.6		20.19		117	50	150				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID	**1709300-001AMSD**	SampType: **MSD**		Units: **mg/Kg-dry**	Prep Date: **9/26/2017**	RunNo: **38852**
Client ID:	**BATCH**	Batch ID: **18311**			Analysis Date: **9/26/2017**	SeqNo: **746951**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,590	18.5	461.7	1,194	85.9	65	135	1,519	4.62	30	
Surr: 2-Fluorobiphenyl	18.6		18.47		101	50	150		0		
Surr: o-Terphenyl	21.3		18.47		115	50	150		0		

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID	**LCS-18320**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **9/26/2017**		RunNo: **38854**			
Client ID:	**LCSS**	Batch ID: **18320**				Analysis Date: **9/26/2017**		SeqNo: **747002**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	25.8	5.00	25.00	0	103	65	135				
Surr: Toluene-d8	1.27		1.250		102	65	135				
Surr: 4-Bromofluorobenzene	1.21		1.250		97.1	65	135				

Sample ID	**MB-18320**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **9/26/2017**		RunNo: **38854**			
Client ID:	**MBLKS**	Batch ID: **18320**				Analysis Date: **9/26/2017**		SeqNo: **747003**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.00									
Surr: Toluene-d8	1.29		1.250		103	65	135				
Surr: 4-Bromofluorobenzene	1.18		1.250		94.3	65	135				

Sample ID	**1709310-002BDUP**	SampType: **DUP**		Units: **mg/Kg-dry**		Prep Date: **9/26/2017**		RunNo: **38854**			
Client ID:	**BATCH**	Batch ID: **18320**				Analysis Date: **9/26/2017**		SeqNo: **746995**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	5.58						0		30	
Surr: Toluene-d8	1.45		1.395		104	65	135		0		
Surr: 4-Bromofluorobenzene	1.34		1.395		95.8	65	135		0		

Sample ID	**1709310-004BMS**	SampType: **MS**		Units: **mg/Kg-dry**		Prep Date: **9/26/2017**		RunNo: **38854**			
Client ID:	**BATCH**	Batch ID: **18320**				Analysis Date: **9/26/2017**		SeqNo: **746998**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	33.8	5.08	25.40	0	133	65	135				
Surr: Toluene-d8	1.33		1.270		105	65	135				
Surr: 4-Bromofluorobenzene	1.22		1.270		95.9	65	135				

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1709310-004BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38854**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746999**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	37.3	5.08	25.40	0	147	65	135	33.81	9.86	30	S
Surr: Toluene-d8	1.38		1.270		108	65	135		0		
Surr: 4-Bromofluorobenzene	1.22		1.270		96.3	65	135		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-18306**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**9/25/2017**	RunNo:	**38829**	
Client ID:	**MBLKS**	Batch ID:	**18306**					Analysis Date:	**9/26/2017**	SeqNo:	**746487**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.250									

Sample ID	**LCS-18306**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**9/25/2017**	RunNo:	**38829**	
Client ID:	**LCSS**	Batch ID:	**18306**					Analysis Date:	**9/26/2017**	SeqNo:	**746488**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.517	0.250	0.5000	0	103	80	120				

Sample ID	**1709295-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**9/25/2017**	RunNo:	**38829**	
Client ID:	**BATCH**	Batch ID:	**18306**					Analysis Date:	**9/26/2017**	SeqNo:	**746490**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.413						0		20	

Sample ID	**1709295-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**9/25/2017**	RunNo:	**38829**	
Client ID:	**BATCH**	Batch ID:	**18306**					Analysis Date:	**9/26/2017**	SeqNo:	**746491**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.892	0.422	0.8430	0.003541	105	70	130				

Sample ID	**1709295-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**9/25/2017**	RunNo:	**38829**	
Client ID:	**BATCH**	Batch ID:	**18306**					Analysis Date:	**9/26/2017**	SeqNo:	**746471**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.850	0.405	0.8106	0.003541	104	70	130	0.8919	4.87	20	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18312**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **9/26/2017**	RunNo: **38858**
Client ID: **MBLKS**	Batch ID: **18312**		Analysis Date: **9/26/2017**	SeqNo: **747059**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									Q
Benzo(k)fluoranthene	ND	40.0									Q
Benzo(a)pyrene	ND	40.0									Q
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									Q
Surr: 2-Fluorobiphenyl	521		500.0		104	10	123				
Surr: Terphenyl-d14 (surr)	531		500.0		106	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18312**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **9/26/2017**	RunNo: **38858**
Client ID: **LCSS**	Batch ID: **18312**		Analysis Date: **9/26/2017**	SeqNo: **747060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	898	40.0	1,000	0	89.8	46.4	125				
2-Methylnaphthalene	928	40.0	1,000	0	92.8	45.1	135				
1-Methylnaphthalene	945	40.0	1,000	0	94.5	46.2	133				
Acenaphthylene	989	40.0	1,000	0	98.9	32.8	136				

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18312** SampType: **LCS** Units: **µg/Kg** Prep Date: **9/26/2017** RunNo: **38858**
Client ID: **LCSS** Batch ID: **18312** Analysis Date: **9/26/2017** SeqNo: **747060**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	883	40.0	1,000	0	88.3	38.7	129				
Fluorene	913	40.0	1,000	0	91.3	41.4	144				
Phenanthrene	881	40.0	1,000	0	88.1	43.9	133				
Anthracene	912	40.0	1,000	0	91.2	44.2	136				
Fluoranthene	978	40.0	1,000	0	97.8	45.9	137				
Pyrene	996	40.0	1,000	0	99.6	46.2	137				
Benz(a)anthracene	1,010	40.0	1,000	0	101	41.2	141				
Chrysene	989	40.0	1,000	0	98.9	46.9	138				
Benzo(b)fluoranthene	916	40.0	1,000	0	91.6	41	155				
Benzo(k)fluoranthene	1,020	40.0	1,000	0	102	41.8	153				
Benzo(a)pyrene	955	40.0	1,000	0	95.5	30.2	171				
Indeno(1,2,3-cd)pyrene	925	40.0	1,000	0	92.5	31.3	159				
Dibenz(a,h)anthracene	928	40.0	1,000	0	92.8	28	158				
Benzo(g,h,i)perylene	893	40.0	1,000	0	89.3	32.4	144				
Surr: 2-Fluorobiphenyl	453		500.0		90.7	10	123				
Surr: Terphenyl-d14 (surr)	530		500.0		106	46.2	179				

Sample ID **1709300-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38858**
Client ID: **BATCH** Batch ID: **18312** Analysis Date: **9/26/2017** SeqNo: **747065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2,030	37.8	945.6	1,276	80.1	42.9	138				
2-Methylnaphthalene	6,420	37.8	945.6	6,143	28.8	42.8	151				SE
1-Methylnaphthalene	5,550	37.8	945.6	5,931	-40.3	41.6	148				SE
Acenaphthylene	873	37.8	945.6	0	92.4	32.6	160				
Acenaphthene	1,180	37.8	945.6	235.6	100	46.3	142				
Fluorene	1,680	37.8	945.6	451.8	130	43.4	153				
Phenanthrene	3,000	37.8	945.6	1,319	178	45.5	140				S
Anthracene	1,140	37.8	945.6	318.0	86.6	32.6	160				
Fluoranthene	1,070	37.8	945.6	0	113	44.6	161				

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1709300-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38858**
Client ID: **BATCH** Batch ID: **18312** Analysis Date: **9/26/2017** SeqNo: **747065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	1,820	37.8	945.6	531.4	136	48.3	158				
Benz(a)anthracene	1,260	37.8	945.6	0	133	34.9	139				
Chrysene	1,990	37.8	945.6	592.4	148	45.2	146				S
Benzo(b)fluoranthene	1,190	37.8	945.6	0	125	42.2	168				
Benzo(k)fluoranthene	731	37.8	945.6	0	77.3	34.8	147				
Benzo(a)pyrene	902	37.8	945.6	0	95.3	34.4	179				
Indeno(1,2,3-cd)pyrene	603	37.8	945.6	0	63.8	5	113				
Dibenz(a,h)anthracene	650	37.8	945.6	0	68.7	17.3	156				
Benzo(g,h,i)perylene	583	37.8	945.6	0	61.7	24.9	119				
Surr: 2-Fluorobiphenyl	497		472.8		105	10	123				
Surr: Terphenyl-d14 (surr)	510		472.8		108	46.2	179				

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Sample ID **1709300-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38858**
Client ID: **BATCH** Batch ID: **18312** Analysis Date: **9/26/2017** SeqNo: **747066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,890	39.6	990.7	1,276	62.1	42.9	138	2,034	7.26	30	
2-Methylnaphthalene	5,770	39.6	990.7	6,143	-37.2	42.8	151	6,415	10.5	30	SE
1-Methylnaphthalene	5,020	39.6	990.7	5,931	-91.7	41.6	148	5,550	9.97	30	SE
Acenaphthylene	1,010	39.6	990.7	0	102	32.6	160	873.3	14.3	30	
Acenaphthene	1,240	39.6	990.7	235.6	101	46.3	142	1,184	4.58	30	
Fluorene	1,340	39.6	990.7	451.8	89.2	43.4	153	1,679	22.8	30	
Phenanthrene	2,790	39.6	990.7	1,319	148	45.5	140	3,005	7.43	30	S
Anthracene	1,070	39.6	990.7	318.0	75.4	32.6	160	1,137	6.47	30	
Fluoranthene	1,080	39.6	990.7	0	109	44.6	161	1,072	0.305	30	
Pyrene	1,590	39.6	990.7	531.4	106	48.3	158	1,816	13.5	30	
Benz(a)anthracene	1,220	39.6	990.7	0	123	34.9	139	1,260	3.19	30	
Chrysene	1,830	39.6	990.7	592.4	125	45.2	146	1,993	8.60	30	
Benzo(b)fluoranthene	1,040	39.6	990.7	0	105	42.2	168	1,186	13.4	30	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1709300-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38858**
Client ID: **BATCH** Batch ID: **18312** Analysis Date: **9/26/2017** SeqNo: **747066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	682	39.6	990.7	0	68.9	34.8	147	730.6	6.83	30	
Benzo(a)pyrene	787	39.6	990.7	0	79.4	34.4	179	901.5	13.6	30	
Indeno(1,2,3-cd)pyrene	605	39.6	990.7	0	61.1	5	113	603.4	0.255	30	
Dibenz(a,h)anthracene	639	39.6	990.7	0	64.5	17.3	156	649.6	1.62	30	
Benzo(g,h,i)perylene	583	39.6	990.7	0	58.8	24.9	119	583.1	0.0525	30	
Surr: 2-Fluorobiphenyl	499		495.4		101	10	123		0		
Surr: Terphenyl-d14 (surr)	517		495.4		104	46.2	179		0		

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Sample ID **1709300-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38858**
Client ID: **BATCH** Batch ID: **18312** Analysis Date: **9/26/2017** SeqNo: **747071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,330	39.0						1,205	10.1	30	
2-Methylnaphthalene	6,350	39.0						5,715	10.5	30	E
1-Methylnaphthalene	5,090	39.0						4,851	4.84	30	E
Acenaphthylene	105	39.0						81.52	24.8	30	
Acenaphthene	271	39.0						329.9	19.5	30	
Fluorene	573	39.0						611.5	6.50	30	
Phenanthrene	2,210	39.0						2,289	3.52	30	
Anthracene	249	39.0						237.3	4.98	30	
Fluoranthene	182	39.0						190.4	4.29	30	
Pyrene	739	39.0						912.7	21.0	30	
Benz(a)anthracene	272	39.0						326.7	18.2	30	
Chrysene	1,070	39.0						1,045	2.02	30	
Benzo(b)fluoranthene	193	39.0						195.1	1.33	30	Q
Benzo(k)fluoranthene	101	39.0						92.38	8.53	30	Q
Benzo(a)pyrene	178	39.0						171.7	3.67	30	Q
Indeno(1,2,3-cd)pyrene	51.0	39.0						45.28	12.0	30	I
Dibenz(a,h)anthracene	75.9	39.0						70.10	7.99	30	I

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1709300-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38858**
Client ID: **BATCH** Batch ID: **18312** Analysis Date: **9/26/2017** SeqNo: **747071**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	108	39.0						85.24	24.0	30	IQ
Surr: 2-Fluorobiphenyl	486		487.2		99.8	10	123		0		
Surr: Terphenyl-d14 (surr)	462		487.2		94.9	46.2	179		0		

NOTES:
I - Internal standards were outside of established acceptance criteria. Re-analysis and/or matrix spike samples yielded the same result indicating a possible matrix effect.
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Work Order: 1709309
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QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1709303-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **9/27/2017**		RunNo: **38855**	
Client ID: **BATCH**	Batch ID: **R38855**						Analysis Date: **9/27/2017**		SeqNo: **746976**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	7.95	0.500						8.057	1.37	20	

Sample ID **1709310-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **9/27/2017**		RunNo: **38855**	
Client ID: **BATCH**	Batch ID: **R38855**						Analysis Date: **9/27/2017**		SeqNo: **746981**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.65	0.500						8.824	8.94	20	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-18323**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/27/2017**		RunNo: **38862**		
Client ID:	**MBLKS**	Batch ID: **18323**					Analysis Date: **9/27/2017**		SeqNo: **747141**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0806									
Barium	ND	0.403									
Cadmium	ND	0.161									
Chromium	ND	0.0806									
Lead	ND	0.161									
Selenium	ND	0.403									
Silver	ND	0.0806									

Sample ID	**LCS-18323**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **9/27/2017**		RunNo: **38862**		
Client ID:	**LCSS**	Batch ID: **18323**					Analysis Date: **9/27/2017**		SeqNo: **747142**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.6	0.0806	40.32	0	98.1	80	120				
Barium	39.6	0.403	40.32	0	98.2	80	120				
Cadmium	1.95	0.161	2.016	0	96.9	80	120				
Chromium	40.9	0.0806	40.32	0	101	80	120				
Lead	20.0	0.161	20.16	0	99.0	80	120				
Selenium	3.91	0.403	4.032	0	97.0	80	120				
Silver	8.28	0.0806	10.08	0	82.1	80	120				

Sample ID	**1709311-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **9/27/2017**		RunNo: **38862**		
Client ID:	**BATCH**	Batch ID: **18323**					Analysis Date: **9/27/2017**		SeqNo: **747249**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.42	0.0877						2.268	6.33	20	
Barium	28.4	0.439						28.86	1.58	20	
Cadmium	ND	0.175						0		20	
Chromium	12.2	0.0877						12.50	2.18	20	
Lead	3.84	0.175						3.507	8.94	20	
Selenium	1.20	0.439						1.192	0.966	20	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1709311-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/27/2017** RunNo: **38862**
Client ID: **BATCH** Batch ID: **18323** Analysis Date: **9/27/2017** SeqNo: **747249**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0877						0.3120	153	20	R

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1709311-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/27/2017** RunNo: **38862**
Client ID: **BATCH** Batch ID: **18323** Analysis Date: **9/27/2017** SeqNo: **747251**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.5	0.0884	44.21	2.268	97.8	75	125				
Barium	73.3	0.442	44.21	28.86	101	75	125				
Cadmium	2.17	0.177	2.210	0.05460	95.6	75	125				
Chromium	59.5	0.0884	44.21	12.50	106	75	125				
Lead	24.2	0.177	22.10	3.507	93.5	75	125				
Selenium	5.53	0.442	4.421	1.192	98.2	75	125				
Silver	8.90	0.0884	11.05	0.3120	77.7	75	125				

Sample ID **1709311-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **9/27/2017** RunNo: **38862**
Client ID: **BATCH** Batch ID: **18323** Analysis Date: **9/27/2017** SeqNo: **747254**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.4	0.0884	44.21	2.268	95.2	75	125	45.50	2.53	20	
Barium	68.1	0.442	44.21	28.86	88.7	75	125	73.33	7.44	20	
Cadmium	2.29	0.177	2.210	0.05460	101	75	125	2.168	5.48	20	
Chromium	59.3	0.0884	44.21	12.50	106	75	125	59.51	0.432	20	
Lead	24.1	0.177	22.10	3.507	93.2	75	125	24.17	0.252	20	
Silver	8.93	0.0884	11.05	0.3120	78.0	75	125	8.901	0.303	20	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1709311-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **9/27/2017** RunNo: **38862**
Client ID: **BATCH** Batch ID: **18323** Analysis Date: **9/27/2017** SeqNo: **747421**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	5.47	0.442	4.421	1.192	96.8	75	125	5.533	1.15	20	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18320** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **LCSS** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746973**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.757	0.0200	1.000	0	75.7	14.3	167				
Chloromethane	0.777	0.0500	1.000	0	77.7	46	144				
Vinyl chloride	0.861	0.0250	1.000	0	86.1	43.4	151				
Bromomethane	0.890	0.0500	1.000	0	89.0	35	155				
Trichlorofluoromethane (CFC-11)	0.896	0.0200	1.000	0	89.6	33.8	156				
Chloroethane	0.828	0.0500	1.000	0	82.8	33.1	147				
1,1-Dichloroethene	0.972	0.0200	1.000	0	97.2	39	144				
Methylene chloride	0.901	0.0200	1.000	0	90.1	46.3	140				
trans-1,2-Dichloroethene	0.970	0.0200	1.000	0	97.0	68	130				
Methyl tert-butyl ether (MTBE)	0.821	0.0500	1.000	0	82.1	66.3	145				
1,1-Dichloroethane	0.879	0.0200	1.000	0	87.9	61.9	137				
2,2-Dichloropropane	1.37	0.100	1.000	0	137	35.5	186				
cis-1,2-Dichloroethene	0.943	0.0200	1.000	0	94.3	71.3	135				
Chloroform	0.896	0.0200	1.000	0	89.6	69	145				
1,1,1-Trichloroethane (TCA)	0.961	0.0250	1.000	0	96.1	69	132				
1,1-Dichloropropene	0.958	0.0200	1.000	0	95.8	72.7	131				
Carbon tetrachloride	0.954	0.0250	1.000	0	95.4	63.4	137				
1,2-Dichloroethane (EDC)	0.777	0.0200	1.000	0	77.7	50.9	162				
Benzene	0.943	0.0200	1.000	0	94.3	64.3	133				
Trichloroethene (TCE)	1.00	0.0200	1.000	0	100	65.5	137				
1,2-Dichloropropane	0.879	0.0200	1.000	0	87.9	63.2	142				
Bromodichloromethane	0.872	0.0200	1.000	0	87.2	53.4	131				
Dibromomethane	0.826	0.0200	1.000	0	82.6	60.1	146				
cis-1,3-Dichloropropene	0.921	0.0200	1.000	0	92.1	59.1	143				
Toluene	0.954	0.0200	1.000	0	95.4	67.3	138				
trans-1,3-Dichloropropylene	0.946	0.0200	1.000	0	94.6	49.2	149				
1,1,2-Trichloroethane	0.820	0.0200	1.000	0	82.0	56.9	147				
1,3-Dichloropropane	0.809	0.0250	1.000	0	80.9	56.1	153				
Tetrachloroethene (PCE)	1.05	0.0250	1.000	0	105	52.7	150				
Dibromochloromethane	0.814	0.0250	1.000	0	81.4	70.6	144				
1,2-Dibromoethane (EDB)	0.801	0.00500	1.000	0	80.1	50.5	154				

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18320** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **LCSS** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746973**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.02	0.0250	1.000	0	102	76.1	123				
1,1,1,2-Tetrachloroethane	0.977	0.0250	1.000	0	97.7	65.9	141				
Ethylbenzene	1.03	0.0250	1.000	0	103	74	129				
m,p-Xylene	2.10	0.0500	2.000	0	105	70	124				
o-Xylene	1.03	0.0250	1.000	0	103	68.1	139				
Styrene	0.986	0.0250	1.000	0	98.6	73.3	146				
Isopropylbenzene	1.05	0.0250	1.000	0	105	70	130				
Bromoform	0.830	0.0500	1.000	0	83.0	44.3	130				
1,1,2,2-Tetrachloroethane	0.795	0.0200	1.000	0	79.5	44.8	165				
n-Propylbenzene	1.02	0.0250	1.000	0	102	74.8	125				
Bromobenzene	0.996	0.0200	1.000	0	99.6	49.2	144				
1,3,5-Trimethylbenzene	1.02	0.0250	1.000	0	102	74.6	123				
2-Chlorotoluene	1.00	0.0250	1.000	0	100	76.7	129				
4-Chlorotoluene	0.969	0.0250	1.000	0	96.9	77.5	125				
tert-Butylbenzene	1.03	0.0250	1.000	0	103	66.2	130				
1,2,3-Trichloropropane	0.804	0.0250	1.000	0	80.4	67.9	136				
1,2,4-Trichlorobenzene	0.988	0.0250	1.000	0	98.8	62.6	143				
sec-Butylbenzene	1.03	0.0500	1.000	0	103	75.6	133				
4-Isopropyltoluene	1.05	0.0500	1.000	0	105	76.8	131				
1,3-Dichlorobenzene	1.06	0.0200	1.000	0	106	72.8	128				
1,4-Dichlorobenzene	1.04	0.0200	1.000	0	104	72.6	126				
n-Butylbenzene	1.12	0.0250	1.000	0	112	65.3	136				
1,2-Dichlorobenzene	1.01	0.0200	1.000	0	101	72.8	126				
1,2-Dibromo-3-chloropropane	0.760	0.500	1.000	0	76.0	40.2	155				
1,2,4-Trimethylbenzene	1.03	0.0200	1.000	0	103	77.5	129				
Hexachlorobutadiene	1.24	0.0500	1.000	0	124	42	151				
Naphthalene	0.833	0.0500	1.000	0	83.3	58.4	160				
1,2,3-Trichlorobenzene	0.933	0.0200	1.000	0	93.3	54.8	143				
Surr: Dibromofluoromethane	1.13		1.250		90.7	56.5	129				
Surr: Toluene-d8	1.13		1.250		90.3	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.23		1.250		98.7	63.1	141				

Work Order: 1709309
CLIENT: GeoEngineers
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QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18320**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **9/26/2017**		RunNo: **38853**			
Client ID: **LCSS**	Batch ID: **18320**					Analysis Date: **9/26/2017**		SeqNo: **746973**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-18320**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **9/26/2017**		RunNo: **38853**			
Client ID: **MBLKS**	Batch ID: **18320**					Analysis Date: **9/26/2017**		SeqNo: **746974**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0200									Q
Chloromethane	ND	0.0500									Q
Vinyl chloride	ND	0.0250									Q
Bromomethane	ND	0.0500									
Trichlorofluoromethane (CFC-11)	ND	0.0200									Q
Chloroethane	ND	0.0500									Q
1,1-Dichloroethene	ND	0.0200									
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	0.100									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0250									
1,2-Dichloroethane (EDC)	ND	0.0200									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18320** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **MBLKS** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746974**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	ND	0.0200									
1,1,2-Trichloroethane	ND	0.0200									
1,3-Dichloropropane	ND	0.0250									
Tetrachloroethene (PCE)	ND	0.0250									
Dibromochloromethane	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0250									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Bromoform	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0250									
Bromobenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0250									
4-Chlorotoluene	ND	0.0250									
tert-Butylbenzene	ND	0.0250									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0250									
sec-Butylbenzene	ND	0.0500									
4-Isopropyltoluene	ND	0.0500									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0250									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18320** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **MBLKS** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746974**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	ND	0.0500									
Naphthalene	ND	0.0500									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.09		1.250		87.3	56.5	129				
Surr: Toluene-d8	1.11		1.250		89.1	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.19		1.250		95.1	63.1	141				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1709310-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746970**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0223						0		30	Q
Chloromethane	ND	0.0558						0		30	Q
Vinyl chloride	ND	0.0279						0		30	Q
Bromomethane	ND	0.0558						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0223						0		30	Q
Chloroethane	ND	0.0558						0		30	Q
1,1-Dichloroethene	ND	0.0223						0		30	
Methylene chloride	ND	0.0223						0		30	
trans-1,2-Dichloroethene	ND	0.0223						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0558						0		30	
1,1-Dichloroethane	ND	0.0223						0		30	
2,2-Dichloropropane	ND	0.112						0		30	
cis-1,2-Dichloroethene	ND	0.0223						0		30	
Chloroform	ND	0.0223						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0279						0		30	
1,1-Dichloropropene	ND	0.0223						0		30	
Carbon tetrachloride	ND	0.0279						0		30	
1,2-Dichloroethane (EDC)	ND	0.0223						0		30	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709310-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746970**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0223						0		30	
Trichloroethene (TCE)	ND	0.0223						0		30	
1,2-Dichloropropane	ND	0.0223						0		30	
Bromodichloromethane	ND	0.0223						0		30	
Dibromomethane	ND	0.0223						0		30	
cis-1,3-Dichloropropene	ND	0.0223						0		30	
Toluene	ND	0.0223						0		30	
trans-1,3-Dichloropropylene	ND	0.0223						0		30	
1,1,2-Trichloroethane	ND	0.0223						0		30	
1,3-Dichloropropane	ND	0.0279						0		30	
Tetrachloroethene (PCE)	ND	0.0279						0		30	
Dibromochloromethane	ND	0.0279						0		30	
1,2-Dibromoethane (EDB)	ND	0.00558						0		30	
Chlorobenzene	ND	0.0279						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0279						0		30	
Ethylbenzene	ND	0.0279						0		30	
m,p-Xylene	ND	0.0558						0		30	
o-Xylene	ND	0.0279						0		30	
Styrene	ND	0.0279						0		30	
Isopropylbenzene	ND	0.0279						0		30	
Bromoform	ND	0.0558						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0223						0		30	
n-Propylbenzene	ND	0.0279						0		30	
Bromobenzene	ND	0.0223						0		30	
1,3,5-Trimethylbenzene	ND	0.0279						0		30	
2-Chlorotoluene	ND	0.0279						0		30	
4-Chlorotoluene	ND	0.0279						0		30	
tert-Butylbenzene	ND	0.0279						0		30	
1,2,3-Trichloropropane	ND	0.0279						0		30	
1,2,4-Trichlorobenzene	ND	0.0279						0		30	
sec-Butylbenzene	ND	0.0558						0		30	

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QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709310-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746970**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.0558						0		30	
1,3-Dichlorobenzene	ND	0.0223						0		30	
1,4-Dichlorobenzene	ND	0.0223						0		30	
n-Butylbenzene	ND	0.0279						0		30	
1,2-Dichlorobenzene	ND	0.0223						0		30	
1,2-Dibromo-3-chloropropane	ND	0.558						0		30	
1,2,4-Trimethylbenzene	ND	0.0223						0		30	
Hexachlorobutadiene	ND	0.0558						0		30	
Naphthalene	ND	0.0558						0		30	
1,2,3-Trichlorobenzene	ND	0.0223						0		30	
Surr: Dibromofluoromethane	1.17		1.395		83.7	56.5	129		0		
Surr: Toluene-d8	1.26		1.395		90.5	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.35		1.395		96.5	63.1	141		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1709310-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746967**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.758	0.0200	1.001	0	75.7	43.5	121				
Chloromethane	0.891	0.0501	1.001	0	89.0	45	130				
Vinyl chloride	0.943	0.0250	1.001	0	94.2	43.6	150				
Bromomethane	0.510	0.0501	1.001	0	50.9	21.3	120				
Trichlorofluoromethane (CFC-11)	0.558	0.0200	1.001	0	55.8	35	131				
Chloroethane	0.443	0.0501	1.001	0	44.2	31.9	123				
1,1-Dichloroethene	1.05	0.0200	1.001	0	105	47.3	147				
Methylene chloride	1.07	0.0200	1.001	0	107	54.7	142				
trans-1,2-Dichloroethene	1.13	0.0200	1.001	0	113	52	136				
Methyl tert-butyl ether (MTBE)	1.07	0.0501	1.001	0	107	58.5	167				
1,1-Dichloroethane	1.04	0.0200	1.001	0	104	51.8	141				

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709310-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746967**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,2-Dichloropropane	1.30	0.100	1.001	0	130	36	123				S
cis-1,2-Dichloroethene	1.10	0.0200	1.001	0	109	58.6	136				
Chloroform	1.05	0.0200	1.001	0	105	53.2	129				
1,1,1-Trichloroethane (TCA)	1.06	0.0250	1.001	0	105	58.3	145				
1,1-Dichloropropene	1.08	0.0200	1.001	0	108	55.1	138				
Carbon tetrachloride	1.03	0.0250	1.001	0	103	53.3	144				
1,2-Dichloroethane (EDC)	0.949	0.0200	1.001	0	94.8	51.3	139				
Benzene	1.09	0.0200	1.001	0	109	63.5	133				
Trichloroethene (TCE)	1.11	0.0200	1.001	0	111	61.6	147				
1,2-Dichloropropane	1.03	0.0200	1.001	0	103	59	136				
Bromodichloromethane	0.935	0.0200	1.001	0	93.4	50.7	141				
Dibromomethane	0.987	0.0200	1.001	0	98.6	50.6	137				
cis-1,3-Dichloropropene	1.09	0.0200	1.001	0	108	50.4	138				
Toluene	1.10	0.0200	1.001	0	110	63.4	132				
trans-1,3-Dichloropropylene	1.11	0.0200	1.001	0	111	44.1	147				
1,1,2-Trichloroethane	1.02	0.0200	1.001	0	102	51.6	137				
1,3-Dichloropropane	1.02	0.0250	1.001	0	101	53.1	134				
Tetrachloroethene (PCE)	1.15	0.0250	1.001	0	115	35.6	158				
Dibromochloromethane	0.893	0.0250	1.001	0	89.2	55.3	140				
1,2-Dibromoethane (EDB)	1.01	0.00501	1.001	0	100	50.4	136				
Chlorobenzene	1.15	0.0250	1.001	0	115	60	133				
1,1,1,2-Tetrachloroethane	1.07	0.0250	1.001	0	107	53.1	142				
Ethylbenzene	1.16	0.0250	1.001	0	116	54.5	134				
m,p-Xylene	2.34	0.0501	2.002	0	117	53.1	132				
o-Xylene	1.18	0.0250	1.001	0	118	53.3	139				
Styrene	1.13	0.0250	1.001	0	113	51.1	132				
Isopropylbenzene	1.17	0.0250	1.001	0	117	58.9	138				
Bromoform	0.881	0.0501	1.001	0	88.0	57.9	130				
1,1,2,2-Tetrachloroethane	0.990	0.0200	1.001	0	98.9	51.9	131				
n-Propylbenzene	1.11	0.0250	1.001	0	111	53.6	140				
Bromobenzene	1.14	0.0200	1.001	0	114	54.2	140				

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CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709310-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746967**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	1.14	0.0250	1.001	0	113	51.8	136				
2-Chlorotoluene	1.13	0.0250	1.001	0	113	51.6	136				
4-Chlorotoluene	1.10	0.0250	1.001	0	109	50.1	139				
tert-Butylbenzene	1.15	0.0250	1.001	0	115	50.5	135				
1,2,3-Trichloropropane	1.02	0.0250	1.001	0	102	50.5	131				
1,2,4-Trichlorobenzene	1.24	0.0250	1.001	0	124	50.8	130				
sec-Butylbenzene	1.14	0.0501	1.001	0	114	52.6	141				
4-Isopropyltoluene	1.15	0.0501	1.001	0	115	52.9	134				
1,3-Dichlorobenzene	1.20	0.0200	1.001	0	120	52.6	131				
1,4-Dichlorobenzene	1.18	0.0200	1.001	0	118	52.9	129				
n-Butylbenzene	1.27	0.0250	1.001	0	127	52.6	130				
1,2-Dichlorobenzene	1.18	0.0200	1.001	0	118	55.8	129				
1,2-Dibromo-3-chloropropane	0.904	0.501	1.001	0	90.3	40.5	131				
1,2,4-Trimethylbenzene	1.15	0.0200	1.001	0	115	50.6	137				
Hexachlorobutadiene	1.37	0.0501	1.001	0	137	40.6	158				
Naphthalene	1.19	0.0501	1.001	0	119	52.3	124				
1,2,3-Trichlorobenzene	1.18	0.0200	1.001	0	118	54.4	124				
Surr: Dibromofluoromethane	1.14		1.251		90.7	56.5	129				
Surr: Toluene-d8	1.15		1.251		92.2	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.24		1.251		99.4	63.1	141				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1709310-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746968**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.862	0.0200	1.001	0	86.1	43.5	121	0.7581	12.8	30	
Chloromethane	1.03	0.0501	1.001	0	103	45	130	0.8909	14.2	30	
Vinyl chloride	1.05	0.0250	1.001	0	105	43.6	150	0.9435	11.1	30	
Bromomethane	0.521	0.0501	1.001	0	52.1	21.3	120	0.5095	2.27	30	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709310-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746968**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichlorofluoromethane (CFC-11)	0.625	0.0200	1.001	0	62.4	35	131	0.5583	11.2	30	
Chloroethane	0.492	0.0501	1.001	0	49.2	31.9	123	0.4430	10.6	30	
1,1-Dichloroethene	1.18	0.0200	1.001	0	118	47.3	147	1.052	11.8	30	
Methylene chloride	1.16	0.0200	1.001	0	116	54.7	142	1.071	7.71	30	
trans-1,2-Dichloroethene	1.24	0.0200	1.001	0	124	52	136	1.128	9.43	30	
Methyl tert-butyl ether (MTBE)	1.11	0.0501	1.001	0	111	58.5	167	1.071	3.72	30	
1,1-Dichloroethane	1.12	0.0200	1.001	0	112	51.8	141	1.038	7.76	30	
2,2-Dichloropropane	1.44	0.100	1.001	0	144	36	123	1.297	10.6	30	S
cis-1,2-Dichloroethene	1.17	0.0200	1.001	0	117	58.6	136	1.096	6.46	30	
Chloroform	1.12	0.0200	1.001	0	112	53.2	129	1.052	5.95	30	
1,1,1-Trichloroethane (TCA)	1.18	0.0250	1.001	0	117	58.3	145	1.056	10.7	30	
1,1-Dichloropropene	1.20	0.0200	1.001	0	120	55.1	138	1.083	10.6	30	
Carbon tetrachloride	1.11	0.0250	1.001	0	111	53.3	144	1.030	7.51	30	
1,2-Dichloroethane (EDC)	0.993	0.0200	1.001	0	99.1	51.3	139	0.9493	4.46	30	
Benzene	1.18	0.0200	1.001	0	118	63.5	133	1.094	7.40	30	
Trichloroethene (TCE)	1.22	0.0200	1.001	0	122	61.6	147	1.113	9.34	30	
1,2-Dichloropropane	1.09	0.0200	1.001	0	109	59	136	1.034	5.43	30	
Bromodichloromethane	1.01	0.0200	1.001	0	101	50.7	141	0.9354	7.69	30	
Dibromomethane	1.02	0.0200	1.001	0	102	50.6	137	0.9873	3.58	30	
cis-1,3-Dichloropropene	1.16	0.0200	1.001	0	116	50.4	138	1.086	6.73	30	
Toluene	1.19	0.0200	1.001	0	119	63.4	132	1.104	7.81	30	
trans-1,3-Dichloropropylene	1.12	0.0200	1.001	0	112	44.1	147	1.113	0.970	30	
1,1,2-Trichloroethane	1.03	0.0200	1.001	0	103	51.6	137	1.023	1.06	30	
1,3-Dichloropropane	1.03	0.0250	1.001	0	103	53.1	134	1.016	1.43	30	
Tetrachloroethene (PCE)	1.26	0.0250	1.001	0	126	35.6	158	1.155	8.53	30	
Dibromochloromethane	0.932	0.0250	1.001	0	93.1	55.3	140	0.8934	4.25	30	
1,2-Dibromoethane (EDB)	1.03	0.00501	1.001	0	103	50.4	136	1.006	2.52	30	
Chlorobenzene	1.24	0.0250	1.001	0	124	60	133	1.151	7.26	30	
1,1,1,2-Tetrachloroethane	1.14	0.0250	1.001	0	114	53.1	142	1.069	6.43	30	
Ethylbenzene	1.27	0.0250	1.001	0	127	54.5	134	1.157	9.22	30	
m,p-Xylene	2.56	0.0501	2.002	0	128	53.1	132	2.340	8.78	30	

Work Order: 1709309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709310-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **9/26/2017** RunNo: **38853**
Client ID: **BATCH** Batch ID: **18320** Analysis Date: **9/26/2017** SeqNo: **746968**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	1.26	0.0250	1.001	0	126	53.3	139	1.177	6.51	30	
Styrene	1.21	0.0250	1.001	0	121	51.1	132	1.133	6.94	30	
Isopropylbenzene	1.27	0.0250	1.001	0	127	58.9	138	1.169	8.34	30	
Bromoform	0.929	0.0501	1.001	0	92.8	57.9	130	0.8809	5.36	30	
1,1,2,2-Tetrachloroethane	1.02	0.0200	1.001	0	102	51.9	131	0.9896	2.68	30	
n-Propylbenzene	1.23	0.0250	1.001	0	123	53.6	140	1.114	9.80	30	
Bromobenzene	1.21	0.0200	1.001	0	121	54.2	140	1.142	5.95	30	
1,3,5-Trimethylbenzene	1.23	0.0250	1.001	0	122	51.8	136	1.136	7.61	30	
2-Chlorotoluene	1.20	0.0250	1.001	0	120	51.6	136	1.129	6.43	30	
4-Chlorotoluene	1.18	0.0250	1.001	0	118	50.1	139	1.095	7.49	30	
tert-Butylbenzene	1.25	0.0250	1.001	0	125	50.5	135	1.149	8.62	30	
1,2,3-Trichloropropane	1.05	0.0250	1.001	0	105	50.5	131	1.023	2.28	30	
1,2,4-Trichlorobenzene	1.32	0.0250	1.001	0	132	50.8	130	1.244	5.76	30	S
sec-Butylbenzene	1.25	0.0501	1.001	0	125	52.6	141	1.144	9.00	30	
4-Isopropyltoluene	1.24	0.0501	1.001	0	124	52.9	134	1.151	7.83	30	
1,3-Dichlorobenzene	1.29	0.0200	1.001	0	128	52.6	131	1.202	6.79	30	
1,4-Dichlorobenzene	1.27	0.0200	1.001	0	127	52.9	129	1.182	7.10	30	
n-Butylbenzene	1.40	0.0250	1.001	0	140	52.6	130	1.268	10.2	30	S
1,2-Dichlorobenzene	1.25	0.0200	1.001	0	125	55.8	129	1.182	5.86	30	
1,2-Dibromo-3-chloropropane	0.958	0.501	1.001	0	95.7	40.5	131	0.9039	5.85	30	
1,2,4-Trimethylbenzene	1.23	0.0200	1.001	0	123	50.6	137	1.152	6.94	30	
Hexachlorobutadiene	1.51	0.0501	1.001	0	151	40.6	158	1.374	9.52	30	
Naphthalene	1.30	0.0501	1.001	0	130	52.3	124	1.194	8.78	30	S
1,2,3-Trichlorobenzene	1.26	0.0200	1.001	0	126	54.4	124	1.182	6.19	30	S
Surr: Dibromofluoromethane	1.15		1.251		91.6	56.5	129		0		
Surr: Toluene-d8	1.19		1.251		95.5	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.23		1.251		98.4	63.1	141		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1709309**
Logged by:	**Brianna Barnes**	Date Received:	**9/26/2017 2:29:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

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 ☐
			MeOH VOA extracted upon receipt	
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	23.8
Sample	22.7

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 9/26/17 Laboratory Project No (internal): 1709309

Page: _____ of: _____

Client: GeoEngineers Project Name: Block 21

Address: _____ Project No: _____ Collected by: CMO

City, State, Zip: _____ Location: _____

Telephone: _____ Fax: _____ Report To (PM): Cris Brown

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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	Blank			S													
2	PCS-1-092617	9/26/17		W	X		X	X		X	X		X				RCRA 8
3	PCS-2-092617	9/26/17		W	X		X	X		X	X		X				RCRA 8
4																	
5																	
6																	
7																	
8																	
9																	
10																	

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	9/26/17 1405	x	9/26/17 1405
x	9/26/17 1420	x	9/26/17 1429

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 9/26/17 Laboratory Project No (internal): 1709309

Page: _____ of: _____

Client: GeoEngineers Project Name: Block 21

Address: _____ Project No: _____ Collected by: CMD

City, State, Zip: _____ Location: _____

Telephone: _____ Fax: _____ Report To (PM): Chris Brown

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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 524)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 525)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~Test~~			S													
2	~~PCS-1-092617~~	9/26/17		|	X		X	X		X		X					RCRA 8 SC-W9538
3	~~PCS-2-092617~~	9/26/17		|	X		X	X		X		X					RCRA 8 SC-W10540
4																	
5																	
6																	
7																	
8																	
9																	
10																	

**Metals Analysis (Circle): MTCA-5 RCRA-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 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.

Special Remarks: Sample ID changes per C.D. 1/29/18 ew

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	9/26/17 1405	x	9/26/17 1405
x	9/26/17 1428	x	9/26/17 1429

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1709342

October 02, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 6 sample(s) on 9/27/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Hexavalent Chromium by EPA Method 7196
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

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
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

Date: *10/02/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1709342

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1709342-001	TP21-6-2.5	09/27/2017 1:15 PM	09/27/2017 3:58 PM
1709342-002	TP21-6-6.0	09/27/2017 1:50 PM	09/27/2017 3:58 PM
1709342-003	TP21-7-2.5	09/27/2017 2:20 PM	09/27/2017 3:58 PM
1709342-004	TP21-7-5.5	09/27/2017 2:30 PM	09/27/2017 3:58 PM
1709342-005	TP21-10-3.0	09/27/2017 2:10 PM	09/27/2017 3:58 PM
1709342-006	Trip Blank	09/26/2017 10:15 AM	09/27/2017 3:58 PM

Case Narrative

WO#: **1709342**
Date: **10/2/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Client: GeoEngineers
Collection Date: 9/27/2017 1:15:00 PM
Project: Block 21
Lab ID: 1709342-001
Matrix: Soil
Client Sample ID: **TP21-6-2.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18328		Analyst: SB
Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	9/28/2017 3:12:41 AM
Heavy Oil	171	51.5		mg/Kg-dry	1	9/28/2017 3:12:41 AM
Surr: 2-Fluorobiphenyl	90.4	50 - 150		%Rec	1	9/28/2017 3:12:41 AM
Surr: o-Terphenyl	96.5	50 - 150		%Rec	1	9/28/2017 3:12:41 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18347		Analyst: SG
Naphthalene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
2-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
1-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Acenaphthylene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Acenaphthene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Fluorene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Phenanthrene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Anthracene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Fluoranthene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Pyrene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Benz(a)anthracene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Chrysene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Benzo(b)fluoranthene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Benzo(j,k)fluoranthene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Benzo(a)pyrene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Indeno(1,2,3-cd)pyrene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Dibenz(a,h)anthracene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Benzo(g,h,i)perylene	ND	40.8		µg/Kg-dry	1	9/28/2017 2:38:50 PM
Surr: 2-Fluorobiphenyl	55.9	10 - 123		%Rec	1	9/28/2017 2:38:50 PM
Surr: Terphenyl-d14 (surr)	127	46.2 - 179		%Rec	1	9/28/2017 2:38:50 PM
Gasoline by NWTPH-Gx				Batch ID: 18337		Analyst: NG
Gasoline	ND	5.00		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Surr: Toluene-d8	97.1	65 - 135		%Rec	1	9/28/2017 2:02:43 PM
Surr: 4-Bromofluorobenzene	103	65 - 135		%Rec	1	9/28/2017 2:02:43 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Chloromethane	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Vinyl chloride	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM

Client: GeoEngineers
Collection Date: 9/27/2017 1:15:00 PM
Project: Block 21
Lab ID: 1709342-001
Matrix: Soil
Client Sample ID: **TP21-6-2.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 18337 Analyst: NG

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0500	*	mg/Kg-dry	1	9/28/2017 2:02:43 PM
Trichlorofluoromethane (CFC-11)	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Chloroethane	ND	0.0500	*	mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,1-Dichloroethene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Methylene chloride	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
trans-1,2-Dichloroethene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Methyl tert-butyl ether (MTBE)	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,1-Dichloroethane	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
2,2-Dichloropropane	ND	0.100		mg/Kg-dry	1	9/28/2017 2:02:43 PM
cis-1,2-Dichloroethene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Chloroform	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,1,1-Trichloroethane (TCA)	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,1-Dichloropropene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Carbon tetrachloride	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2-Dichloroethane (EDC)	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Benzene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Trichloroethene (TCE)	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2-Dichloropropane	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Bromodichloromethane	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Dibromomethane	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
cis-1,3-Dichloropropene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Toluene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
trans-1,3-Dichloropropylene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,1,2-Trichloroethane	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,3-Dichloropropane	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Tetrachloroethene (PCE)	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Dibromochloromethane	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2-Dibromoethane (EDB)	ND	0.00500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Chlorobenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,1,1,2-Tetrachloroethane	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Ethylbenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
m,p-Xylene	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
o-Xylene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Styrene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Isopropylbenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Bromoform	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,1,2,2-Tetrachloroethane	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
n-Propylbenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Bromobenzene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 1:15:00 PM
Project: Block 21
Lab ID: 1709342-001
Matrix: Soil
Client Sample ID: **TP21-6-2.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
1,3,5-Trimethylbenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
2-Chlorotoluene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
4-Chlorotoluene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
tert-Butylbenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2,3-Trichloropropane	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2,4-Trichlorobenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
sec-Butylbenzene	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
4-Isopropyltoluene	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,3-Dichlorobenzene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,4-Dichlorobenzene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
n-Butylbenzene	ND	0.0250		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2-Dichlorobenzene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2-Dibromo-3-chloropropane	ND	0.500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2,4-Trimethylbenzene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Hexachlorobutadiene	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Naphthalene	ND	0.0500		mg/Kg-dry	1	9/28/2017 2:02:43 PM
1,2,3-Trichlorobenzene	ND	0.0200		mg/Kg-dry	1	9/28/2017 2:02:43 PM
Surr: Dibromofluoromethane	94.1	56.5 - 129		%Rec	1	9/28/2017 2:02:43 PM
Surr: Toluene-d8	91.9	64.5 - 151		%Rec	1	9/28/2017 2:02:43 PM
Surr: 1-Bromo-4-fluorobenzene	98.7	43.2 - 143		%Rec	1	9/28/2017 2:02:43 PM

NOTES:
* - Flagged value is not within established control limits.

Mercury by EPA Method 7471				Batch ID: 18349		Analyst: WF
Mercury	ND	0.268		mg/Kg-dry	1	9/28/2017 2:19:08 PM
Total Metals by EPA Method 6020				Batch ID: 18346		Analyst: TN
Arsenic	3.39	0.0813		mg/Kg-dry	1	9/28/2017 3:25:49 PM
Barium	56.2	0.407		mg/Kg-dry	1	9/28/2017 3:25:49 PM
Cadmium	ND	0.163		mg/Kg-dry	1	9/28/2017 3:25:49 PM
Chromium	26.9	0.0813		mg/Kg-dry	1	9/28/2017 3:25:49 PM
Lead	5.93	0.163	B	mg/Kg-dry	1	9/28/2017 3:25:49 PM
Selenium	0.711	0.407		mg/Kg-dry	1	9/28/2017 3:25:49 PM
Silver	ND	0.0813		mg/Kg-dry	1	9/28/2017 3:25:49 PM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 1:15:00 PM
Project: Block 21
Lab ID: 1709342-001
Matrix: Soil
Client Sample ID: **TP21-6-2.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R38876		Analyst: CG
Percent Moisture	10.2			wt%	1	9/28/2017 9:30:34 AM

Client: GeoEngineers
Collection Date: 9/27/2017 1:50:00 PM
Project: Block 21
Lab ID: 1709342-002
Matrix: Soil
Client Sample ID: **TP21-6-6.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18328		Analyst: SB
Diesel (Fuel Oil)	ND	21.5		mg/Kg-dry	1	9/28/2017 4:12:16 AM
Heavy Oil	ND	53.7		mg/Kg-dry	1	9/28/2017 4:12:16 AM
Surr: 2-Fluorobiphenyl	93.6	50 - 150		%Rec	1	9/28/2017 4:12:16 AM
Surr: o-Terphenyl	99.0	50 - 150		%Rec	1	9/28/2017 4:12:16 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18347		Analyst: SG
Naphthalene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
2-Methylnaphthalene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
1-Methylnaphthalene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Acenaphthylene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Acenaphthene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Fluorene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Phenanthrene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Anthracene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Fluoranthene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Pyrene	66.5	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Benz(a)anthracene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Chrysene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Benzo(b)fluoranthene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Benzo(j,k)fluoranthene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Benzo(a)pyrene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Indeno(1,2,3-cd)pyrene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Dibenz(a,h)anthracene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Benzo(g,h,i)perylene	ND	45.4		µg/Kg-dry	1	9/28/2017 6:12:37 PM
Surr: 2-Fluorobiphenyl	49.6	10 - 123		%Rec	1	9/28/2017 6:12:37 PM
Surr: Terphenyl-d14 (surr)	123	46.2 - 179		%Rec	1	9/28/2017 6:12:37 PM
Gasoline by NWTPH-Gx				Batch ID: 18337		Analyst: NG
Gasoline	ND	3.70		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Surr: Toluene-d8	97.1	65 - 135		%Rec	1	9/28/2017 2:32:43 PM
Surr: 4-Bromofluorobenzene	103	65 - 135		%Rec	1	9/28/2017 2:32:43 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Chloromethane	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Vinyl chloride	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM

Client: GeoEngineers
Collection Date: 9/27/2017 1:50:00 PM
Project: Block 21
Lab ID: 1709342-002
Matrix: Soil
Client Sample ID: **TP21-6-6.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 18337 Analyst: NG

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0370	*	mg/Kg-dry	1	9/28/2017 2:32:43 PM
Trichlorofluoromethane (CFC-11)	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Chloroethane	ND	0.0370	*	mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,1-Dichloroethene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Methylene chloride	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
trans-1,2-Dichloroethene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Methyl tert-butyl ether (MTBE)	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,1-Dichloroethane	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
2,2-Dichloropropane	ND	0.0740		mg/Kg-dry	1	9/28/2017 2:32:43 PM
cis-1,2-Dichloroethene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Chloroform	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,1,1-Trichloroethane (TCA)	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,1-Dichloropropene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Carbon tetrachloride	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2-Dichloroethane (EDC)	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Benzene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Trichloroethene (TCE)	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2-Dichloropropane	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Bromodichloromethane	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Dibromomethane	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
cis-1,3-Dichloropropene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Toluene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
trans-1,3-Dichloropropylene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,1,2-Trichloroethane	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,3-Dichloropropane	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Tetrachloroethene (PCE)	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Dibromochloromethane	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2-Dibromoethane (EDB)	ND	0.00370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Chlorobenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,1,1,2-Tetrachloroethane	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Ethylbenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
m,p-Xylene	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
o-Xylene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Styrene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Isopropylbenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Bromoform	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,1,2,2-Tetrachloroethane	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
n-Propylbenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Bromobenzene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM

Client: GeoEngineers
Collection Date: 9/27/2017 1:50:00 PM
Project: Block 21
Lab ID: 1709342-002
Matrix: Soil
Client Sample ID: **TP21-6-6.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
1,3,5-Trimethylbenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
2-Chlorotoluene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
4-Chlorotoluene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
tert-Butylbenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2,3-Trichloropropane	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2,4-Trichlorobenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
sec-Butylbenzene	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
4-Isopropyltoluene	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,3-Dichlorobenzene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,4-Dichlorobenzene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
n-Butylbenzene	ND	0.0185		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2-Dichlorobenzene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2-Dibromo-3-chloropropane	ND	0.370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2,4-Trimethylbenzene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Hexachlorobutadiene	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Naphthalene	ND	0.0370		mg/Kg-dry	1	9/28/2017 2:32:43 PM
1,2,3-Trichlorobenzene	ND	0.0148		mg/Kg-dry	1	9/28/2017 2:32:43 PM
Surr: Dibromofluoromethane	94.4	56.5 - 129		%Rec	1	9/28/2017 2:32:43 PM
Surr: Toluene-d8	93.8	64.5 - 151		%Rec	1	9/28/2017 2:32:43 PM
Surr: 1-Bromo-4-fluorobenzene	98.0	43.2 - 143		%Rec	1	9/28/2017 2:32:43 PM

NOTES:
* - Flagged value is not within established control limits.

Mercury by EPA Method 7471				Batch ID: 18349		Analyst: WF
Mercury	ND	0.274		mg/Kg-dry	1	9/28/2017 2:25:38 PM
Total Metals by EPA Method 6020				Batch ID: 18346		Analyst: TN
Arsenic	2.00	0.0904		mg/Kg-dry	1	9/28/2017 3:29:50 PM
Barium	44.1	0.452		mg/Kg-dry	1	9/28/2017 3:29:50 PM
Cadmium	ND	0.181		mg/Kg-dry	1	9/28/2017 3:29:50 PM
Chromium	26.9	0.0904		mg/Kg-dry	1	9/28/2017 3:29:50 PM
Lead	3.22	0.181	B	mg/Kg-dry	1	9/28/2017 3:29:50 PM
Selenium	0.931	0.452		mg/Kg-dry	1	9/28/2017 3:29:50 PM
Silver	ND	0.0904		mg/Kg-dry	1	9/28/2017 3:29:50 PM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 1:50:00 PM
Project: Block 21
Lab ID: 1709342-002
Matrix: Soil
Client Sample ID: **TP21-6-6.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R38876		Analyst: CG
Percent Moisture	12.2			wt%	1	9/28/2017 9:30:34 AM

Client: GeoEngineers
Collection Date: 9/27/2017 2:20:00 PM
Project: Block 21
Lab ID: 1709342-003
Matrix: Soil
Client Sample ID: **TP21-7-2.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18328		Analyst: SB
Diesel (Fuel Oil)	ND	25.1		mg/Kg-dry	1	9/28/2017 4:42:03 AM
Heavy Oil	ND	62.7		mg/Kg-dry	1	9/28/2017 4:42:03 AM
Surr: 2-Fluorobiphenyl	94.1	50 - 150		%Rec	1	9/28/2017 4:42:03 AM
Surr: o-Terphenyl	99.9	50 - 150		%Rec	1	9/28/2017 4:42:03 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18347		Analyst: SG
Naphthalene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
2-Methylnaphthalene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
1-Methylnaphthalene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Acenaphthylene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Acenaphthene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Fluorene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Phenanthrene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Anthracene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Fluoranthene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Pyrene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Benz(a)anthracene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Chrysene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Benzo(b)fluoranthene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Benzo(j,k)fluoranthene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Benzo(a)pyrene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Indeno(1,2,3-cd)pyrene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Dibenz(a,h)anthracene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Benzo(g,h,i)perylene	ND	50.1		µg/Kg-dry	1	9/28/2017 6:35:43 PM
Surr: 2-Fluorobiphenyl	56.4	10 - 123		%Rec	1	9/28/2017 6:35:43 PM
Surr: Terphenyl-d14 (surr)	134	46.2 - 179		%Rec	1	9/28/2017 6:35:43 PM
Gasoline by NWTPH-Gx				Batch ID: 18337		Analyst: NG
Gasoline	ND	6.78		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Surr: Toluene-d8	99.8	65 - 135		%Rec	1	9/28/2017 3:02:51 PM
Surr: 4-Bromofluorobenzene	102	65 - 135		%Rec	1	9/28/2017 3:02:51 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Chloromethane	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Vinyl chloride	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM

Client: GeoEngineers
Collection Date: 9/27/2017 2:20:00 PM
Project: Block 21
Lab ID: 1709342-003
Matrix: Soil
Client Sample ID: **TP21-7-2.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
Bromomethane	ND	0.0678	*	mg/Kg-dry	1	9/28/2017 3:02:51 PM
Trichlorofluoromethane (CFC-11)	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Chloroethane	ND	0.0678	*	mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,1-Dichloroethene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Methylene chloride	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
trans-1,2-Dichloroethene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Methyl tert-butyl ether (MTBE)	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,1-Dichloroethane	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
2,2-Dichloropropane	ND	0.136		mg/Kg-dry	1	9/28/2017 3:02:51 PM
cis-1,2-Dichloroethene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Chloroform	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,1,1-Trichloroethane (TCA)	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,1-Dichloropropene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Carbon tetrachloride	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2-Dichloroethane (EDC)	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Benzene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Trichloroethene (TCE)	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2-Dichloropropane	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Bromodichloromethane	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Dibromomethane	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
cis-1,3-Dichloropropene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Toluene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
trans-1,3-Dichloropropylene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,1,2-Trichloroethane	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,3-Dichloropropane	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Tetrachloroethene (PCE)	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Dibromochloromethane	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2-Dibromoethane (EDB)	ND	0.00678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Chlorobenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,1,1,2-Tetrachloroethane	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Ethylbenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
m,p-Xylene	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
o-Xylene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Styrene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Isopropylbenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Bromoform	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,1,2,2-Tetrachloroethane	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
n-Propylbenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Bromobenzene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 2:20:00 PM
Project: Block 21
Lab ID: 1709342-003
Matrix: Soil
Client Sample ID: **TP21-7-2.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
1,3,5-Trimethylbenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
2-Chlorotoluene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
4-Chlorotoluene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
tert-Butylbenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2,3-Trichloropropane	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2,4-Trichlorobenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
sec-Butylbenzene	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
4-Isopropyltoluene	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,3-Dichlorobenzene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,4-Dichlorobenzene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
n-Butylbenzene	ND	0.0339		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2-Dichlorobenzene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2-Dibromo-3-chloropropane	ND	0.678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2,4-Trimethylbenzene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Hexachlorobutadiene	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Naphthalene	ND	0.0678		mg/Kg-dry	1	9/28/2017 3:02:51 PM
1,2,3-Trichlorobenzene	ND	0.0271		mg/Kg-dry	1	9/28/2017 3:02:51 PM
Surr: Dibromofluoromethane	94.3	56.5 - 129		%Rec	1	9/28/2017 3:02:51 PM
Surr: Toluene-d8	95.1	64.5 - 151		%Rec	1	9/28/2017 3:02:51 PM
Surr: 1-Bromo-4-fluorobenzene	97.5	43.2 - 143		%Rec	1	9/28/2017 3:02:51 PM

NOTES:
* - Flagged value is not within established control limits.

Mercury by EPA Method 7471				Batch ID: 18349		Analyst: WF
Mercury	ND	0.314		mg/Kg-dry	1	9/28/2017 2:27:14 PM
Total Metals by EPA Method 6020				Batch ID: 18346		Analyst: TN
Arsenic	5.99	0.104		mg/Kg-dry	1	9/28/2017 3:33:52 PM
Barium	143	0.521		mg/Kg-dry	1	9/28/2017 3:33:52 PM
Cadmium	ND	0.208		mg/Kg-dry	1	9/28/2017 3:33:52 PM
Chromium	59.7	0.104		mg/Kg-dry	1	9/28/2017 3:33:52 PM
Lead	20.2	0.208		mg/Kg-dry	1	9/28/2017 3:33:52 PM
Selenium	1.78	0.521		mg/Kg-dry	1	9/28/2017 3:33:52 PM
Silver	ND	0.104		mg/Kg-dry	1	9/29/2017 11:14:43 AM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 2:20:00 PM
Project: Block 21
Lab ID: 1709342-003
Matrix: Soil
Client Sample ID: **TP21-7-2.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R38876		Analyst: CG
Percent Moisture	25.0			wt%	1	9/28/2017 9:30:34 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 18375		Analyst: KT
Chromium, Hexavalent	ND	0.663		mg/Kg-dry	1	10/2/2017 12:32:00 PM

Client: GeoEngineers
Collection Date: 9/27/2017 2:30:00 PM
Project: Block 21
Lab ID: 1709342-004
Matrix: Soil
Client Sample ID: **TP21-7-5.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18328		Analyst: SB
Diesel (Fuel Oil)	ND	29.2		mg/Kg-dry	1	9/28/2017 5:11:56 AM
Heavy Oil	ND	72.9		mg/Kg-dry	1	9/28/2017 5:11:56 AM
Surr: 2-Fluorobiphenyl	93.6	50 - 150		%Rec	1	9/28/2017 5:11:56 AM
Surr: o-Terphenyl	99.1	50 - 150		%Rec	1	9/28/2017 5:11:56 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18347		Analyst: SG
Naphthalene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
2-Methylnaphthalene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
1-Methylnaphthalene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Acenaphthylene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Acenaphthene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Fluorene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Phenanthrene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Anthracene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Fluoranthene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Pyrene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Benz(a)anthracene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Chrysene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Benzo(b)fluoranthene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Benzo(j,k)fluoranthene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Benzo(a)pyrene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Indeno(1,2,3-cd)pyrene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Dibenz(a,h)anthracene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Benzo(g,h,i)perylene	ND	57.8		µg/Kg-dry	1	9/28/2017 6:58:44 PM
Surr: 2-Fluorobiphenyl	52.3	10 - 123		%Rec	1	9/28/2017 6:58:44 PM
Surr: Terphenyl-d14 (surr)	119	46.2 - 179		%Rec	1	9/28/2017 6:58:44 PM
Gasoline by NWTPH-Gx				Batch ID: 18337		Analyst: NG
Gasoline	ND	10.7		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Surr: Toluene-d8	99.7	65 - 135		%Rec	1	9/28/2017 3:32:52 PM
Surr: 4-Bromofluorobenzene	101	65 - 135		%Rec	1	9/28/2017 3:32:52 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Chloromethane	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Vinyl chloride	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM

Client: GeoEngineers
Collection Date: 9/27/2017 2:30:00 PM
Project: Block 21
Lab ID: 1709342-004
Matrix: Soil
Client Sample ID: **TP21-7-5.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 18337 Analyst: NG

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.107	*	mg/Kg-dry	1	9/28/2017 3:32:52 PM
Trichlorofluoromethane (CFC-11)	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Chloroethane	ND	0.107	*	mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,1-Dichloroethene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Methylene chloride	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
trans-1,2-Dichloroethene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Methyl tert-butyl ether (MTBE)	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,1-Dichloroethane	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
2,2-Dichloropropane	ND	0.214		mg/Kg-dry	1	9/28/2017 3:32:52 PM
cis-1,2-Dichloroethene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Chloroform	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,1,1-Trichloroethane (TCA)	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,1-Dichloropropene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Carbon tetrachloride	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2-Dichloroethane (EDC)	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Benzene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Trichloroethene (TCE)	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2-Dichloropropane	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Bromodichloromethane	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Dibromomethane	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
cis-1,3-Dichloropropene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Toluene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
trans-1,3-Dichloropropylene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,1,2-Trichloroethane	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,3-Dichloropropane	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Tetrachloroethene (PCE)	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Dibromochloromethane	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2-Dibromoethane (EDB)	ND	0.0107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Chlorobenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,1,1,2-Tetrachloroethane	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Ethylbenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
m,p-Xylene	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
o-Xylene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Styrene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Isopropylbenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Bromoform	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,1,2,2-Tetrachloroethane	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
n-Propylbenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Bromobenzene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM

Client: GeoEngineers
Collection Date: 9/27/2017 2:30:00 PM
Project: Block 21
Lab ID: 1709342-004
Matrix: Soil
Client Sample ID: **TP21-7-5.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
1,3,5-Trimethylbenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
2-Chlorotoluene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
4-Chlorotoluene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
tert-Butylbenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2,3-Trichloropropane	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2,4-Trichlorobenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
sec-Butylbenzene	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
4-Isopropyltoluene	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,3-Dichlorobenzene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,4-Dichlorobenzene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
n-Butylbenzene	ND	0.0535		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2-Dichlorobenzene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2-Dibromo-3-chloropropane	ND	1.07		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2,4-Trimethylbenzene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Hexachlorobutadiene	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Naphthalene	ND	0.107		mg/Kg-dry	1	9/28/2017 3:32:52 PM
1,2,3-Trichlorobenzene	ND	0.0428		mg/Kg-dry	1	9/28/2017 3:32:52 PM
Surr: Dibromofluoromethane	94.4	56.5 - 129		%Rec	1	9/28/2017 3:32:52 PM
Surr: Toluene-d8	95.7	64.5 - 151		%Rec	1	9/28/2017 3:32:52 PM
Surr: 1-Bromo-4-fluorobenzene	95.9	43.2 - 143		%Rec	1	9/28/2017 3:32:52 PM

NOTES:
* - Flagged value is not within established control limits.

Mercury by EPA Method 7471				Batch ID: 18349		Analyst: WF
Mercury	ND	0.364		mg/Kg-dry	1	9/28/2017 2:28:50 PM
Total Metals by EPA Method 6020				Batch ID: 18346		Analyst: TN
Arsenic	8.05	0.121		mg/Kg-dry	1	9/28/2017 3:37:53 PM
Barium	259	0.606		mg/Kg-dry	1	9/28/2017 3:37:53 PM
Cadmium	ND	0.242		mg/Kg-dry	1	9/28/2017 3:37:53 PM
Chromium	91.4	0.121		mg/Kg-dry	1	9/28/2017 3:37:53 PM
Lead	8.11	0.242		mg/Kg-dry	1	9/28/2017 3:37:53 PM
Selenium	2.42	0.606		mg/Kg-dry	1	9/28/2017 3:37:53 PM
Silver	ND	0.121		mg/Kg-dry	1	9/29/2017 11:18:44 AM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 2:30:00 PM
Project: Block 21
Lab ID: 1709342-004
Matrix: Soil
Client Sample ID: **TP21-7-5.5**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R38876		Analyst: CG
Percent Moisture	34.0			wt%	1	9/28/2017 9:30:34 AM
Hexavalent Chromium by EPA Method 7196				Batch ID: 18375		Analyst: KT
Chromium, Hexavalent	ND	0.718		mg/Kg-dry	1	10/2/2017 12:36:00 PM

Client: GeoEngineers
Collection Date: 9/27/2017 2:10:00 PM
Project: Block 21
Lab ID: 1709342-005
Matrix: Soil
Client Sample ID: **TP21-10-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18328		Analyst: SB
Diesel (Fuel Oil)	ND	18.8		mg/Kg-dry	1	9/28/2017 5:41:43 AM
Heavy Oil	ND	47.1		mg/Kg-dry	1	9/28/2017 5:41:43 AM
Surr: 2-Fluorobiphenyl	95.1	50 - 150		%Rec	1	9/28/2017 5:41:43 AM
Surr: o-Terphenyl	98.2	50 - 150		%Rec	1	9/28/2017 5:41:43 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18347		Analyst: SG
Naphthalene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
2-Methylnaphthalene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
1-Methylnaphthalene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Acenaphthylene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Acenaphthene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Fluorene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Phenanthrene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Anthracene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Fluoranthene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Pyrene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Benz(a)anthracene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Chrysene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Benzo(b)fluoranthene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Benzo(j,k)fluoranthene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Benzo(a)pyrene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Indeno(1,2,3-cd)pyrene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Dibenz(a,h)anthracene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Benzo(g,h,i)perylene	ND	40.2		µg/Kg-dry	1	9/28/2017 7:21:35 PM
Surr: 2-Fluorobiphenyl	33.2	10 - 123		%Rec	1	9/28/2017 7:21:35 PM
Surr: Terphenyl-d14 (surr)	124	46.2 - 179		%Rec	1	9/28/2017 7:21:35 PM
Gasoline by NWTPH-Gx				Batch ID: 18337		Analyst: NG
Gasoline	ND	5.23		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Surr: Toluene-d8	98.4	65 - 135		%Rec	1	9/28/2017 4:02:54 PM
Surr: 4-Bromofluorobenzene	102	65 - 135		%Rec	1	9/28/2017 4:02:54 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Chloromethane	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Vinyl chloride	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM

Client: GeoEngineers
Collection Date: 9/27/2017 2:10:00 PM
Project: Block 21
Lab ID: 1709342-005
Matrix: Soil
Client Sample ID: **TP21-10-3.0**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 18337 Analyst: NG

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Bromomethane	ND	0.0523	*	mg/Kg-dry	1	9/28/2017 4:02:54 PM
Trichlorofluoromethane (CFC-11)	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Chloroethane	ND	0.0523	*	mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,1-Dichloroethene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Methylene chloride	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
trans-1,2-Dichloroethene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Methyl tert-butyl ether (MTBE)	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,1-Dichloroethane	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
2,2-Dichloropropane	ND	0.105		mg/Kg-dry	1	9/28/2017 4:02:54 PM
cis-1,2-Dichloroethene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Chloroform	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,1,1-Trichloroethane (TCA)	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,1-Dichloropropene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Carbon tetrachloride	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2-Dichloroethane (EDC)	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Benzene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Trichloroethene (TCE)	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2-Dichloropropane	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Bromodichloromethane	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Dibromomethane	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
cis-1,3-Dichloropropene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Toluene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
trans-1,3-Dichloropropylene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,1,2-Trichloroethane	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,3-Dichloropropane	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Tetrachloroethene (PCE)	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Dibromochloromethane	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2-Dibromoethane (EDB)	ND	0.00523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Chlorobenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,1,1,2-Tetrachloroethane	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Ethylbenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
m,p-Xylene	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
o-Xylene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Styrene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Isopropylbenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Bromoform	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,1,2,2-Tetrachloroethane	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
n-Propylbenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Bromobenzene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 2:10:00 PM
Project: Block 21
Lab ID: 1709342-005
Matrix: Soil
Client Sample ID: **TP21-10-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18337		Analyst: NG
1,3,5-Trimethylbenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
2-Chlorotoluene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
4-Chlorotoluene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
tert-Butylbenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2,3-Trichloropropane	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2,4-Trichlorobenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
sec-Butylbenzene	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
4-Isopropyltoluene	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,3-Dichlorobenzene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,4-Dichlorobenzene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
n-Butylbenzene	ND	0.0261		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2-Dichlorobenzene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2-Dibromo-3-chloropropane	ND	0.523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2,4-Trimethylbenzene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Hexachlorobutadiene	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Naphthalene	ND	0.0523		mg/Kg-dry	1	9/28/2017 4:02:54 PM
1,2,3-Trichlorobenzene	ND	0.0209		mg/Kg-dry	1	9/28/2017 4:02:54 PM
Surr: Dibromofluoromethane	93.0	56.5 - 129		%Rec	1	9/28/2017 4:02:54 PM
Surr: Toluene-d8	94.2	64.5 - 151		%Rec	1	9/28/2017 4:02:54 PM
Surr: 1-Bromo-4-fluorobenzene	97.0	43.2 - 143		%Rec	1	9/28/2017 4:02:54 PM

NOTES:
* - Flagged value is not within established control limits.

Mercury by EPA Method 7471				Batch ID: 18349		Analyst: WF
Mercury	ND	0.271		mg/Kg-dry	1	9/28/2017 2:30:27 PM
Total Metals by EPA Method 6020				Batch ID: 18346		Analyst: TN
Arsenic	5.85	0.0885		mg/Kg-dry	1	9/28/2017 3:41:55 PM
Barium	74.0	0.443		mg/Kg-dry	1	9/28/2017 3:41:55 PM
Cadmium	ND	0.177		mg/Kg-dry	1	9/28/2017 3:41:55 PM
Chromium	40.7	0.0885		mg/Kg-dry	1	9/28/2017 3:41:55 PM
Lead	5.84	0.177	B	mg/Kg-dry	1	9/28/2017 3:41:55 PM
Selenium	0.955	0.443		mg/Kg-dry	1	9/28/2017 3:41:55 PM
Silver	ND	0.0885		mg/Kg-dry	1	9/29/2017 11:22:46 AM

Analytical Report

Work Order: **1709342**
Date Reported: **10/2/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 2:10:00 PM
Project: Block 21
Lab ID: 1709342-005
Matrix: Soil
Client Sample ID: **TP21-10-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R38876		Analyst: CG
Percent Moisture	9.64			wt%	1	9/28/2017 9:30:34 AM

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18328**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **9/27/2017**	RunNo: **38869**
Client ID: **MBLKS**	Batch ID: **18328**		Analysis Date: **9/27/2017**	SeqNo: **747335**

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	17.4		20.00		86.9	50	150				
Surr: o-Terphenyl	18.1		20.00		90.6	50	150				

Sample ID **LCS-18328**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **9/27/2017**	RunNo: **38869**
Client ID: **LCSS**	Batch ID: **18328**		Analysis Date: **9/27/2017**	SeqNo: **747336**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	479	20.0	500.0	0	95.9	65	135				
Surr: 2-Fluorobiphenyl	18.1		20.00		90.4	50	150				
Surr: o-Terphenyl	20.0		20.00		100	50	150				

Sample ID **1709328-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **9/27/2017**	RunNo: **38869**
Client ID: **BATCH**	Batch ID: **18328**		Analysis Date: **9/27/2017**	SeqNo: **747576**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.1						0		30	
Heavy Oil	ND	45.3						0		30	
Surr: 2-Fluorobiphenyl	15.8		18.13		87.0	50	150		0		
Surr: o-Terphenyl	16.5		18.13		90.8	50	150		0		

Sample ID **1709328-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **9/27/2017**	RunNo: **38869**
Client ID: **BATCH**	Batch ID: **18328**		Analysis Date: **9/27/2017**	SeqNo: **747577**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	462	20.1	501.8	3.861	91.3	65	135				
Surr: 2-Fluorobiphenyl	17.5		20.07		87.3	50	150				
Surr: o-Terphenyl	19.7		20.07		98.3	50	150				

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1709328-001AMS**	SampType:	**MS**		Units:	**mg/Kg-dry**	Prep Date:	**9/27/2017**		RunNo:	**38869**	
Client ID:	**BATCH**	Batch ID:	**18328**				Analysis Date:	**9/27/2017**		SeqNo:	**747577**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sample ID	**1709328-001AMSD**	SampType:	**MSD**		Units:	**mg/Kg-dry**	Prep Date:	**9/27/2017**		RunNo:	**38869**	
Client ID:	**BATCH**	Batch ID:	**18328**				Analysis Date:	**9/27/2017**		SeqNo:	**747578**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Diesel (Fuel Oil)	483	19.8	493.9	3.861	96.9	65	135	462.0	4.35	30		
Surr: 2-Fluorobiphenyl	17.5		19.76		88.4	50	150		0			
Surr: o-Terphenyl	19.8		19.76		100	50	150		0			

Sample ID	**1709342-001ADUP**	SampType:	**DUP**		Units:	**mg/Kg-dry**	Prep Date:	**9/27/2017**		RunNo:	**38869**	
Client ID:	**TP21-6-2.5**	Batch ID:	**18328**				Analysis Date:	**9/28/2017**		SeqNo:	**747588**	
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	175	52.7						170.9	2.17	30		
Surr: 2-Fluorobiphenyl	19.6		21.08		92.9	50	150		0			
Surr: o-Terphenyl	21.3		21.08		101	50	150		0			

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **MB-18337**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **9/27/2017**	RunNo: **38906**
Client ID: **MBLKS**	Batch ID: **18337**		Analysis Date: **9/28/2017**	SeqNo: **748079**

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		93.2	65	135				
Surr: 4-Bromofluorobenzene	1.30		1.250		104	65	135				

Sample ID **LCS-18337**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **9/27/2017**	RunNo: **38906**
Client ID: **LCSS**	Batch ID: **18337**		Analysis Date: **9/28/2017**	SeqNo: **748078**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	21.8	5.00	25.00	0	87.1	65	135				
Surr: Toluene-d8	1.18		1.250		94.7	65	135				
Surr: 4-Bromofluorobenzene	1.24		1.250		99.2	65	135				

Sample ID **1709342-002BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **9/27/2017**	RunNo: **38906**
Client ID: **TP21-6-6.0**	Batch ID: **18337**		Analysis Date: **9/28/2017**	SeqNo: **748072**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	3.70						0		30	
Surr: Toluene-d8	0.902		0.9247		97.5	65	135		0		
Surr: 4-Bromofluorobenzene	0.954		0.9247		103	65	135		0		

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Hexavalent Chromium by EPA Method 7196

Sample ID	**MB-18375**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**10/2/2017**		RunNo:	**38959**	
Client ID:	**MBLKS**	Batch ID:	**18375**					Analysis Date:	**10/2/2017**		SeqNo:	**749012**	
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-18375**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**10/2/2017**		RunNo:	**38959**	
Client ID:	**LCSS**	Batch ID:	**18375**					Analysis Date:	**10/2/2017**		SeqNo:	**749013**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium, Hexavalent		2.44	0.500	2.500	0	97.6	65	135					

Sample ID	**1709342-004ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**10/2/2017**		RunNo:	**38959**	
Client ID:	**TP21-7-5.5**	Batch ID:	**18375**					Analysis Date:	**10/2/2017**		SeqNo:	**749017**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium, Hexavalent		ND	0.752						0		30		

Sample ID	**1709342-004AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**10/2/2017**		RunNo:	**38959**	
Client ID:	**TP21-7-5.5**	Batch ID:	**18375**					Analysis Date:	**10/2/2017**		SeqNo:	**749018**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium, Hexavalent		3.38	0.756	3.780	0	89.5	65	135					

Sample ID	**1709342-004AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**10/2/2017**		RunNo:	**38959**	
Client ID:	**TP21-7-5.5**	Batch ID:	**18375**					Analysis Date:	**10/2/2017**		SeqNo:	**749019**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium, Hexavalent		3.35	0.754	3.772	0	88.9	65	135	3.382	0.833	30		

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	**MB-18349**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**9/28/2017**	RunNo:	**38884**
Client ID:	**MBLKS**	Batch ID:	**18349**					Analysis Date:	**9/28/2017**	SeqNo:	**747854**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.250									

Sample ID	**LCS-18349**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**9/28/2017**	RunNo:	**38884**
Client ID:	**LCSS**	Batch ID:	**18349**					Analysis Date:	**9/28/2017**	SeqNo:	**747855**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.509	0.250	0.5000	0	102	80	120				

Sample ID	**1709342-001ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**9/28/2017**	RunNo:	**38884**
Client ID:	**TP21-6-2.5**	Batch ID:	**18349**					Analysis Date:	**9/28/2017**	SeqNo:	**747857**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.273						0		20	

Sample ID	**1709342-001AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**9/28/2017**	RunNo:	**38884**
Client ID:	**TP21-6-2.5**	Batch ID:	**18349**					Analysis Date:	**9/28/2017**	SeqNo:	**747858**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.560	0.268	0.5357	0.01736	101	70	130				

Sample ID	**1709342-001AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**9/28/2017**	RunNo:	**38884**
Client ID:	**TP21-6-2.5**	Batch ID:	**18349**					Analysis Date:	**9/28/2017**	SeqNo:	**747859**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.536	0.258	0.5158	0.01736	101	70	130	0.5603	4.35	20	

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18347**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **9/28/2017**	RunNo: **38913**
Client ID: **MBLKS**	Batch ID: **18347**		Analysis Date: **9/28/2017**	SeqNo: **748146**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	200		500.0		40.0	10	123				
Surr: Terphenyl-d14 (surr)	670		500.0		134	46.2	179				

Sample ID **LCS-18347**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **9/28/2017**	RunNo: **38913**
Client ID: **LCSS**	Batch ID: **18347**		Analysis Date: **9/28/2017**	SeqNo: **748147**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	922	40.0	1,000	0	92.2	46.4	125				
2-Methylnaphthalene	997	40.0	1,000	0	99.7	45.1	135				
1-Methylnaphthalene	923	40.0	1,000	0	92.3	46.2	133				
Acenaphthylene	1,090	40.0	1,000	0	109	32.8	136				
Acenaphthene	963	40.0	1,000	0	96.3	38.7	129				

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18347** SampType: **LCS** Units: **µg/Kg** Prep Date: **9/28/2017** RunNo: **38913**
Client ID: **LCSS** Batch ID: **18347** Analysis Date: **9/28/2017** SeqNo: **748147**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,010	40.0	1,000	0	101	41.4	144				
Phenanthrene	978	40.0	1,000	0	97.8	43.9	133				
Anthracene	992	40.0	1,000	0	99.2	44.2	136				
Fluoranthene	1,070	40.0	1,000	0	107	45.9	137				
Pyrene	1,090	40.0	1,000	0	109	46.2	137				
Benz(a)anthracene	1,130	40.0	1,000	0	113	41.2	141				
Chrysene	1,110	40.0	1,000	0	111	46.9	138				
Benzo(b)fluoranthene	1,130	40.0	1,000	0	113	41	155				
Benzo(j,k)fluoranthene	1,070	40.0	1,000	0	107	41.8	153				
Benzo(a)pyrene	1,100	40.0	1,000	0	110	30.2	171				
Indeno(1,2,3-cd)pyrene	1,070	40.0	1,000	0	107	31.3	159				
Dibenz(a,h)anthracene	1,080	40.0	1,000	0	108	28	158				
Benzo(g,h,i)perylene	1,030	40.0	1,000	0	103	32.4	144				
Surr: 2-Fluorobiphenyl	216		500.0		43.2	10	123				
Surr: Terphenyl-d14 (surr)	578		500.0		116	46.2	179				

Sample ID **1709342-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **9/28/2017** RunNo: **38913**
Client ID: **TP21-6-2.5** Batch ID: **18347** Analysis Date: **9/28/2017** SeqNo: **748149**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	41.0						0		30	
2-Methylnaphthalene	ND	41.0						0		30	
1-Methylnaphthalene	ND	41.0						0		30	
Acenaphthylene	ND	41.0						0		30	
Acenaphthene	ND	41.0						0		30	
Fluorene	ND	41.0						0		30	
Phenanthrene	ND	41.0						0		30	
Anthracene	ND	41.0						0		30	
Fluoranthene	ND	41.0						0		30	
Pyrene	ND	41.0						0		30	

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1709342-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **9/28/2017** RunNo: **38913**
Client ID: **TP21-6-2.5** Batch ID: **18347** Analysis Date: **9/28/2017** SeqNo: **748149**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	41.0						0		30	
Chrysene	ND	41.0						0		30	
Benzo(b)fluoranthene	ND	41.0						0		30	
Benzo(j,k)fluoranthene	ND	41.0						0		30	
Benzo(a)pyrene	ND	41.0						0		30	
Indeno(1,2,3-cd)pyrene	ND	41.0						0		30	
Dibenz(a,h)anthracene	ND	41.0						0		30	
Benzo(g,h,i)perylene	ND	41.0						0		30	
Surr: 2-Fluorobiphenyl	292		513.0		56.8	10	123		0		
Surr: Terphenyl-d14 (surr)	633		513.0		123	46.2	179		0		

Sample ID **1709342-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **9/28/2017** RunNo: **38913**
Client ID: **TP21-6-2.5** Batch ID: **18347** Analysis Date: **9/28/2017** SeqNo: **748150**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,030	41.5	1,037	0	99.7	42.9	138				
2-Methylnaphthalene	1,140	41.5	1,037	0	110	42.8	151				
1-Methylnaphthalene	1,050	41.5	1,037	0	101	41.6	148				
Acenaphthylene	1,190	41.5	1,037	0	115	32.6	160				
Acenaphthene	1,070	41.5	1,037	0	103	46.3	142				
Fluorene	1,120	41.5	1,037	0	108	43.4	153				
Phenanthrene	1,140	41.5	1,037	0	110	45.5	140				
Anthracene	1,200	41.5	1,037	0	116	32.6	160				
Fluoranthene	1,290	41.5	1,037	0	124	44.6	161				
Pyrene	1,290	41.5	1,037	0	125	48.3	158				
Benz(a)anthracene	1,250	41.5	1,037	0	121	34.9	139				
Chrysene	1,290	41.5	1,037	5.142	124	45.2	146				
Benzo(b)fluoranthene	1,210	41.5	1,037	0	116	42.2	168				
Benzo(j,k)fluoranthene	1,340	41.5	1,037	0	129	34.8	147				
Benzo(a)pyrene	1,290	41.5	1,037	0	124	34.4	179				

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1709342-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **9/28/2017** RunNo: **38913**
Client ID: **TP21-6-2.5** Batch ID: **18347** Analysis Date: **9/28/2017** SeqNo: **748150**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,200	41.5	1,037	0	116	11.8	140				
Dibenz(a,h)anthracene	1,210	41.5	1,037	0	117	17.3	156				
Benzo(g,h,i)perylene	1,150	41.5	1,037	0	111	24.9	119				
Surr: 2-Fluorobiphenyl	349		518.7		67.3	10	123				
Surr: Terphenyl-d14 (surr)	667		518.7		129	46.2	179				

Sample ID **1709342-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **9/28/2017** RunNo: **38913**
Client ID: **TP21-6-2.5** Batch ID: **18347** Analysis Date: **9/28/2017** SeqNo: **748151**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,040	43.0	1,075	0	96.3	42.9	138	1,034	0.150	30	
2-Methylnaphthalene	1,100	43.0	1,075	0	102	42.8	151	1,139	3.35	30	
1-Methylnaphthalene	1,010	43.0	1,075	0	94.0	41.6	148	1,052	3.96	30	
Acenaphthylene	1,200	43.0	1,075	0	111	32.6	160	1,195	0.299	30	
Acenaphthene	1,080	43.0	1,075	0	101	46.3	142	1,074	0.924	30	
Fluorene	1,130	43.0	1,075	0	105	43.4	153	1,117	0.753	30	
Phenanthrene	1,110	43.0	1,075	0	103	45.5	140	1,142	3.19	30	
Anthracene	1,120	43.0	1,075	0	104	32.6	160	1,204	6.91	30	
Fluoranthene	1,240	43.0	1,075	0	115	44.6	161	1,288	3.85	30	
Pyrene	1,250	43.0	1,075	0	116	48.3	158	1,292	3.32	30	
Benz(a)anthracene	1,220	43.0	1,075	0	113	34.9	139	1,250	2.58	30	
Chrysene	1,270	43.0	1,075	5.142	118	45.2	146	1,293	1.73	30	
Benzo(b)fluoranthene	1,170	43.0	1,075	0	109	42.2	168	1,208	3.17	30	
Benzo(j,k)fluoranthene	1,380	43.0	1,075	0	129	34.8	147	1,336	3.40	30	
Benzo(a)pyrene	1,290	43.0	1,075	0	120	34.4	179	1,289	0.287	30	
Indeno(1,2,3-cd)pyrene	1,200	43.0	1,075	0	112	11.8	140	1,201	0.165	30	
Dibenz(a,h)anthracene	1,210	43.0	1,075	0	113	17.3	156	1,209	0.308	30	
Benzo(g,h,i)perylene	1,150	43.0	1,075	0	107	24.9	119	1,152	0.235	30	
Surr: 2-Fluorobiphenyl	334		537.7		62.1	10	123		0		
Surr: Terphenyl-d14 (surr)	679		537.7		126	46.2	179		0		

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1709342-001AMSD**	SampType: **MSD**			Units: **µg/Kg-dry**		Prep Date: **9/28/2017**			RunNo: **38913**		
Client ID: **TP21-6-2.5**	Batch ID: **18347**					Analysis Date: **9/28/2017**			SeqNo: **748151**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1709344-006ADUP** SampType: **DUP** Units: **wt%** Prep Date: **9/28/2017** RunNo: **38876**
Client ID: **BATCH** Batch ID: **R38876** Analysis Date: **9/28/2017** SeqNo: **747548**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.1	0.500						12.74	5.25	20	

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-18346**	SampType: **MBLK**		Units: **mg/Kg**		Prep Date: **9/28/2017**		RunNo: **38898**			
Client ID:	**MBLKS**	Batch ID: **18346**				Analysis Date: **9/28/2017**		SeqNo: **747973**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.0763									
Barium	ND	0.382									
Cadmium	ND	0.153									
Chromium	ND	0.0763									
Lead	0.201	0.153									
Selenium	ND	0.382									

Sample ID	**LCS-18346**	SampType: **LCS**		Units: **mg/Kg**		Prep Date: **9/28/2017**		RunNo: **38898**			
Client ID:	**LCSS**	Batch ID: **18346**				Analysis Date: **9/28/2017**		SeqNo: **747974**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	40.8	0.0800	40.00	0	102	80	120				
Barium	45.5	0.400	40.00	0	114	80	120				
Cadmium	2.16	0.160	2.000	0	108	80	120				
Chromium	39.2	0.0800	40.00	0	97.9	80	120				
Lead	21.7	0.160	20.00	0	109	80	120				B
Selenium	3.82	0.400	4.000	0	95.6	80	120				

Sample ID	**1709282-001ADUP**	SampType: **DUP**		Units: **mg/Kg-dry**		Prep Date: **9/28/2017**		RunNo: **38898**			
Client ID:	**BATCH**	Batch ID: **18346**				Analysis Date: **9/28/2017**		SeqNo: **747976**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.66	0.0869						2.488	6.72	20	
Barium	44.7	0.434						49.16	9.46	20	
Cadmium	ND	0.174						0		20	
Chromium	30.7	0.0869						37.94	21.2	20	R
Lead	2.62	0.174						2.770	5.48	20	B
Selenium	1.22	0.434						1.110	9.01	20	

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	1709282-001AMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	9/28/2017	RunNo:	38898
Client ID:	BATCH	Batch ID:	18346			Analysis Date:	9/28/2017	SeqNo:	747978

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.8	0.0869	43.44	2.488	97.3	75	125				
Barium	97.3	0.434	43.44	49.16	111	75	125				
Cadmium	2.29	0.174	2.172	0.07594	102	75	125				
Chromium	73.7	0.0869	43.44	37.94	82.2	75	125				
Lead	22.6	0.174	21.72	2.770	91.5	75	125				B
Selenium	5.30	0.434	4.344	1.110	96.5	75	125				

Sample ID	1709282-001AMSD	SampType:	MSD	Units:	mg/Kg-dry	Prep Date:	9/28/2017	RunNo:	38898
Client ID:	BATCH	Batch ID:	18346			Analysis Date:	9/28/2017	SeqNo:	747979

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.2	0.0876	43.80	2.488	102	75	125	44.76	5.36	20	
Barium	97.4	0.438	43.80	49.16	110	75	125	97.35	0.0806	20	
Cadmium	2.51	0.175	2.190	0.07594	111	75	125	2.286	9.29	20	
Chromium	83.5	0.0876	43.80	37.94	104	75	125	73.66	12.5	20	
Lead	22.6	0.175	21.90	2.770	90.6	75	125	22.64	0.159	20	B
Selenium	5.16	0.438	4.380	1.110	92.4	75	125	5.301	2.77	20	

Sample ID	MB-18346	SampType:	MBLK	Units:	mg/Kg	Prep Date:	9/28/2017	RunNo:	38898
Client ID:	MBLKS	Batch ID:	18346			Analysis Date:	9/29/2017	SeqNo:	748430

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	ND	0.0763									

Sample ID	LCS-18346	SampType:	LCS	Units:	mg/Kg	Prep Date:	9/28/2017	RunNo:	38898
Client ID:	LCSS	Batch ID:	18346			Analysis Date:	9/29/2017	SeqNo:	748431

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	8.70	0.0800	10.00	0	87.0	80	120				

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	LCS-18346	SampType:	LCS			Units:	mg/Kg	Prep Date:	9/28/2017	RunNo:	38898	
Client ID:	LCSS	Batch ID:	18346					Analysis Date:	9/29/2017	SeqNo:	748431	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sample ID	1709282-001ADUP	SampType:	DUP			Units:	mg/Kg-dry	Prep Date:	9/28/2017	RunNo:	38898	
Client ID:	BATCH	Batch ID:	18346					Analysis Date:	9/29/2017	SeqNo:	748435	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Silver	ND	0.0869						0		20		

Sample ID	1709282-001AMS	SampType:	MS			Units:	mg/Kg-dry	Prep Date:	9/28/2017	RunNo:	38898	
Client ID:	BATCH	Batch ID:	18346					Analysis Date:	9/29/2017	SeqNo:	748437	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Silver	8.84	0.0869	10.86	0.03543	81.1	75	125					

Sample ID	1709282-001AMSD	SampType:	MSD			Units:	mg/Kg-dry	Prep Date:	9/28/2017	RunNo:	38898	
Client ID:	BATCH	Batch ID:	18346					Analysis Date:	9/29/2017	SeqNo:	748438	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Silver	8.85	0.0876	10.95	0.03543	80.5	75	125	8.843	0.0745	20		

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18337** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **MBLKS** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748069**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0200									
Chloromethane	ND	0.0500									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.0500									
Trichlorofluoromethane (CFC-11)	ND	0.0200									
Chloroethane	ND	0.0500									
1,1-Dichloroethene	ND	0.0200									
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	0.100									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0250									
1,2-Dichloroethane (EDC)	ND	0.0200									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0200									
1,1,2-Trichloroethane	ND	0.0200									
1,3-Dichloropropane	ND	0.0250									
Tetrachloroethene (PCE)	ND	0.0250									
Dibromochloromethane	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.00500									

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18337** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **MBLKS** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748069**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0250									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Bromoform	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0250									
Bromobenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0250									
4-Chlorotoluene	ND	0.0250									
tert-Butylbenzene	ND	0.0250									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0250									
sec-Butylbenzene	ND	0.0500									
4-Isopropyltoluene	ND	0.0500									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0250									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.0500									
Naphthalene	ND	0.0500									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.10		1.250		87.6	56.5	129				
Surr: Toluene-d8	1.22		1.250		97.2	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.24		1.250		99.4	43.2	143				

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18337** SampType: **MBLK** Units: **mg/Kg** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **MBLKS** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748069**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **LCS-18337** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **LCSS** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748068**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.567	0.0200	1.000	0	56.7	14.3	167				
Chloromethane	0.797	0.0500	1.000	0	79.7	46	144				
Vinyl chloride	0.767	0.0250	1.000	0	76.7	43.4	151				
Bromomethane	0.319	0.0500	1.000	0	31.9	35	155				S
Trichlorofluoromethane (CFC-11)	0.396	0.0200	1.000	0	39.6	33.8	156				
Chloroethane	0.269	0.0500	1.000	0	26.9	33.1	147				S
1,1-Dichloroethene	0.912	0.0200	1.000	0	91.2	39	144				
Methylene chloride	1.00	0.0200	1.000	0	100	46.3	140				
trans-1,2-Dichloroethene	0.960	0.0200	1.000	0	96.0	68	130				
Methyl tert-butyl ether (MTBE)	1.17	0.0500	1.000	0	117	66.3	145				
1,1-Dichloroethane	1.00	0.0200	1.000	0	100	61.9	137				
2,2-Dichloropropane	1.27	0.100	1.000	0	127	35.5	186				
cis-1,2-Dichloroethene	1.02	0.0200	1.000	0	102	71.3	135				
Chloroform	0.997	0.0200	1.000	0	99.7	69	145				
1,1,1-Trichloroethane (TCA)	0.876	0.0250	1.000	0	87.6	69	132				
1,1-Dichloropropene	0.936	0.0200	1.000	0	93.6	72.7	131				
Carbon tetrachloride	0.907	0.0250	1.000	0	90.7	63.4	137				
1,2-Dichloroethane (EDC)	1.02	0.0200	1.000	0	102	50.9	162				
Benzene	1.00	0.0200	1.000	0	100	64.3	133				
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	0.936	0.0200	1.000	0	93.6	53.4	131				
Dibromomethane	1.07	0.0200	1.000	0	107	60.1	146				
cis-1,3-Dichloropropene	1.09	0.0200	1.000	0	109	59.1	143				
Toluene	0.979	0.0200	1.000	0	97.9	67.3	138				

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18337** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **LCSS** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748068**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,3-Dichloropropylene	1.14	0.0200	1.000	0	114	49.2	149				
1,1,2-Trichloroethane	1.05	0.0200	1.000	0	105	56.9	147				
1,3-Dichloropropane	1.08	0.0250	1.000	0	108	56.1	153				
Tetrachloroethene (PCE)	0.938	0.0250	1.000	0	93.8	52.7	150				
Dibromochloromethane	0.896	0.0250	1.000	0	89.6	70.6	144				
1,2-Dibromoethane (EDB)	1.06	0.00500	1.000	0	106	50.5	154				
Chlorobenzene	0.980	0.0250	1.000	0	98.0	76.1	123				
1,1,1,2-Tetrachloroethane	0.915	0.0250	1.000	0	91.5	65.9	141				
Ethylbenzene	1.05	0.0250	1.000	0	105	74	129				
m,p-Xylene	1.99	0.0500	2.000	0	99.7	70	124				
o-Xylene	0.965	0.0250	1.000	0	96.5	68.1	139				
Styrene	0.950	0.0250	1.000	0	95.0	73.3	146				
Isopropylbenzene	1.01	0.0250	1.000	0	101	70	130				
Bromoform	0.816	0.0500	1.000	0	81.6	44.3	130				
1,1,2,2-Tetrachloroethane	0.813	0.0200	1.000	0	81.3	44.8	165				
n-Propylbenzene	1.00	0.0250	1.000	0	100	74.8	125				
Bromobenzene	0.932	0.0200	1.000	0	93.2	49.2	144				
1,3,5-Trimethylbenzene	0.922	0.0250	1.000	0	92.2	74.6	123				
2-Chlorotoluene	0.897	0.0250	1.000	0	89.7	76.7	129				
4-Chlorotoluene	0.898	0.0250	1.000	0	89.8	77.5	125				
tert-Butylbenzene	0.903	0.0250	1.000	0	90.3	66.2	130				
1,2,3-Trichloropropane	0.982	0.0250	1.000	0	98.2	67.9	136				
1,2,4-Trichlorobenzene	1.13	0.0250	1.000	0	113	62.6	143				
sec-Butylbenzene	0.941	0.0500	1.000	0	94.1	75.6	133				
4-Isopropyltoluene	0.909	0.0500	1.000	0	90.9	76.8	131				
1,3-Dichlorobenzene	1.04	0.0200	1.000	0	104	72.8	128				
1,4-Dichlorobenzene	1.02	0.0200	1.000	0	102	72.6	126				
n-Butylbenzene	1.02	0.0250	1.000	0	102	65.3	136				
1,2-Dichlorobenzene	1.05	0.0200	1.000	0	105	72.8	126				
1,2-Dibromo-3-chloropropane	1.02	0.500	1.000	0	102	40.2	155				
1,2,4-Trimethylbenzene	0.919	0.0200	1.000	0	91.9	77.5	129				

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18337** SampType: **LCS** Units: **mg/Kg** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **LCSS** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748068**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene	1.10	0.0500	1.000	0	110	42	151				
Naphthalene	1.24	0.0500	1.000	0	124	58.4	160				
1,2,3-Trichlorobenzene	1.16	0.0200	1.000	0	116	54.8	143				
Surr: Dibromofluoromethane	1.26		1.250		101	56.5	129				
Surr: Toluene-d8	1.29		1.250		103	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.28		1.250		103	43.2	143				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID **1709342-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **TP21-6-6.0** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748062**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0148						0		30	
Chloromethane	ND	0.0370						0		30	
Vinyl chloride	ND	0.0185						0		30	
Bromomethane	ND	0.0370						0		30	*
Trichlorofluoromethane (CFC-11)	ND	0.0148						0		30	
Chloroethane	ND	0.0370						0		30	*
1,1-Dichloroethene	ND	0.0148						0		30	
Methylene chloride	ND	0.0148						0		30	
trans-1,2-Dichloroethene	ND	0.0148						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0370						0		30	
1,1-Dichloroethane	ND	0.0148						0		30	
2,2-Dichloropropane	ND	0.0740						0		30	
cis-1,2-Dichloroethene	ND	0.0148						0		30	
Chloroform	ND	0.0148						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0185						0		30	
1,1-Dichloropropene	ND	0.0148						0		30	
Carbon tetrachloride	ND	0.0185						0		30	
1,2-Dichloroethane (EDC)	ND	0.0148						0		30	

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709342-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **TP21-6-6.0** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748062**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0148						0		30	
Trichloroethene (TCE)	ND	0.0148						0		30	
1,2-Dichloropropane	ND	0.0148						0		30	
Bromodichloromethane	ND	0.0148						0		30	
Dibromomethane	ND	0.0148						0		30	
cis-1,3-Dichloropropene	ND	0.0148						0		30	
Toluene	ND	0.0148						0		30	
trans-1,3-Dichloropropylene	ND	0.0148						0		30	
1,1,2-Trichloroethane	ND	0.0148						0		30	
1,3-Dichloropropane	ND	0.0185						0		30	
Tetrachloroethene (PCE)	ND	0.0185						0		30	
Dibromochloromethane	ND	0.0185						0		30	
1,2-Dibromoethane (EDB)	ND	0.00370						0		30	
Chlorobenzene	ND	0.0185						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0185						0		30	
Ethylbenzene	ND	0.0185						0		30	
m,p-Xylene	ND	0.0370						0		30	
o-Xylene	ND	0.0185						0		30	
Styrene	ND	0.0185						0		30	
Isopropylbenzene	ND	0.0185						0		30	
Bromoform	ND	0.0370						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0148						0		30	
n-Propylbenzene	ND	0.0185						0		30	
Bromobenzene	ND	0.0148						0		30	
1,3,5-Trimethylbenzene	ND	0.0185						0		30	
2-Chlorotoluene	ND	0.0185						0		30	
4-Chlorotoluene	ND	0.0185						0		30	
tert-Butylbenzene	ND	0.0185						0		30	
1,2,3-Trichloropropane	ND	0.0185						0		30	
1,2,4-Trichlorobenzene	ND	0.0185						0		30	
sec-Butylbenzene	ND	0.0370						0		30	

Work Order: 1709342
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1709342-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **9/27/2017** RunNo: **38905**
Client ID: **TP21-6-6.0** Batch ID: **18337** Analysis Date: **9/28/2017** SeqNo: **748062**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Isopropyltoluene	ND	0.0370						0		30	
1,3-Dichlorobenzene	ND	0.0148						0		30	
1,4-Dichlorobenzene	ND	0.0148						0		30	
n-Butylbenzene	ND	0.0185						0		30	
1,2-Dichlorobenzene	ND	0.0148						0		30	
1,2-Dibromo-3-chloropropane	ND	0.370						0		30	
1,2,4-Trimethylbenzene	ND	0.0148						0		30	
Hexachlorobutadiene	ND	0.0370						0		30	
Naphthalene	ND	0.0370						0		30	
1,2,3-Trichlorobenzene	ND	0.0148						0		30	
Surr: Dibromofluoromethane	0.861		0.9247		93.2	56.5	129		0		
Surr: Toluene-d8	0.862		0.9247		93.2	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	0.909		0.9247		98.3	43.2	143		0		

NOTES:
* - Flagged value is not within established control limits.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1709342**
Logged by:	**Brianna Barnes**	Date Received:	**9/27/2017 3:58:00 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 ☐
	Received straight from field			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	24.5

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 9/27/17 Laboratory Project No (internal): 1709342

Page: 1 of: 1

Client: GeoEngineers Project Name: Block 21

Address: Project No: Collected by: CMD

City, State, Zip: Location: Seattle, WA

Telephone: Fax: Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	TP21-6-2.5	9/27/17	1315	S	X		X	X		X	X							** RCRA 8 metals
2	TP21-6-6.0		1350		X		X	X		X	X							
3	TP21-7-2.5		1420		X		X	X		X	X							
4	TP21-7-5.5		1430		X		X	X		X	X							
5	TP21-10-3.0		1410		X		X	X		X	X							
6																		
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	9/27/17 1558	x [signature]	9/27/17 1558
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/27/17

Laboratory Project No (internal): 1709342

Page: 1 of: 1

Client: GeoEngineers
Address:
City, State, Zip:
Telephone: Fax:

Project Name: Block 21
Project No:
Location: Seattle, WA
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com
Collected by: CMD

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Hex Cr				Comments
1	TP21-6-2.5	9/27/17	1315	S	X		X	X		X	X											** RCRA 8 metals
2	TP21-6-6.0		1350		X		X	X		X	X											⊗ Add Analysis per C.B.
3	TP21-7-2.5		1420		X		X	X		X	X						⊗					Next Day TAT CMD 9/27/17
4	TP21-7-5.5		1430		X		X	X		X	X						⊗					
5	TP21-10-3.0		1410		X		X	X		X	X											
6																						
7																						
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

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Relinquished	Date/Time	Received	Date/Time
x [signature]	9/27/17 1558	x [signature]	9/27/17 1558
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1709367

September 29, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 9/28/2017 for the analyses presented in the following report.

Hydrocarbon Identification by NWTPH-HCID

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
Laboratory Director

Date: *09/29/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1709367

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1709367-001	UST-2-PR	09/27/2017 8:45 AM	09/28/2017 5:00 PM

Case Narrative

WO#: **1709367**
Date: **9/29/2017**

CLIENT: GeoEngineers
Project: Block 21

WorkOrder Narrative:
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").

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 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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1709367**
Date Reported: **9/29/2017**

Client: GeoEngineers
Collection Date: 9/27/2017 8:45:00 AM
Project: Block 21
Lab ID: 1709367-001
Matrix: Product
Client Sample ID: **UST-2-PR**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 18365		Analyst: SB
Gasoline	ND	20,000	D	mg/Kg	100	9/29/2017 11:54:25 AM
Mineral Spirits	ND	30,000	D	mg/Kg	100	9/29/2017 11:54:25 AM
Kerosene	ND	50,000	D	mg/Kg	100	9/29/2017 11:54:25 AM
Diesel (Fuel Oil)	DETECT	50,000	D	mg/Kg	100	9/29/2017 11:54:25 AM
Heavy Oil	ND	100,000	D	mg/Kg	100	9/29/2017 11:54:25 AM
Mineral Oil	ND	100,000	D	mg/Kg	100	9/29/2017 11:54:25 AM
Surr: 2-Fluorobiphenyl	510	50 - 150	DS	%Rec	100	9/29/2017 11:54:25 AM
Surr: o-Terphenyl	185	50 - 150	DS	%Rec	100	9/29/2017 11:54:25 AM

NOTES:
S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).
Diluted due to matrix.

Work Order: 1709367
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Hydrocarbon Identification by NWTPH-HCID

Sample ID **MB-18365**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **9/29/2017**	RunNo: **38929**
Client ID: **MBLKS**	Batch ID: **18365**		Analysis Date: **9/29/2017**	SeqNo: **748463**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	17.1		20.00		85.7	50	150				
Surr: o-Terphenyl	16.9		20.00		84.3	50	150				

Sample ID **LCS-18365**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **9/29/2017**	RunNo: **38929**
Client ID: **LCSS**	Batch ID: **18365**		Analysis Date: **9/29/2017**	SeqNo: **748464**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	475	50.0	500.0	0	95.1	65	135				
Surr: 2-Fluorobiphenyl	17.6		20.00		87.9	50	150				
Surr: o-Terphenyl	18.8		20.00		94.1	50	150				

Sample ID **LCSD-18365**	SampType: **LCSD**	Units: **mg/Kg**	Prep Date: **9/29/2017**	RunNo: **38929**
Client ID: **LCSS02**	Batch ID: **18365**		Analysis Date: **9/29/2017**	SeqNo: **748465**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	479	50.0	500.0	0	95.8	65	135	475.4	0.723	30	
Surr: 2-Fluorobiphenyl	17.3		20.00		86.4	50	150		0		
Surr: o-Terphenyl	18.2		20.00		91.1	50	150		0		

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1709367**
Logged by:	**Brianna Barnes**	Date Received:	**9/28/2017 5:00:00 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 ☐
		Product Sample		
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 ☐ HCL
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	27.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 9/28/17
Laboratory Project No (internal): 1709367
Page: 1 of: 1

Client: GeoEngineers
Address:
City, State, Zip:
Telephone: Fax:

Project Name: Block 21
Project No: 20434-001-30
Location:
Report To (PM): Chris Brown
PM Email:
Collected by: Chris Brown

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	UST-2-PR	9/27/17	0845	P				X									
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	9/28/17 1700	x [signature]	9/28/17 1700
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710045

October 06, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 10/4/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Volatile Organic Compounds by EPA Method 8260C

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
Laboratory Director

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710045

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710045-001	SC-W9S40	10/04/2017 12:50 PM	10/04/2017 2:27 PM
1710045-002	W6S43-7.5	10/04/2017 1:00 PM	10/04/2017 2:27 PM

Case Narrative

WO#: **1710045**
Date: **10/6/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Client: GeoEngineers
Collection Date: 10/4/2017 12:50:00 PM
Project: Block 21
Lab ID: 1710045-001
Matrix: Soil
Client Sample ID: **SC-W9S40**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18409		Analyst: SB
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	10/4/2017 7:27:12 PM
Heavy Oil	ND	54.8		mg/Kg-dry	1	10/4/2017 7:27:12 PM
Surr: 2-Fluorobiphenyl	87.8	50 - 150		%Rec	1	10/4/2017 7:27:12 PM
Surr: o-Terphenyl	91.2	50 - 150		%Rec	1	10/4/2017 7:27:12 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18416		Analyst: BT
Naphthalene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
2-Methylnaphthalene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
1-Methylnaphthalene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Acenaphthylene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Acenaphthene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Fluorene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Phenanthrene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Anthracene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Fluoranthene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Pyrene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Benz(a)anthracene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Chrysene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Benzo(b)fluoranthene	ND	42.2		µg/Kg-dry	1	10/5/2017 6:06:12 PM
Benzo(k)fluoranthene	ND	42.7		µg/Kg-dry	1	10/5/2017 1:04:45 AM
Benzo(a)pyrene	ND	42.2		µg/Kg-dry	1	10/5/2017 6:06:12 PM
Indeno(1,2,3-cd)pyrene	ND	42.2		µg/Kg-dry	1	10/5/2017 6:06:12 PM
Dibenz(a,h)anthracene	ND	42.2		µg/Kg-dry	1	10/5/2017 6:06:12 PM
Benzo(g,h,i)perylene	ND	42.2		µg/Kg-dry	1	10/5/2017 6:06:12 PM
Surr: 2-Fluorobiphenyl	68.7	10 - 123		%Rec	1	10/5/2017 1:04:45 AM
Surr: Terphenyl-d14 (surr)	100	46.2 - 179		%Rec	1	10/5/2017 1:04:45 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18411		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Chloromethane	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Vinyl chloride	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Bromomethane	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Trichlorofluoromethane (CFC-11)	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Chloroethane	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,1-Dichloroethene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Methylene chloride	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
trans-1,2-Dichloroethene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM

Client: GeoEngineers
Collection Date: 10/4/2017 12:50:00 PM
Project: Block 21
Lab ID: 1710045-001
Matrix: Soil
Client Sample ID: **SC-W9S40**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18411		Analyst: NG
Methyl tert-butyl ether (MTBE)	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,1-Dichloroethane	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
2,2-Dichloropropane	ND	0.109	Q	mg/Kg-dry	1	10/4/2017 11:05:37 PM
cis-1,2-Dichloroethene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Chloroform	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,1,1-Trichloroethane (TCA)	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,1-Dichloropropene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Carbon tetrachloride	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2-Dichloroethane (EDC)	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Benzene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Trichloroethene (TCE)	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2-Dichloropropane	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Bromodichloromethane	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Dibromomethane	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
cis-1,3-Dichloropropene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Toluene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
trans-1,3-Dichloropropylene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,1,2-Trichloroethane	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,3-Dichloropropane	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Tetrachloroethene (PCE)	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Dibromochloromethane	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2-Dibromoethane (EDB)	ND	0.00543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Chlorobenzene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,1,1,2-Tetrachloroethane	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Ethylbenzene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
m,p-Xylene	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
o-Xylene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Styrene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Isopropylbenzene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Bromoform	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,1,2,2-Tetrachloroethane	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
n-Propylbenzene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Bromobenzene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,3,5-Trimethylbenzene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
2-Chlorotoluene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
4-Chlorotoluene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
tert-Butylbenzene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2,3-Trichloropropane	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2,4-Trichlorobenzene	ND	0.0271	Q	mg/Kg-dry	1	10/4/2017 11:05:37 PM

Analytical Report

Work Order: **1710045**
Date Reported: **10/6/2017**

Client: GeoEngineers
Collection Date: 10/4/2017 12:50:00 PM
Project: Block 21
Lab ID: 1710045-001
Matrix: Soil
Client Sample ID: **SC-W9S40**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18411		Analyst: NG
sec-Butylbenzene	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
4-Isopropyltoluene	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,3-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,4-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
n-Butylbenzene	ND	0.0271		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2-Dichlorobenzene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2-Dibromo-3-chloropropane	ND	0.543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2,4-Trimethylbenzene	ND	0.0217		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Hexachlorobutadiene	ND	0.0543		mg/Kg-dry	1	10/4/2017 11:05:37 PM
Naphthalene	ND	0.0543	Q	mg/Kg-dry	1	10/4/2017 11:05:37 PM
1,2,3-Trichlorobenzene	ND	0.0217	Q	mg/Kg-dry	1	10/4/2017 11:05:37 PM
Surr: Dibromofluoromethane	93.7	56.5 - 129		%Rec	1	10/4/2017 11:05:37 PM
Surr: Toluene-d8	106	64.5 - 151		%Rec	1	10/4/2017 11:05:37 PM
Surr: 1-Bromo-4-fluorobenzene	94.5	43.2 - 143		%Rec	1	10/4/2017 11:05:37 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39014		Analyst: CO
Percent Moisture	10.2	0.500		wt%	1	10/4/2017 2:44:44 PM

Client: GeoEngineers
Collection Date: 10/4/2017 1:00:00 PM
Project: Block 21
Lab ID: 1710045-002
Matrix: Soil
Client Sample ID: **W6S43-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18409		Analyst: SB
Diesel (Fuel Oil)	ND	21.8		mg/Kg-dry	1	10/4/2017 7:56:59 PM
Heavy Oil	ND	54.6		mg/Kg-dry	1	10/4/2017 7:56:59 PM
Surr: 2-Fluorobiphenyl	78.5	50 - 150		%Rec	1	10/4/2017 7:56:59 PM
Surr: o-Terphenyl	81.9	50 - 150		%Rec	1	10/4/2017 7:56:59 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18416		Analyst: BT
Naphthalene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
2-Methylnaphthalene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
1-Methylnaphthalene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Acenaphthylene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Acenaphthene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Fluorene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Phenanthrene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Anthracene	ND	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Fluoranthene	122	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Pyrene	123	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Benz(a)anthracene	52.7	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Chrysene	111	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Benzo(b)fluoranthene	79.8	45.8		µg/Kg-dry	1	10/5/2017 7:34:16 PM
Benzo(k)fluoranthene	54.9	45.8		µg/Kg-dry	1	10/5/2017 2:31:25 AM
Benzo(a)pyrene	53.5	45.8		µg/Kg-dry	1	10/5/2017 7:34:16 PM
Indeno(1,2,3-cd)pyrene	ND	45.8		µg/Kg-dry	1	10/5/2017 7:34:16 PM
Dibenz(a,h)anthracene	ND	45.8		µg/Kg-dry	1	10/5/2017 7:34:16 PM
Benzo(g,h,i)perylene	ND	45.8		µg/Kg-dry	1	10/5/2017 7:34:16 PM
Surr: 2-Fluorobiphenyl	48.0	10 - 123		%Rec	1	10/5/2017 2:31:25 AM
Surr: Terphenyl-d14 (surr)	86.5	46.2 - 179		%Rec	1	10/5/2017 2:31:25 AM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18411		Analyst: NG
Dichlorodifluoromethane (CFC-12)	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Chloromethane	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Vinyl chloride	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Bromomethane	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Trichlorofluoromethane (CFC-11)	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Chloroethane	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,1-Dichloroethene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Methylene chloride	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
trans-1,2-Dichloroethene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM

Client: GeoEngineers
Collection Date: 10/4/2017 1:00:00 PM
Project: Block 21
Lab ID: 1710045-002
Matrix: Soil
Client Sample ID: **W6S43-7.5**

Volatile Organic Compounds by EPA Method 8260C

Batch ID: 18411 Analyst: NG

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Methyl tert-butyl ether (MTBE)	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,1-Dichloroethane	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
2,2-Dichloropropane	ND	0.114	Q	mg/Kg-dry	1	10/4/2017 11:33:48 PM
cis-1,2-Dichloroethene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Chloroform	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,1,1-Trichloroethane (TCA)	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,1-Dichloropropene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Carbon tetrachloride	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2-Dichloroethane (EDC)	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Benzene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Trichloroethene (TCE)	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2-Dichloropropane	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Bromodichloromethane	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Dibromomethane	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
cis-1,3-Dichloropropene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Toluene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
trans-1,3-Dichloropropylene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,1,2-Trichloroethane	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,3-Dichloropropane	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Tetrachloroethene (PCE)	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Dibromochloromethane	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2-Dibromoethane (EDB)	ND	0.00570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Chlorobenzene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,1,1,2-Tetrachloroethane	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Ethylbenzene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
m,p-Xylene	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
o-Xylene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Styrene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Isopropylbenzene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Bromoform	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,1,2,2-Tetrachloroethane	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
n-Propylbenzene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Bromobenzene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,3,5-Trimethylbenzene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
2-Chlorotoluene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
4-Chlorotoluene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
tert-Butylbenzene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2,3-Trichloropropane	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2,4-Trichlorobenzene	ND	0.0285	Q	mg/Kg-dry	1	10/4/2017 11:33:48 PM

Analytical Report

Work Order: **1710045**
Date Reported: **10/6/2017**

Client: GeoEngineers
Collection Date: 10/4/2017 1:00:00 PM
Project: Block 21
Lab ID: 1710045-002
Matrix: Soil
Client Sample ID: **W6S43-7.5**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18411		Analyst: NG
sec-Butylbenzene	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
4-Isopropyltoluene	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,3-Dichlorobenzene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,4-Dichlorobenzene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
n-Butylbenzene	ND	0.0285		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2-Dichlorobenzene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2-Dibromo-3-chloropropane	ND	0.570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2,4-Trimethylbenzene	ND	0.0228		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Hexachlorobutadiene	ND	0.0570		mg/Kg-dry	1	10/4/2017 11:33:48 PM
Naphthalene	ND	0.0570	Q	mg/Kg-dry	1	10/4/2017 11:33:48 PM
1,2,3-Trichlorobenzene	ND	0.0228	Q	mg/Kg-dry	1	10/4/2017 11:33:48 PM
Surr: Dibromofluoromethane	97.9	56.5 - 129		%Rec	1	10/4/2017 11:33:48 PM
Surr: Toluene-d8	105	64.5 - 151		%Rec	1	10/4/2017 11:33:48 PM
Surr: 1-Bromo-4-fluorobenzene	92.4	43.2 - 143		%Rec	1	10/4/2017 11:33:48 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39014		Analyst: CO
Percent Moisture	14.7	0.500		wt%	1	10/4/2017 2:44:44 PM

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18409**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/4/2017**	RunNo: **39019**
Client ID: **MBLKS**	Batch ID: **18409**		Analysis Date: **10/4/2017**	SeqNo: **750147**

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	17.2		20.00		85.8	50	150				
Surr: o-Terphenyl	16.9		20.00		84.7	50	150				

Sample ID **LCS-18409**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/4/2017**	RunNo: **39019**
Client ID: **LCSS**	Batch ID: **18409**		Analysis Date: **10/4/2017**	SeqNo: **750148**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	424	20.0	500.0	0	84.9	65	135				
Surr: 2-Fluorobiphenyl	17.8		20.00		89.1	50	150				
Surr: o-Terphenyl	18.6		20.00		93.0	50	150				

Sample ID **1710040-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/4/2017**	RunNo: **39019**
Client ID: **BATCH**	Batch ID: **18409**		Analysis Date: **10/4/2017**	SeqNo: **750394**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.5						0		30	
Heavy Oil	ND	51.2						0		30	
Surr: 2-Fluorobiphenyl	20.7		20.46		101	50	150		0		
Surr: o-Terphenyl	21.3		20.46		104	50	150		0		

Sample ID **1710040-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/4/2017**	RunNo: **39019**
Client ID: **BATCH**	Batch ID: **18409**		Analysis Date: **10/4/2017**	SeqNo: **750395**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	391	21.5	537.4	0	72.7	65	135				
Surr: 2-Fluorobiphenyl	25.4		21.50		118	50	150				
Surr: o-Terphenyl	27.2		21.50		127	50	150				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1710040-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **10/4/2017**		RunNo: **39019**			
Client ID: **BATCH**	Batch ID: **18409**					Analysis Date: **10/4/2017**		SeqNo: **750395**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1710040-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **10/4/2017**		RunNo: **39019**			
Client ID: **BATCH**	Batch ID: **18409**					Analysis Date: **10/4/2017**		SeqNo: **750396**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	233	20.1	502.9	0	46.4	65	135	391.0	50.6	30	RS
Surr: 2-Fluorobiphenyl	15.2		20.11		75.7	50	150		0		
Surr: o-Terphenyl	16.2		20.11		80.4	50	150		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18416**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/4/2017**	RunNo: **39031**
Client ID: **MBLKS**	Batch ID: **18416**		Analysis Date: **10/5/2017**	SeqNo: **750593**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									Q
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									Q
Indeno(1,2,3-cd)pyrene	ND	40.0									Q
Dibenz(a,h)anthracene	ND	40.0									Q
Benzo(g,h,i)perylene	ND	40.0									Q
Surr: 2-Fluorobiphenyl	242		500.0		48.3	10	123				
Surr: Terphenyl-d14 (surr)	591		500.0		118	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18416**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/4/2017**	RunNo: **39031**
Client ID: **LCSS**	Batch ID: **18416**		Analysis Date: **10/5/2017**	SeqNo: **750594**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	997	40.0	1,000	0	99.7	46.4	125				
2-Methylnaphthalene	1,080	40.0	1,000	0	108	45.1	135				
1-Methylnaphthalene	1,100	40.0	1,000	0	110	46.2	133				
Acenaphthylene	1,160	40.0	1,000	0	116	32.8	136				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18416** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/4/2017** RunNo: **39031**
Client ID: **LCSS** Batch ID: **18416** Analysis Date: **10/5/2017** SeqNo: **750594**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,080	40.0	1,000	0	108	38.7	129				
Fluorene	1,130	40.0	1,000	0	113	41.4	144				
Phenanthrene	1,010	40.0	1,000	0	101	43.9	133				
Anthracene	1,110	40.0	1,000	0	111	44.2	136				
Fluoranthene	1,200	40.0	1,000	0	120	45.9	137				
Pyrene	1,190	40.0	1,000	0	119	46.2	137				
Benz(a)anthracene	1,230	40.0	1,000	0	123	41.2	141				
Chrysene	1,260	40.0	1,000	0	126	46.9	138				
Benzo(b)fluoranthene	821	40.0	1,000	0	82.1	41	155				
Benzo(k)fluoranthene	1,070	40.0	1,000	0	107	41.8	153				
Benzo(a)pyrene	797	40.0	1,000	0	79.7	30.2	171				
Indeno(1,2,3-cd)pyrene	643	40.0	1,000	0	64.3	31.3	159				
Dibenz(a,h)anthracene	689	40.0	1,000	0	68.9	28	158				
Benzo(g,h,i)perylene	517	40.0	1,000	0	51.7	32.4	144				
Surr: 2-Fluorobiphenyl	337		500.0		67.5	10	123				
Surr: Terphenyl-d14 (surr)	552		500.0		110	46.2	179				

Sample ID **1710045-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39031**
Client ID: **SC-W9S40** Batch ID: **18416** Analysis Date: **10/5/2017** SeqNo: **750596**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	42.8						0		30	
2-Methylnaphthalene	ND	42.8						0		30	
1-Methylnaphthalene	ND	42.8						0		30	
Acenaphthylene	ND	42.8						0		30	
Acenaphthene	ND	42.8						0		30	
Fluorene	ND	42.8						0		30	
Phenanthrene	ND	42.8						0		30	
Anthracene	ND	42.8						0		30	
Fluoranthene	53.1	42.8						26.23	67.8	30	

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710045-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39031**
Client ID: **SC-W9S40** Batch ID: **18416** Analysis Date: **10/5/2017** SeqNo: **750596**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	54.3	42.8						34.74	43.9	30	
Benz(a)anthracene	ND	42.8						0		30	
Chrysene	ND	42.8						0		30	
Benzo(b)fluoranthene	ND	42.8						0		30	Q
Benzo(k)fluoranthene	ND	42.8						0		30	
Benzo(a)pyrene	ND	42.8						0		30	Q
Indeno(1,2,3-cd)pyrene	ND	42.8						0		30	Q
Dibenz(a,h)anthracene	ND	42.8						0		30	Q
Benzo(g,h,i)perylene	ND	42.8						0		30	Q
Surr: 2-Fluorobiphenyl	398		535.4		74.4	10	123		0		
Surr: Terphenyl-d14 (surr)	547		535.4		102	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1710045-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39031**
Client ID: **SC-W9S40** Batch ID: **18416** Analysis Date: **10/5/2017** SeqNo: **750597**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	808	44.5	1,114	0	72.5	42.9	138				
2-Methylnaphthalene	934	44.5	1,114	0	83.8	42.8	151				
1-Methylnaphthalene	914	44.5	1,114	0	82.1	41.6	148				
Acenaphthylene	1,000	44.5	1,114	4.286	89.7	32.6	160				
Acenaphthene	933	44.5	1,114	1.113	83.7	46.3	142				
Fluorene	980	44.5	1,114	0	88.0	43.4	153				
Phenanthrene	883	44.5	1,114	9.094	78.5	45.5	140				
Anthracene	955	44.5	1,114	5.607	85.2	32.6	160				
Fluoranthene	1,090	44.5	1,114	26.23	95.7	44.6	161				
Pyrene	1,120	44.5	1,114	34.74	97.2	48.3	158				
Benz(a)anthracene	1,090	44.5	1,114	16.44	96.5	34.9	139				
Chrysene	1,100	44.5	1,114	22.75	96.8	45.2	146				
Benzo(b)fluoranthene	576	44.5	1,114	9.848	50.8	42.2	168				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710045-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39031**
Client ID: **SC-W9S40** Batch ID: **18416** Analysis Date: **10/5/2017** SeqNo: **750597**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	962	44.5	1,114	12.39	85.3	34.8	147				
Benzo(a)pyrene	621	44.5	1,114	12.69	54.7	34.4	179				
Indeno(1,2,3-cd)pyrene	492	44.5	1,114	0	44.2	11.8	140				
Dibenz(a,h)anthracene	524	44.5	1,114	0	47.1	17.3	156				
Benzo(g,h,i)perylene	393	44.5	1,114	4.858	34.8	24.9	119				
Surr: 2-Fluorobiphenyl	266		556.9		47.8	10	123				
Surr: Terphenyl-d14 (surr)	491		556.9		88.1	46.2	179				

Sample ID **1710045-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39031**
Client ID: **SC-W9S40** Batch ID: **18416** Analysis Date: **10/5/2017** SeqNo: **750598**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	727	40.0	1,001	0	72.6	42.9	138	807.7	10.6	30	
2-Methylnaphthalene	839	40.0	1,001	0	83.8	42.8	151	933.9	10.8	30	
1-Methylnaphthalene	739	40.0	1,001	0	73.9	41.6	148	914.0	21.2	30	
Acenaphthylene	942	40.0	1,001	4.286	93.7	32.6	160	1,004	6.31	30	
Acenaphthene	838	40.0	1,001	1.113	83.6	46.3	142	933.0	10.7	30	
Fluorene	879	40.0	1,001	0	87.8	43.4	153	980.4	11.0	30	
Phenanthrene	800	40.0	1,001	9.094	79.1	45.5	140	883.4	9.85	30	
Anthracene	890	40.0	1,001	5.607	88.4	32.6	160	954.6	7.02	30	
Fluoranthene	963	40.0	1,001	26.23	93.7	44.6	161	1,092	12.5	30	
Pyrene	982	40.0	1,001	34.74	94.7	48.3	158	1,117	12.8	30	
Benz(a)anthracene	974	40.0	1,001	16.44	95.7	34.9	139	1,091	11.3	30	
Chrysene	988	40.0	1,001	22.75	96.5	45.2	146	1,101	10.8	30	
Benzo(b)fluoranthene	691	40.0	1,001	9.848	68.1	42.2	168	575.7	18.2	30	
Benzo(k)fluoranthene	819	40.0	1,001	12.39	80.6	34.8	147	962.0	16.1	30	
Benzo(a)pyrene	650	40.0	1,001	12.69	63.7	34.4	179	621.5	4.43	30	
Indeno(1,2,3-cd)pyrene	540	40.0	1,001	0	54.0	11.8	140	491.9	9.34	30	
Dibenz(a,h)anthracene	576	40.0	1,001	0	57.6	17.3	156	524.4	9.39	30	
Benzo(g,h,i)perylene	456	40.0	1,001	4.858	45.1	24.9	119	392.8	14.9	30	

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID	**1710045-001AMSD**	SampType:	**MSD**	Units:	**µg/Kg-dry**	Prep Date:	**10/4/2017**	RunNo:	**39031**
Client ID:	**SC-W9S40**	Batch ID:	**18416**			Analysis Date:	**10/5/2017**	SeqNo:	**750598**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	241		500.3		48.1	10	123		0		
Surr: Terphenyl-d14 (surr)	429		500.3		85.8	46.2	179		0		

Sample ID	**MB-18416**	SampType:	**MBLK**	Units:	**µg/Kg**	Prep Date:	**10/4/2017**	RunNo:	**39069**
Client ID:	**MBLKS**	Batch ID:	**18416**			Analysis Date:	**10/5/2017**	SeqNo:	**751508**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	240		500.0		48.0	10	123				
Surr: Terphenyl-d14 (surr)	577		500.0		115	46.2	179				

Sample ID	**LCS-18416**	SampType:	**LCS**	Units:	**µg/Kg**	Prep Date:	**10/4/2017**	RunNo:	**39069**
Client ID:	**LCSS**	Batch ID:	**18416**			Analysis Date:	**10/5/2017**	SeqNo:	**751509**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	1,020	40.0	1,000	0	102	41	155				
Benzo(a)pyrene	1,150	40.0	1,000	0	115	30.2	171				
Indeno(1,2,3-cd)pyrene	1,170	40.0	1,000	0	117	31.3	159				
Dibenz(a,h)anthracene	1,170	40.0	1,000	0	117	28	158				
Benzo(g,h,i)perylene	1,130	40.0	1,000	0	113	32.4	144				
Surr: 2-Fluorobiphenyl	358		500.0		71.7	10	123				
Surr: Terphenyl-d14 (surr)	565		500.0		113	46.2	179				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710045-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **10/4/2017**	RunNo: **39069**
Client ID: **SC-W9S40**	Batch ID: **18416**		Analysis Date: **10/5/2017**	SeqNo: **751511**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	42.8						0		30	
Benzo(a)pyrene	ND	42.8						0		30	
Indeno(1,2,3-cd)pyrene	ND	42.8						0		30	
Dibenz(a,h)anthracene	ND	42.8						0		30	
Benzo(g,h,i)perylene	ND	42.8						0		30	
Surr: 2-Fluorobiphenyl	396		535.4		74.0	10	123		0		
Surr: Terphenyl-d14 (surr)	561		535.4		105	46.2	179		0		

Sample ID **1710045-001AMS**	SampType: **MS**	Units: **µg/Kg-dry**	Prep Date: **10/4/2017**	RunNo: **39069**
Client ID: **SC-W9S40**	Batch ID: **18416**		Analysis Date: **10/5/2017**	SeqNo: **751512**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	822	44.5	1,114	10.64	72.8	42.2	168				
Benzo(a)pyrene	1,050	44.5	1,114	18.33	92.3	34.4	179				
Indeno(1,2,3-cd)pyrene	1,010	44.5	1,114	7.804	90.1	11.8	140				
Dibenz(a,h)anthracene	1,020	44.5	1,114	0	91.3	17.3	156				
Benzo(g,h,i)perylene	1,010	44.5	1,114	12.64	89.2	24.9	119				
Surr: 2-Fluorobiphenyl	280		556.9		50.2	10	123				
Surr: Terphenyl-d14 (surr)	495		556.9		88.8	46.2	179				

Sample ID **1710045-001AMSD**	SampType: **MSD**	Units: **µg/Kg-dry**	Prep Date: **10/4/2017**	RunNo: **39069**
Client ID: **SC-W9S40**	Batch ID: **18416**		Analysis Date: **10/5/2017**	SeqNo: **751513**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	774	40.0	1,001	10.64	76.3	42.2	168	821.7	5.97	30	
Benzo(a)pyrene	949	40.0	1,001	18.33	93.0	34.4	179	1,047	9.77	30	
Indeno(1,2,3-cd)pyrene	917	40.0	1,001	7.804	90.9	11.8	140	1,011	9.71	30	
Dibenz(a,h)anthracene	906	40.0	1,001	0	90.5	17.3	156	1,017	11.6	30	
Benzo(g,h,i)perylene	891	40.0	1,001	12.64	87.8	24.9	119	1,006	12.1	30	
Surr: 2-Fluorobiphenyl	247		500.3		49.4	10	123		0		

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710045-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39069**
Client ID: **SC-W9S40** Batch ID: **18416** Analysis Date: **10/5/2017** SeqNo: **751513**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Terphenyl-d14 (surr)	443		500.3		88.5	46.2	179		0		

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710021-007ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/4/2017**		RunNo: **39014**	
Client ID: **BATCH**	Batch ID: **R39014**						Analysis Date: **10/4/2017**		SeqNo: **749962**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	21.8	0.500						23.27	6.59	20	

Sample ID **1710045-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/4/2017**		RunNo: **39014**	
Client ID: **SC-W9S40**	Batch ID: **R39014**						Analysis Date: **10/4/2017**		SeqNo: **749976**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.18	0.500						10.21	10.7	20	

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18411** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **MBLKS** Batch ID: **18411** Analysis Date: **10/4/2017** SeqNo: **749861**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0200									
Chloromethane	ND	0.0500									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.0500									
Trichlorofluoromethane (CFC-11)	ND	0.0200									
Chloroethane	ND	0.0500									
1,1-Dichloroethene	ND	0.0200									
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	0.100									Q
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0250									
1,2-Dichloroethane (EDC)	ND	0.0200									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0200									
1,1,2-Trichloroethane	ND	0.0200									
1,3-Dichloropropane	ND	0.0250									
Tetrachloroethene (PCE)	ND	0.0250									
Dibromochloromethane	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.00500									

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18411** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **MBLKS** Batch ID: **18411** Analysis Date: **10/4/2017** SeqNo: **749861**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0250									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Bromoform	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0250									
Bromobenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0250									
4-Chlorotoluene	ND	0.0250									
tert-Butylbenzene	ND	0.0250									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0250									Q
sec-Butylbenzene	ND	0.0500									
4-Isopropyltoluene	ND	0.0500									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0250									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.0500									
Naphthalene	ND	0.0500									Q
1,2,3-Trichlorobenzene	ND	0.0200									Q
Surr: Dibromofluoromethane	1.29		1.250		103	56.5	129				
Surr: Toluene-d8	1.33		1.250		106	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.17		1.250		93.8	43.2	143				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18411** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **MBLKS** Batch ID: **18411** Analysis Date: **10/4/2017** SeqNo: **749861**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18411** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **LCSS** Batch ID: **18411** Analysis Date: **10/4/2017** SeqNo: **750542**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	2.21	0.0200	1.000	0	221	14.3	167				S
Chloromethane	1.48	0.0500	1.000	0	148	46	144				S
Vinyl chloride	1.35	0.0250	1.000	0	135	43.4	151				
Bromomethane	1.25	0.0500	1.000	0	125	35	155				
Trichlorofluoromethane (CFC-11)	1.22	0.0200	1.000	0	122	33.8	156				
Chloroethane	1.18	0.0500	1.000	0	118	33.1	147				
1,1-Dichloroethene	1.05	0.0200	1.000	0	105	39	144				
Methylene chloride	1.00	0.0200	1.000	0	100	46.3	140				
trans-1,2-Dichloroethene	1.03	0.0200	1.000	0	103	68	130				
Methyl tert-butyl ether (MTBE)	1.05	0.0500	1.000	0	105	66.3	145				
1,1-Dichloroethane	1.02	0.0200	1.000	0	102	61.9	137				
2,2-Dichloropropane	1.08	0.100	1.000	0	108	35.5	186				
cis-1,2-Dichloroethene	1.01	0.0200	1.000	0	101	71.3	135				
Chloroform	1.00	0.0200	1.000	0	100	69	145				
1,1,1-Trichloroethane (TCA)	1.01	0.0250	1.000	0	101	69	132				
1,1-Dichloropropene	1.01	0.0200	1.000	0	101	72.7	131				
Carbon tetrachloride	0.948	0.0250	1.000	0	94.8	63.4	137				
1,2-Dichloroethane (EDC)	0.988	0.0200	1.000	0	98.8	50.9	162				
Benzene	1.13	0.0200	1.000	0	113	64.3	133				
Trichloroethene (TCE)	1.00	0.0200	1.000	0	100	65.5	137				
1,2-Dichloropropane	1.01	0.0200	1.000	0	101	63.2	142				
Bromodichloromethane	0.956	0.0200	1.000	0	95.6	53.4	131				
Dibromomethane	0.979	0.0200	1.000	0	97.9	60.1	146				
cis-1,3-Dichloropropene	0.988	0.0200	1.000	0	98.8	59.1	143				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18411** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **LCSS** Batch ID: **18411** Analysis Date: **10/4/2017** SeqNo: **750542**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	1.20	0.0200	1.000	0	120	67.3	138				
trans-1,3-Dichloropropylene	1.01	0.0200	1.000	0	101	49.2	149				
1,1,2-Trichloroethane	0.976	0.0200	1.000	0	97.6	56.9	147				
1,3-Dichloropropane	0.963	0.0250	1.000	0	96.3	56.1	153				
Tetrachloroethene (PCE)	1.03	0.0250	1.000	0	103	52.7	150				
Dibromochloromethane	0.919	0.0250	1.000	0	91.9	70.6	144				
1,2-Dibromoethane (EDB)	0.968	0.00500	1.000	0	96.8	50.5	154				
Chlorobenzene	1.02	0.0250	1.000	0	102	76.1	123				
1,1,1,2-Tetrachloroethane	0.997	0.0250	1.000	0	99.7	65.9	141				
Ethylbenzene	1.13	0.0250	1.000	0	113	74	129				
m,p-Xylene	2.19	0.0500	2.000	0	110	70	124				
o-Xylene	1.11	0.0250	1.000	0	111	68.1	139				
Styrene	1.01	0.0250	1.000	0	101	73.3	146				
Isopropylbenzene	1.00	0.0250	1.000	0	100	70	130				
Bromoform	0.860	0.0500	1.000	0	86.0	44.3	130				
1,1,2,2-Tetrachloroethane	0.993	0.0200	1.000	0	99.3	44.8	165				
n-Propylbenzene	0.962	0.0250	1.000	0	96.2	74.8	125				
Bromobenzene	1.01	0.0200	1.000	0	101	49.2	144				
1,3,5-Trimethylbenzene	0.912	0.0250	1.000	0	91.2	74.6	123				
2-Chlorotoluene	1.00	0.0250	1.000	0	100	76.7	129				
4-Chlorotoluene	0.933	0.0250	1.000	0	93.3	77.5	125				
tert-Butylbenzene	0.962	0.0250	1.000	0	96.2	66.2	130				
1,2,3-Trichloropropane	0.933	0.0250	1.000	0	93.3	67.9	136				
1,2,4-Trichlorobenzene	0.720	0.0250	1.000	0	72.0	62.6	143				
sec-Butylbenzene	0.947	0.0500	1.000	0	94.7	75.6	133				
4-Isopropyltoluene	0.923	0.0500	1.000	0	92.3	76.8	131				
1,3-Dichlorobenzene	1.06	0.0200	1.000	0	106	72.8	128				
1,4-Dichlorobenzene	1.02	0.0200	1.000	0	102	72.6	126				
n-Butylbenzene	0.920	0.0250	1.000	0	92.0	65.3	136				
1,2-Dichlorobenzene	1.03	0.0200	1.000	0	103	72.8	126				
1,2-Dibromo-3-chloropropane	0.926	0.500	1.000	0	92.6	40.2	155				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18411** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **LCSS** Batch ID: **18411** Analysis Date: **10/4/2017** SeqNo: **750542**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	0.892	0.0200	1.000	0	89.2	77.5	129				
Hexachlorobutadiene	1.04	0.0500	1.000	0	104	42	151				
Naphthalene	0.728	0.0500	1.000	0	72.8	58.4	160				
1,2,3-Trichlorobenzene	0.733	0.0200	1.000	0	73.3	54.8	143				
Surr: Dibromofluoromethane	1.26		1.250		101	56.5	129				
Surr: Toluene-d8	1.32		1.250		106	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.24		1.250		99.1	43.2	143				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID **1710011-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750526**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0222						0		30	
Chloromethane	ND	0.0556						0		30	
Vinyl chloride	ND	0.0278						0		30	
Bromomethane	ND	0.0556						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0222						0		30	
Chloroethane	ND	0.0556						0		30	
1,1-Dichloroethene	ND	0.0222						0		30	
Methylene chloride	ND	0.0222						0		30	
trans-1,2-Dichloroethene	ND	0.0222						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0556						0		30	
1,1-Dichloroethane	ND	0.0222						0		30	
2,2-Dichloropropane	ND	0.111						0		30	Q
cis-1,2-Dichloroethene	ND	0.0222						0		30	
Chloroform	ND	0.0222						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0278						0		30	
1,1-Dichloropropene	ND	0.0222						0		30	
Carbon tetrachloride	ND	0.0278						0		30	

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750526**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.0222						0		30	
Benzene	ND	0.0222						0		30	
Trichloroethene (TCE)	ND	0.0222						0		30	
1,2-Dichloropropane	ND	0.0222						0		30	
Bromodichloromethane	ND	0.0222						0		30	
Dibromomethane	ND	0.0222						0		30	
cis-1,3-Dichloropropene	ND	0.0222						0		30	
Toluene	ND	0.0222						0		30	
trans-1,3-Dichloropropylene	ND	0.0222						0		30	
1,1,2-Trichloroethane	ND	0.0222						0		30	
1,3-Dichloropropane	ND	0.0278						0		30	
Tetrachloroethene (PCE)	ND	0.0278						0		30	
Dibromochloromethane	ND	0.0278						0		30	
1,2-Dibromoethane (EDB)	ND	0.00556						0		30	
Chlorobenzene	ND	0.0278						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0278						0		30	
Ethylbenzene	ND	0.0278						0		30	
m,p-Xylene	ND	0.0556						0		30	
o-Xylene	ND	0.0278						0		30	
Styrene	ND	0.0278						0		30	
Isopropylbenzene	ND	0.0278						0		30	
Bromoform	ND	0.0556						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0222						0		30	
n-Propylbenzene	ND	0.0278						0		30	
Bromobenzene	ND	0.0222						0		30	
1,3,5-Trimethylbenzene	ND	0.0278						0		30	
2-Chlorotoluene	ND	0.0278						0		30	
4-Chlorotoluene	ND	0.0278						0		30	
tert-Butylbenzene	ND	0.0278						0		30	
1,2,3-Trichloropropane	ND	0.0278						0		30	
1,2,4-Trichlorobenzene	ND	0.0278						0		30	Q

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750526**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0556						0		30	
4-Isopropyltoluene	ND	0.0556						0		30	
1,3-Dichlorobenzene	ND	0.0222						0		30	
1,4-Dichlorobenzene	ND	0.0222						0		30	
n-Butylbenzene	ND	0.0278						0		30	
1,2-Dichlorobenzene	ND	0.0222						0		30	
1,2-Dibromo-3-chloropropane	ND	0.556						0		30	
1,2,4-Trimethylbenzene	ND	0.0222						0		30	
Hexachlorobutadiene	ND	0.0556						0		30	
Naphthalene	ND	0.0556						0		30	Q
1,2,3-Trichlorobenzene	ND	0.0222						0		30	Q
Surr: Dibromofluoromethane	1.37		1.390		98.2	56.5	129		0		
Surr: Toluene-d8	1.45		1.390		104	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.29		1.390		93.1	43.2	143		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1710011-008BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0203						0		30	
Chloromethane	ND	0.0508						0		30	
Vinyl chloride	ND	0.0254						0		30	
Bromomethane	ND	0.0508						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0203						0		30	
Chloroethane	ND	0.0508						0		30	
1,1-Dichloroethene	ND	0.0203						0		30	
Methylene chloride	ND	0.0203						0		30	
trans-1,2-Dichloroethene	ND	0.0203						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0508						0		30	

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-008BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	ND	0.0203						0		30	
2,2-Dichloropropane	ND	0.102						0		30	Q
cis-1,2-Dichloroethene	ND	0.0203						0		30	
Chloroform	ND	0.0203						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0254						0		30	
1,1-Dichloropropene	ND	0.0203						0		30	
Carbon tetrachloride	ND	0.0254						0		30	
1,2-Dichloroethane (EDC)	ND	0.0203						0		30	
Benzene	ND	0.0203						0		30	
Trichloroethene (TCE)	ND	0.0203						0		30	
1,2-Dichloropropane	ND	0.0203						0		30	
Bromodichloromethane	ND	0.0203						0		30	
Dibromomethane	ND	0.0203						0		30	
cis-1,3-Dichloropropene	ND	0.0203						0		30	
Toluene	ND	0.0203						0		30	
trans-1,3-Dichloropropylene	ND	0.0203						0		30	
1,1,2-Trichloroethane	ND	0.0203						0		30	
1,3-Dichloropropane	ND	0.0254						0		30	
Tetrachloroethene (PCE)	ND	0.0254						0		30	
Dibromochloromethane	ND	0.0254						0		30	
1,2-Dibromoethane (EDB)	ND	0.00508						0		30	
Chlorobenzene	ND	0.0254						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0254						0		30	
Ethylbenzene	ND	0.0254						0		30	
m,p-Xylene	ND	0.0508						0		30	
o-Xylene	ND	0.0254						0		30	
Styrene	ND	0.0254						0		30	
Isopropylbenzene	ND	0.0254						0		30	
Bromoform	ND	0.0508						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0203						0		30	
n-Propylbenzene	ND	0.0254						0		30	

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-008BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750532**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	ND	0.0203						0		30	
1,3,5-Trimethylbenzene	ND	0.0254						0		30	
2-Chlorotoluene	ND	0.0254						0		30	
4-Chlorotoluene	ND	0.0254						0		30	
tert-Butylbenzene	ND	0.0254						0		30	
1,2,3-Trichloropropane	ND	0.0254						0		30	
1,2,4-Trichlorobenzene	ND	0.0254						0		30	Q
sec-Butylbenzene	ND	0.0508						0		30	
4-Isopropyltoluene	ND	0.0508						0		30	
1,3-Dichlorobenzene	ND	0.0203						0		30	
1,4-Dichlorobenzene	ND	0.0203						0		30	
n-Butylbenzene	ND	0.0254						0		30	
1,2-Dichlorobenzene	ND	0.0203						0		30	
1,2-Dibromo-3-chloropropane	ND	0.508						0		30	
1,2,4-Trimethylbenzene	ND	0.0203						0		30	
Hexachlorobutadiene	ND	0.0508						0		30	
Naphthalene	ND	0.0508						0		30	Q
1,2,3-Trichlorobenzene	ND	0.0203						0		30	Q
Surr: Dibromofluoromethane	1.26		1.271		98.8	56.5	129		0		
Surr: Toluene-d8	1.32		1.271		104	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.17		1.271		92.0	43.2	143		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1710011-006BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750529**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	3.08	0.0310	1.552	0	199	43.5	121				S
Chloromethane	2.42	0.0776	1.552	0	156	45	130				S
Vinyl chloride	2.08	0.0388	1.552	0	134	43.6	150				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-006BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750529**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromomethane	0.986	0.0776	1.552	0	63.5	21.3	120				
Trichlorofluoromethane (CFC-11)	1.19	0.0310	1.552	0	76.5	35	131				
Chloroethane	0.967	0.0776	1.552	0	62.3	31.9	123				
1,1-Dichloroethene	1.51	0.0310	1.552	0	97.5	47.3	147				
Methylene chloride	1.63	0.0310	1.552	0	105	54.7	142				
trans-1,2-Dichloroethene	1.65	0.0310	1.552	0	106	52	136				
Methyl tert-butyl ether (MTBE)	1.72	0.0776	1.552	0	111	58.5	167				
1,1-Dichloroethane	1.66	0.0310	1.552	0	107	51.8	141				
2,2-Dichloropropane	1.50	0.155	1.552	0	96.9	36	123				
cis-1,2-Dichloroethene	1.64	0.0310	1.552	0	105	58.6	136				
Chloroform	1.62	0.0310	1.552	0	104	53.2	129				
1,1,1-Trichloroethane (TCA)	1.55	0.0388	1.552	0	99.7	58.3	145				
1,1-Dichloropropene	1.60	0.0310	1.552	0	103	55.1	138				
Carbon tetrachloride	1.37	0.0388	1.552	0	88.5	53.3	144				
1,2-Dichloroethane (EDC)	1.66	0.0310	1.552	0	107	51.3	139				
Benzene	1.64	0.0310	1.552	0	105	63.5	133				
Trichloroethene (TCE)	1.58	0.0310	1.552	0	101	61.6	147				
1,2-Dichloropropane	1.60	0.0310	1.552	0	103	59	136				
Bromodichloromethane	1.42	0.0310	1.552	0	91.4	50.7	141				
Dibromomethane	1.58	0.0310	1.552	0	102	50.6	137				
cis-1,3-Dichloropropene	1.52	0.0310	1.552	0	97.9	50.4	138				
Toluene	1.57	0.0310	1.552	0	101	63.4	132				
trans-1,3-Dichloropropylene	1.62	0.0310	1.552	0	105	44.1	147				
1,1,2-Trichloroethane	1.58	0.0310	1.552	0	102	51.6	137				
1,3-Dichloropropane	1.62	0.0388	1.552	0	104	53.1	134				
Tetrachloroethene (PCE)	1.60	0.0388	1.552	0	103	35.6	158				
Dibromochloromethane	1.37	0.0388	1.552	0	88.3	55.3	140				
1,2-Dibromoethane (EDB)	1.59	0.00776	1.552	0	103	50.4	136				
Chlorobenzene	1.59	0.0388	1.552	0	103	60	133				
1,1,1,2-Tetrachloroethane	1.48	0.0388	1.552	0	95.6	53.1	142				
Ethylbenzene	1.59	0.0388	1.552	0	103	54.5	134				

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-006BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750529**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	3.17	0.0776	3.105	0	102	53.1	132				
o-Xylene	1.58	0.0388	1.552	0	102	53.3	139				
Styrene	1.57	0.0388	1.552	0	101	51.1	132				
Isopropylbenzene	1.59	0.0388	1.552	0	102	58.9	138				
Bromoform	1.25	0.0776	1.552	0	80.7	57.9	130				
1,1,2,2-Tetrachloroethane	1.61	0.0310	1.552	0	104	51.9	131				
n-Propylbenzene	1.50	0.0388	1.552	0	96.7	53.6	140				
Bromobenzene	1.58	0.0310	1.552	0	102	54.2	140				
1,3,5-Trimethylbenzene	1.48	0.0388	1.552	0	95.3	51.8	136				
2-Chlorotoluene	1.54	0.0388	1.552	0	99.1	51.6	136				
4-Chlorotoluene	1.50	0.0388	1.552	0	96.5	50.1	139				
tert-Butylbenzene	1.48	0.0388	1.552	0	95.1	50.5	135				
1,2,3-Trichloropropane	1.56	0.0388	1.552	0	101	50.5	131				
1,2,4-Trichlorobenzene	1.22	0.0388	1.552	0	78.4	50.8	130				
sec-Butylbenzene	1.40	0.0776	1.552	0	90.2	52.6	141				
4-Isopropyltoluene	1.36	0.0776	1.552	0	87.9	52.9	134				
1,3-Dichlorobenzene	1.61	0.0310	1.552	0	104	52.6	131				
1,4-Dichlorobenzene	1.59	0.0310	1.552	0	103	52.9	129				
n-Butylbenzene	1.40	0.0388	1.552	0	90.0	52.6	130				
1,2-Dichlorobenzene	1.61	0.0310	1.552	0	104	55.8	129				
1,2-Dibromo-3-chloropropane	1.46	0.776	1.552	0	94.2	40.5	131				
1,2,4-Trimethylbenzene	1.40	0.0310	1.552	0	89.9	50.6	137				
Hexachlorobutadiene	1.52	0.0776	1.552	0	98.1	40.6	158				
Naphthalene	1.23	0.0776	1.552	0	79.4	52.3	124				
1,2,3-Trichlorobenzene	1.25	0.0310	1.552	0	80.3	54.4	124				
Surr: Dibromofluoromethane	1.95		1.940		101	56.5	129				
Surr: Toluene-d8	1.92		1.940		98.9	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.94		1.940		99.7	43.2	143				

NOTES:
S - Outlying spike recovery(ies) observed.

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-006BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	3.06	0.0310	1.552	0	197	43.5	121	3.083	0.869	30	S
Chloromethane	2.49	0.0776	1.552	0	160	45	130	2.424	2.52	30	S
Vinyl chloride	2.07	0.0388	1.552	0	133	43.6	150	2.080	0.495	30	
Bromomethane	0.995	0.0776	1.552	0	64.1	21.3	120	0.9857	0.929	30	
Trichlorofluoromethane (CFC-11)	1.19	0.0310	1.552	0	76.6	35	131	1.188	0.107	30	
Chloroethane	0.953	0.0776	1.552	0	61.4	31.9	123	0.9668	1.44	30	
1,1-Dichloroethene	1.35	0.0310	1.552	0	87.0	47.3	147	1.514	11.3	30	
Methylene chloride	1.64	0.0310	1.552	0	106	54.7	142	1.628	0.631	30	
trans-1,2-Dichloroethene	1.66	0.0310	1.552	0	107	52	136	1.649	0.388	30	
Methyl tert-butyl ether (MTBE)	1.71	0.0776	1.552	0	110	58.5	167	1.722	0.578	30	
1,1-Dichloroethane	1.66	0.0310	1.552	0	107	51.8	141	1.661	0.0932	30	
2,2-Dichloropropane	1.53	0.155	1.552	0	98.4	36	123	1.505	1.54	30	
cis-1,2-Dichloroethene	1.67	0.0310	1.552	0	108	58.6	136	1.636	2.20	30	
Chloroform	1.60	0.0310	1.552	0	103	53.2	129	1.618	1.30	30	
1,1,1-Trichloroethane (TCA)	1.58	0.0388	1.552	0	102	58.3	145	1.548	1.85	30	
1,1-Dichloropropene	1.60	0.0310	1.552	0	103	55.1	138	1.595	0.434	30	
Carbon tetrachloride	1.38	0.0388	1.552	0	88.8	53.3	144	1.374	0.365	30	
1,2-Dichloroethane (EDC)	1.63	0.0310	1.552	0	105	51.3	139	1.663	1.86	30	
Benzene	1.64	0.0310	1.552	0	106	63.5	133	1.637	0.354	30	
Trichloroethene (TCE)	1.59	0.0310	1.552	0	102	61.6	147	1.575	0.724	30	
1,2-Dichloropropane	1.59	0.0310	1.552	0	103	59	136	1.600	0.344	30	
Bromodichloromethane	1.44	0.0310	1.552	0	93.0	50.7	141	1.419	1.68	30	
Dibromomethane	1.59	0.0310	1.552	0	102	50.6	137	1.584	0.0681	30	
cis-1,3-Dichloropropene	1.44	0.0310	1.552	0	92.7	50.4	138	1.520	5.42	30	
Toluene	1.58	0.0310	1.552	0	102	63.4	132	1.574	0.604	30	
trans-1,3-Dichloropropylene	1.66	0.0310	1.552	0	107	44.1	147	1.623	2.37	30	
1,1,2-Trichloroethane	1.57	0.0310	1.552	0	101	51.6	137	1.583	0.766	30	
1,3-Dichloropropane	1.59	0.0388	1.552	0	102	53.1	134	1.616	1.54	30	
Tetrachloroethene (PCE)	1.63	0.0388	1.552	0	105	35.6	158	1.597	2.00	30	
Dibromochloromethane	1.40	0.0388	1.552	0	90.2	55.3	140	1.371	2.10	30	
1,2-Dibromoethane (EDB)	1.58	0.00776	1.552	0	102	50.4	136	1.595	0.914	30	

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-006BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.61	0.0388	1.552	0	104	60	133	1.592	1.07	30	
1,1,1,2-Tetrachloroethane	1.53	0.0388	1.552	0	98.9	53.1	142	1.484	3.37	30	
Ethylbenzene	1.61	0.0388	1.552	0	104	54.5	134	1.592	1.31	30	
m,p-Xylene	3.21	0.0776	3.105	0	103	53.1	132	3.166	1.36	30	
o-Xylene	1.60	0.0388	1.552	0	103	53.3	139	1.579	1.28	30	
Styrene	1.61	0.0388	1.552	0	103	51.1	132	1.570	2.19	30	
Isopropylbenzene	1.61	0.0388	1.552	0	104	58.9	138	1.586	1.33	30	
Bromoform	1.28	0.0776	1.552	0	82.7	57.9	130	1.253	2.51	30	
1,1,2,2-Tetrachloroethane	1.57	0.0310	1.552	0	101	51.9	131	1.608	2.53	30	
n-Propylbenzene	1.56	0.0388	1.552	0	101	53.6	140	1.501	4.11	30	
Bromobenzene	1.60	0.0310	1.552	0	103	54.2	140	1.577	1.58	30	
1,3,5-Trimethylbenzene	1.52	0.0388	1.552	0	98.1	51.8	136	1.479	2.93	30	
2-Chlorotoluene	1.58	0.0388	1.552	0	102	51.6	136	1.538	2.58	30	
4-Chlorotoluene	1.56	0.0388	1.552	0	101	50.1	139	1.498	4.32	30	
tert-Butylbenzene	1.53	0.0388	1.552	0	98.6	50.5	135	1.477	3.54	30	
1,2,3-Trichloropropane	1.56	0.0388	1.552	0	100	50.5	131	1.562	0.147	30	
1,2,4-Trichlorobenzene	1.37	0.0388	1.552	0	88.0	50.8	130	1.217	11.6	30	
sec-Butylbenzene	1.48	0.0776	1.552	0	95.0	52.6	141	1.400	5.24	30	
4-Isopropyltoluene	1.43	0.0776	1.552	0	92.2	52.9	134	1.364	4.79	30	
1,3-Dichlorobenzene	1.68	0.0310	1.552	0	108	52.6	131	1.612	4.13	30	
1,4-Dichlorobenzene	1.65	0.0310	1.552	0	106	52.9	129	1.593	3.69	30	
n-Butylbenzene	1.51	0.0388	1.552	0	97.2	52.6	130	1.397	7.71	30	
1,2-Dichlorobenzene	1.65	0.0310	1.552	0	107	55.8	129	1.607	2.88	30	
1,2-Dibromo-3-chloropropane	1.52	0.776	1.552	0	97.7	40.5	131	1.462	3.67	30	
1,2,4-Trimethylbenzene	1.46	0.0310	1.552	0	94.2	50.6	137	1.396	4.64	30	
Hexachlorobutadiene	1.63	0.0776	1.552	0	105	40.6	158	1.523	6.54	30	
Naphthalene	1.45	0.0776	1.552	0	93.4	52.3	124	1.233	16.2	30	
1,2,3-Trichlorobenzene	1.40	0.0310	1.552	0	90.0	54.4	124	1.246	11.4	30	
Surr: Dibromofluoromethane	1.95		1.940		100	56.5	129		0		
Surr: Toluene-d8	1.90		1.940		98.2	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.95		1.940		100	43.2	143		0		

Work Order: 1710045
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710011-006BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/4/2017** RunNo: **39008**
Client ID: **BATCH** Batch ID: **18411** Analysis Date: **10/5/2017** SeqNo: **750530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710045**
Logged by:	**Clare Griggs**	Date Received:	**10/4/2017 2:27:00 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 ☐
	Sample received straight from field.			
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 ☐ MeOH
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 10/4/17 Laboratory Project No (internal): 1710045

Page: _____ of: _____

Client: GeI
Address:
City, State, Zip:
Telephone: Fax:

Project Name: Block 21
Project No:
Collected by: CMD
Location: Seattle
Report To (PM): Chris Brown
PM Email: Cbrown@geoengineers.com,

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	SS21-100417	10/4/17	1250	S						X												
2	SX21-1-100417	1	1300	S						X												
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: ASAP

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	10/4/17 1427	x	10/4/2017 1427
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N. Tel: 206-352-3790
Seattle, WA 98103 Fax: 206-352-7178

Date: 10/4/17 Laboratory Project No (internal): 1710045

Page: _____ of: _____

Client: GEL
Address:
City, State, Zip:
Telephone: Fax:

Project Name: Block 21
Project No:
Location: Seattle
Report To (PM): Chris Brown
PM Email: Cbrown@geoengineers.com
Collected by: CMD

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	SS21-100417	10/4/17	1250	S	X					X	X								
2	SX21-1-100417	1	1300	S	X					X	X								
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: ASAP

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	10/4/17 1427	x	10/4/2017 1427
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/4/17
Laboratory Project No (internal): 1710045
Page: _____ of: _____

Client: GeL
Address:
City, State, Zip:
Telephone: Fax:

Project Name: Block 21
Project No:
Location: Seattle
Report To (PM): Chris Brown
PM Email: Cbrown@geoengineers.com
Collected by: CMD

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~SS21-100417~~	10/4/17	1250	S	X					X	X								SC-W9540
2	~~SX21-1-100417~~	1	1300	S	X					X	X								W6843-7.5
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:
ASAP
Sample ID changes per C.D. 1/29/18 CW

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	10/4/17 1427	x	10/4/2017 1427
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD
^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

www.fremontanalytical.com

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710084

October 09, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 10/6/2017 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/05/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710084

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710084-001	W9S42-8.0	10/06/2017 12:30 PM	10/06/2017 1:37 PM

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

Case Narrative

WO#: **1710084**
Date: **10/9/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1710084**
Date Reported: **10/9/2017**

Client: GeoEngineers
Collection Date: 10/6/2017 12:30:00 PM
Project: Block 21
Lab ID: 1710084-001
Matrix: Soil
Client Sample ID: **W9S42-8.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18441		Analyst: BT
Naphthalene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
2-Methylnaphthalene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
1-Methylnaphthalene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Acenaphthylene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Acenaphthene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Fluorene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Phenanthrene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Anthracene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Fluoranthene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Pyrene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Benz(a)anthracene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Chrysene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Benzo(b)fluoranthene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Benzo(k)fluoranthene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Benzo(a)pyrene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Indeno(1,2,3-cd)pyrene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Dibenz(a,h)anthracene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Benzo(g,h,i)perylene	ND	39.8		µg/Kg-dry	1	10/6/2017 7:59:36 PM
Surr: 2-Fluorobiphenyl	51.5	10 - 123		%Rec	1	10/6/2017 7:59:36 PM
Surr: Terphenyl-d14 (surr)	97.7	46.2 - 179		%Rec	1	10/6/2017 7:59:36 PM
Sample Moisture (Percent Moisture)				Batch ID: R39061		Analyst: CO
Percent Moisture	2.72	0.500		wt%	1	10/6/2017 4:01:29 PM

Work Order: 1710084
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18441**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/6/2017**	RunNo: **39081**
Client ID: **MBLKS**	Batch ID: **18441**		Analysis Date: **10/6/2017**	SeqNo: **751732**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	210		500.0		42.0	10	123				
Surr: Terphenyl-d14 (surr)	478		500.0		95.6	46.2	179				

Sample ID **LCS-18441**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/6/2017**	RunNo: **39081**
Client ID: **LCSS**	Batch ID: **18441**		Analysis Date: **10/6/2017**	SeqNo: **751733**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	828	40.0	1,000	0	82.8	46.4	125				
2-Methylnaphthalene	802	40.0	1,000	0	80.2	45.1	135				
1-Methylnaphthalene	872	40.0	1,000	0	87.2	46.2	133				
Acenaphthylene	897	40.0	1,000	0	89.7	32.8	136				
Acenaphthene	822	40.0	1,000	0	82.2	38.7	129				

Work Order: 1710084
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18441** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/6/2017** RunNo: **39081**
Client ID: **LCSS** Batch ID: **18441** Analysis Date: **10/6/2017** SeqNo: **751733**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	866	40.0	1,000	0	86.6	41.4	144				
Phenanthrene	768	40.0	1,000	0	76.8	43.9	133				
Anthracene	1,060	40.0	1,000	0	106	44.2	136				
Fluoranthene	933	40.0	1,000	0	93.3	45.9	137				
Pyrene	937	40.0	1,000	0	93.7	46.2	137				
Benz(a)anthracene	953	40.0	1,000	0	95.3	41.2	141				
Chrysene	974	40.0	1,000	0	97.4	46.9	138				
Benzo(b)fluoranthene	746	40.0	1,000	0	74.6	41	155				
Benzo(k)fluoranthene	1,090	40.0	1,000	0	109	41.8	153				
Benzo(a)pyrene	901	40.0	1,000	0	90.1	30.2	171				
Indeno(1,2,3-cd)pyrene	914	40.0	1,000	0	91.4	31.3	159				
Dibenz(a,h)anthracene	920	40.0	1,000	0	92.0	28	158				
Benzo(g,h,i)perylene	887	40.0	1,000	0	88.7	32.4	144				
Surr: 2-Fluorobiphenyl	328		500.0		65.5	10	123				
Surr: Terphenyl-d14 (surr)	488		500.0		97.7	46.2	179				

Sample ID **1710060-012ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/6/2017** RunNo: **39081**
Client ID: **BATCH** Batch ID: **18441** Analysis Date: **10/6/2017** SeqNo: **751735**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	46.0						0		30	
2-Methylnaphthalene	ND	46.0						0		30	
1-Methylnaphthalene	ND	46.0						0		30	
Acenaphthylene	ND	46.0						0		30	
Acenaphthene	ND	46.0						0		30	
Fluorene	ND	46.0						0		30	
Phenanthrene	ND	46.0						0		30	
Anthracene	ND	46.0						0		30	
Fluoranthene	ND	46.0						0		30	
Pyrene	ND	46.0						0		30	

Work Order: 1710084
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710060-012ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/6/2017** RunNo: **39081**
Client ID: **BATCH** Batch ID: **18441** Analysis Date: **10/6/2017** SeqNo: **751735**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	46.0						0		30	
Chrysene	ND	46.0						0		30	
Benzo(b)fluoranthene	ND	46.0						0		30	
Benzo(k)fluoranthene	ND	46.0						0		30	
Benzo(a)pyrene	ND	46.0						0		30	
Indeno(1,2,3-cd)pyrene	ND	46.0						0		30	
Dibenz(a,h)anthracene	ND	46.0						0		30	
Benzo(g,h,i)perylene	ND	46.0						0		30	
Surr: 2-Fluorobiphenyl	163		574.4		28.3	10	123		0		
Surr: Terphenyl-d14 (surr)	336		574.4		58.5	46.2	179		0		

Sample ID **1710060-012AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/6/2017** RunNo: **39081**
Client ID: **BATCH** Batch ID: **18441** Analysis Date: **10/6/2017** SeqNo: **751736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	684	45.5	1,139	0	60.1	42.9	138				
2-Methylnaphthalene	667	45.5	1,139	0	58.6	42.8	151				
1-Methylnaphthalene	752	45.5	1,139	0	66.0	41.6	148				
Acenaphthylene	760	45.5	1,139	0	66.8	32.6	160				
Acenaphthene	687	45.5	1,139	0	60.3	46.3	142				
Fluorene	712	45.5	1,139	0	62.5	43.4	153				
Phenanthrene	596	45.5	1,139	0	52.3	45.5	140				
Anthracene	879	45.5	1,139	0	77.2	32.6	160				
Fluoranthene	748	45.5	1,139	0	65.7	44.6	161				
Pyrene	738	45.5	1,139	0	64.8	48.3	158				
Benz(a)anthracene	759	45.5	1,139	0	66.7	34.9	139				
Chrysene	817	45.5	1,139	0	71.7	45.2	146				
Benzo(b)fluoranthene	660	45.5	1,139	0	58.0	42.2	168				
Benzo(k)fluoranthene	864	45.5	1,139	0	75.9	34.8	147				
Benzo(a)pyrene	743	45.5	1,139	0	65.3	34.4	179				

Work Order: 1710084
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710060-012AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/6/2017** RunNo: **39081**
Client ID: **BATCH** Batch ID: **18441** Analysis Date: **10/6/2017** SeqNo: **751736**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	739	45.5	1,139	0	64.9	11.8	140				
Dibenz(a,h)anthracene	744	45.5	1,139	0	65.4	17.3	156				
Benzo(g,h,i)perylene	721	45.5	1,139	0	63.3	24.9	119				
Surr: 2-Fluorobiphenyl	218		569.3		38.3	10	123				
Surr: Terphenyl-d14 (surr)	388		569.3		68.2	46.2	179				

Sample ID **1710060-012AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/6/2017** RunNo: **39081**
Client ID: **BATCH** Batch ID: **18441** Analysis Date: **10/6/2017** SeqNo: **751737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	797	47.9	1,198	0	66.6	42.9	138	684.2	15.3	30	
2-Methylnaphthalene	778	47.9	1,198	0	64.9	42.8	151	667.4	15.3	30	
1-Methylnaphthalene	876	47.9	1,198	0	73.1	41.6	148	752.0	15.2	30	
Acenaphthylene	881	47.9	1,198	0	73.5	32.6	160	760.2	14.7	30	
Acenaphthene	851	47.9	1,198	0	71.1	46.3	142	687.1	21.3	30	
Fluorene	867	47.9	1,198	0	72.3	43.4	153	711.6	19.7	30	
Phenanthrene	719	47.9	1,198	0	60.0	45.5	140	595.6	18.8	30	
Anthracene	1,020	47.9	1,198	0	85.1	32.6	160	879.0	14.7	30	
Fluoranthene	908	47.9	1,198	0	75.8	44.6	161	748.2	19.3	30	
Pyrene	886	47.9	1,198	0	74.0	48.3	158	737.5	18.3	30	
Benz(a)anthracene	915	47.9	1,198	0	76.3	34.9	139	759.2	18.6	30	
Chrysene	947	47.9	1,198	0	79.0	45.2	146	816.9	14.7	30	
Benzo(b)fluoranthene	695	47.9	1,198	0	58.0	42.2	168	660.2	5.19	30	
Benzo(k)fluoranthene	1,080	47.9	1,198	0	90.0	34.8	147	864.3	22.0	30	
Benzo(a)pyrene	861	47.9	1,198	0	71.8	34.4	179	743.2	14.7	30	
Indeno(1,2,3-cd)pyrene	873	47.9	1,198	0	72.9	11.8	140	738.7	16.7	30	
Dibenz(a,h)anthracene	871	47.9	1,198	0	72.7	17.3	156	744.5	15.6	30	
Benzo(g,h,i)perylene	851	47.9	1,198	0	71.1	24.9	119	721.2	16.6	30	
Surr: 2-Fluorobiphenyl	308		599.1		51.4	10	123		0		
Surr: Terphenyl-d14 (surr)	430		599.1		71.7	46.2	179		0		

Work Order: 1710084
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710060-012AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/6/2017** RunNo: **39081**
Client ID: **BATCH** Batch ID: **18441** Analysis Date: **10/6/2017** SeqNo: **751737**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1710084
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710065-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/6/2017**		RunNo: **39061**	
Client ID: **BATCH**	Batch ID: **R39061**						Analysis Date: **10/6/2017**		SeqNo: **751415**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.77	0.500						6.215	44.5	20	R

Sample ID **1710092-003ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/6/2017**		RunNo: **39061**	
Client ID: **BATCH**	Batch ID: **R39061**						Analysis Date: **10/6/2017**		SeqNo: **751432**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	3.62	0.500						3.141	14.2	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710084**
Logged by:	**Clare Griggs**	Date Received:	**10/6/2017 1:37:00 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 ☐
	Sample received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	24.5

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical

Chain of Custody Record and Laboratory Services Agreement

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/6/17

Laboratory Project No (internal): 1710084

Page: _____ of: _____

Client: GEI

Address:

City, State, Zip:

Telephone: Fax:

Project Name: Block 21

Project No:

Collected by: CMD

Location: Seattle

Report To (PM): Chris Brown

PM Email: cbrown@geiengineers.com; cdriscoll@geiengineers.com

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)					Comments
1	Ex21-1-8.0	10/6/17	1230	S							X											
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: ASAP

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/6/17 1336	x [signature]	10/6/17 13:37
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

Distribution: White - Lab, Yellow - File, Pink - Originator

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/6/17

Laboratory Project No (internal): 1710084

Page: _____ of: _____

Client: GRI

Address:

City, State, Zip:

Telephone: Fax:

Project Name: Block 21

Project No:

Collected by: CMD

Location: Seattle

Report To (PM): Chris Brown

PM Email: cbrown@geologicalresources.com; cdriscoll@geologicalresources.com

*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, SW = Storm Water, WW = Waste Water

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM / 525)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~Ex21-1-8.0~~	10/6/17	1230	S							X							W9842-8.0
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

**Metals Analysis (Circle): MTCA-5 RCRA-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 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 (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks: Sample ID change per C.D. 1/29/18 cw

ASAP

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/6/17 1336	x [signature]	10/6/17 13:37
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710168

October 13, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 10/12/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *10/13/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710168

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710168-001	UST-1-SW-1-6.0	10/12/2017 9:50 AM	10/12/2017 4:10 PM
1710168-002	UST-1-SW-2-6.0	10/12/2017 9:55 AM	10/12/2017 4:10 PM
1710168-003	UST-1-SW-3-6.0	10/12/2017 10:10 AM	10/12/2017 4:10 PM

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

Case Narrative

WO#: **1710168**
Date: **10/13/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1710168**

Date Reported: **10/13/2017**

Client: GeoEngineers **Collection Date:** 10/12/2017 9:50:00 AM

Project: Block 21

Lab ID: 1710168-001 **Matrix:** Soil

Client Sample ID: **UST-1-SW-1-6.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18499		Analyst: SB
Diesel (Fuel Oil)	ND	19.4		mg/Kg-dry	1	10/12/2017 9:36:39 PM
Heavy Oil	ND	48.6		mg/Kg-dry	1	10/12/2017 9:36:39 PM
Surr: 2-Fluorobiphenyl	177	50 - 150	S	%Rec	1	10/12/2017 9:36:39 PM
Surr: o-Terphenyl	181	50 - 150	S	%Rec	1	10/12/2017 9:36:39 PM
NOTES: S - Outlying surrogate recovery(ies) observed (high bias). Sample is non-detect; no further action required.						
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18515		Analyst: BT
Naphthalene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
2-Methylnaphthalene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
1-Methylnaphthalene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Acenaphthylene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Acenaphthene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Fluorene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Phenanthrene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Anthracene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Fluoranthene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Pyrene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Benz(a)anthracene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Chrysene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Benzo(b)fluoranthene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Benzo(j,k)fluoranthene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Benzo(a)pyrene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Indeno(1,2,3-cd)pyrene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Dibenz(a,h)anthracene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Benzo(g,h,i)perylene	ND	38.3		µg/Kg-dry	1	10/13/2017 2:10:54 PM
Surr: 2-Fluorobiphenyl	79.3	10 - 123		%Rec	1	10/13/2017 2:10:54 PM
Surr: Terphenyl-d14 (surr)	81.4	46.2 - 179		%Rec	1	10/13/2017 2:10:54 PM
Sample Moisture (Percent Moisture)				Batch ID: R39202		Analyst: CO
Percent Moisture	3.73	0.500		wt%	1	10/12/2017 5:01:18 PM

Analytical Report

Work Order: **1710168**

Date Reported: **10/13/2017**

Client: GeoEngineers **Collection Date:** 10/12/2017 9:55:00 AM

Project: Block 21

Lab ID: 1710168-002 **Matrix:** Soil

Client Sample ID: **UST-1-SW-2-6.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18499		Analyst: SB
Diesel (Fuel Oil)	ND	20.3		mg/Kg-dry	1	10/12/2017 10:06:23 PM
Heavy Oil	ND	50.6		mg/Kg-dry	1	10/12/2017 10:06:23 PM
Surr: 2-Fluorobiphenyl	122	50 - 150		%Rec	1	10/12/2017 10:06:23 PM
Surr: o-Terphenyl	126	50 - 150		%Rec	1	10/12/2017 10:06:23 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18515		Analyst: BT
Naphthalene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
2-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
1-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Acenaphthylene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Acenaphthene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Fluorene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Phenanthrene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Anthracene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Fluoranthene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Pyrene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Benz(a)anthracene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Chrysene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Benzo(b)fluoranthene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Benzo(j,k)fluoranthene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Benzo(a)pyrene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Indeno(1,2,3-cd)pyrene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Dibenz(a,h)anthracene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Benzo(g,h,i)perylene	ND	40.8		µg/Kg-dry	1	10/13/2017 2:32:34 PM
Surr: 2-Fluorobiphenyl	78.9	10 - 123		%Rec	1	10/13/2017 2:32:34 PM
Surr: Terphenyl-d14 (surr)	86.4	46.2 - 179		%Rec	1	10/13/2017 2:32:34 PM
Sample Moisture (Percent Moisture)				Batch ID: R39202		Analyst: CO
Percent Moisture	9.07	0.500		wt%	1	10/12/2017 5:01:18 PM

Analytical Report

Work Order: **1710168**
Date Reported: **10/13/2017**

Client: GeoEngineers
Collection Date: 10/12/2017 10:10:00 AM
Project: Block 21
Lab ID: 1710168-003
Matrix: Soil
Client Sample ID: **UST-1-SW-3-6.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18499		Analyst: SB
Diesel (Fuel Oil)	ND	20.5		mg/Kg-dry	1	10/12/2017 10:35:53 PM
Heavy Oil	ND	51.4		mg/Kg-dry	1	10/12/2017 10:35:53 PM
Surr: 2-Fluorobiphenyl	89.4	50 - 150		%Rec	1	10/12/2017 10:35:53 PM
Surr: o-Terphenyl	93.1	50 - 150		%Rec	1	10/12/2017 10:35:53 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18515		Analyst: BT
Naphthalene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
2-Methylnaphthalene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
1-Methylnaphthalene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Acenaphthylene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Acenaphthene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Fluorene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Phenanthrene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Anthracene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Fluoranthene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Pyrene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Benz(a)anthracene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Chrysene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Benzo(b)fluoranthene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Benzo(j,k)fluoranthene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Benzo(a)pyrene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Indeno(1,2,3-cd)pyrene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Dibenz(a,h)anthracene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Benzo(g,h,i)perylene	ND	41.4		µg/Kg-dry	1	10/13/2017 2:54:19 PM
Surr: 2-Fluorobiphenyl	77.3	10 - 123		%Rec	1	10/13/2017 2:54:19 PM
Surr: Terphenyl-d14 (surr)	95.4	46.2 - 179		%Rec	1	10/13/2017 2:54:19 PM
Sample Moisture (Percent Moisture)				Batch ID: R39202		Analyst: CO
Percent Moisture	5.59	0.500		wt%	1	10/12/2017 5:01:18 PM

Work Order: 1710168
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18499**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/12/2017**	RunNo: **39200**
Client ID: **MBLKS**	Batch ID: **18499**		Analysis Date: **10/12/2017**	SeqNo: **754303**

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	14.8		20.00		74.2	50	150				
Surr: o-Terphenyl	15.6		20.00		77.8	50	150				

Sample ID **LCS-18499**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/12/2017**	RunNo: **39200**
Client ID: **LCSS**	Batch ID: **18499**		Analysis Date: **10/12/2017**	SeqNo: **754304**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	464	20.0	500.0	0	92.7	65	135				
Surr: 2-Fluorobiphenyl	15.8		20.00		79.2	50	150				
Surr: o-Terphenyl	17.5		20.00		87.3	50	150				

Sample ID **1710163-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/12/2017**	RunNo: **39200**
Client ID: **BATCH**	Batch ID: **18499**		Analysis Date: **10/12/2017**	SeqNo: **754624**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.3						0		30	
Heavy Oil	ND	50.7						0		30	
Surr: 2-Fluorobiphenyl	19.6		20.29		96.4	50	150		0		
Surr: o-Terphenyl	20.0		20.29		98.7	50	150		0		

Work Order: 1710168
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18515**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/13/2017**	RunNo: **39235**
Client ID: **MBLKS**	Batch ID: **18515**		Analysis Date: **10/13/2017**	SeqNo: **754980**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	518		500.0		104	10	123				
Surr: Terphenyl-d14 (surr)	550		500.0		110	46.2	179				

Sample ID **LCS-18515**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/13/2017**	RunNo: **39235**
Client ID: **LCSS**	Batch ID: **18515**		Analysis Date: **10/13/2017**	SeqNo: **754981**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	918	40.0	1,000	0	91.8	46.4	125				
2-Methylnaphthalene	834	40.0	1,000	0	83.4	45.1	135				
1-Methylnaphthalene	1,100	40.0	1,000	0	110	46.2	133				
Acenaphthylene	950	40.0	1,000	0	95.0	32.8	136				
Acenaphthene	922	40.0	1,000	0	92.2	38.7	129				

Work Order: 1710168
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18515** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/13/2017** RunNo: **39235**
Client ID: **LCSS** Batch ID: **18515** Analysis Date: **10/13/2017** SeqNo: **754981**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	958	40.0	1,000	0	95.8	41.4	144				
Phenanthrene	878	40.0	1,000	0	87.8	43.9	133				
Anthracene	917	40.0	1,000	0	91.7	44.2	136				
Fluoranthene	978	40.0	1,000	0	97.8	45.9	137				
Pyrene	995	40.0	1,000	0	99.5	46.2	137				
Benz(a)anthracene	1,030	40.0	1,000	0	103	41.2	141				
Chrysene	1,090	40.0	1,000	0	109	46.9	138				
Benzo(b)fluoranthene	824	40.0	1,000	0	82.4	41	155				
Benzo(j,k)fluoranthene	1,130	40.0	1,000	0	113	41.8	153				
Benzo(a)pyrene	936	40.0	1,000	0	93.6	30.2	171				
Indeno(1,2,3-cd)pyrene	944	40.0	1,000	0	94.4	31.3	159				
Dibenz(a,h)anthracene	958	40.0	1,000	0	95.8	28	158				
Benzo(g,h,i)perylene	925	40.0	1,000	0	92.5	32.4	144				
Surr: 2-Fluorobiphenyl	542		500.0		108	10	123				
Surr: Terphenyl-d14 (surr)	532		500.0		106	46.2	179				

Sample ID **1710163-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/13/2017** RunNo: **39235**
Client ID: **BATCH** Batch ID: **18515** Analysis Date: **10/13/2017** SeqNo: **754983**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	44.6						0		30	
2-Methylnaphthalene	ND	44.6						0		30	
1-Methylnaphthalene	ND	44.6						0		30	
Acenaphthylene	ND	44.6						0		30	
Acenaphthene	ND	44.6						0		30	
Fluorene	ND	44.6						0		30	
Phenanthrene	ND	44.6						0		30	
Anthracene	ND	44.6						0		30	
Fluoranthene	ND	44.6						0		30	
Pyrene	ND	44.6						0		30	

Work Order: 1710168
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710163-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/13/2017** RunNo: **39235**
Client ID: **BATCH** Batch ID: **18515** Analysis Date: **10/13/2017** SeqNo: **754983**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	44.6						0		30	
Chrysene	ND	44.6						0		30	
Benzo(b)fluoranthene	ND	44.6						0		30	
Benzo(j,k)fluoranthene	ND	44.6						0		30	
Benzo(a)pyrene	ND	44.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	44.6						0		30	
Dibenz(a,h)anthracene	ND	44.6						0		30	
Benzo(g,h,i)perylene	ND	44.6						0		30	
Surr: 2-Fluorobiphenyl	492		557.3		88.2	10	123		0		
Surr: Terphenyl-d14 (surr)	517		557.3		92.7	46.2	179		0		

Sample ID **1710163-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/13/2017** RunNo: **39235**
Client ID: **BATCH** Batch ID: **18515** Analysis Date: **10/13/2017** SeqNo: **754984**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	893	42.8	1,069	0	83.5	42.9	138				
2-Methylnaphthalene	841	42.8	1,069	0	78.7	42.8	151				
1-Methylnaphthalene	866	42.8	1,069	0	81.0	41.6	148				
Acenaphthylene	972	42.8	1,069	0	90.9	32.6	160				
Acenaphthene	868	42.8	1,069	0	81.2	46.3	142				
Fluorene	842	42.8	1,069	0	78.7	43.4	153				
Phenanthrene	816	42.8	1,069	0	76.4	45.5	140				
Anthracene	849	42.8	1,069	0	79.4	32.6	160				
Fluoranthene	931	42.8	1,069	0	87.1	44.6	161				
Pyrene	922	42.8	1,069	0	86.2	48.3	158				
Benz(a)anthracene	956	42.8	1,069	0	89.4	34.9	139				
Chrysene	1,020	42.8	1,069	0	95.0	45.2	146				
Benzo(b)fluoranthene	756	42.8	1,069	0	70.7	42.2	168				
Benzo(j,k)fluoranthene	1,090	42.8	1,069	0	102	34.8	147				
Benzo(a)pyrene	872	42.8	1,069	0	81.6	34.4	179				

Work Order: 1710168
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710163-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/13/2017** RunNo: **39235**
Client ID: **BATCH** Batch ID: **18515** Analysis Date: **10/13/2017** SeqNo: **754984**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	931	42.8	1,069	0	87.1	11.8	140				
Dibenz(a,h)anthracene	928	42.8	1,069	0	86.8	17.3	156				
Benzo(g,h,i)perylene	963	42.8	1,069	0	90.1	24.9	119				
Surr: 2-Fluorobiphenyl	506		534.5		94.7	10	123				
Surr: Terphenyl-d14 (surr)	478		534.5		89.4	46.2	179				

Sample ID **1710163-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/13/2017** RunNo: **39235**
Client ID: **BATCH** Batch ID: **18515** Analysis Date: **10/13/2017** SeqNo: **754985**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	816	41.7	1,041	0	78.3	42.9	138	893.0	9.05	30	
2-Methylnaphthalene	644	41.7	1,041	0	61.8	42.8	151	841.4	26.6	30	
1-Methylnaphthalene	894	41.7	1,041	0	85.9	41.6	148	865.7	3.22	30	
Acenaphthylene	876	41.7	1,041	0	84.1	32.6	160	971.8	10.4	30	
Acenaphthene	778	41.7	1,041	0	74.7	46.3	142	868.1	11.0	30	
Fluorene	830	41.7	1,041	0	79.7	43.4	153	841.8	1.37	30	
Phenanthrene	767	41.7	1,041	0	73.7	45.5	140	816.3	6.20	30	
Anthracene	825	41.7	1,041	0	79.2	32.6	160	849.2	2.88	30	
Fluoranthene	880	41.7	1,041	0	84.5	44.6	161	931.4	5.72	30	
Pyrene	888	41.7	1,041	0	85.2	48.3	158	921.7	3.77	30	
Benz(a)anthracene	892	41.7	1,041	0	85.7	34.9	139	956.0	6.89	30	
Chrysene	937	41.7	1,041	0	90.0	45.2	146	1,016	8.09	30	
Benzo(b)fluoranthene	698	41.7	1,041	0	67.0	42.2	168	756.1	8.01	30	
Benzo(j,k)fluoranthene	1,030	41.7	1,041	0	99.4	34.8	147	1,095	5.64	30	
Benzo(a)pyrene	828	41.7	1,041	0	79.5	34.4	179	872.0	5.19	30	
Indeno(1,2,3-cd)pyrene	872	41.7	1,041	0	83.7	11.8	140	930.9	6.58	30	
Dibenz(a,h)anthracene	851	41.7	1,041	0	81.7	17.3	156	927.9	8.64	30	
Benzo(g,h,i)perylene	893	41.7	1,041	0	85.8	24.9	119	963.5	7.55	30	
Surr: 2-Fluorobiphenyl	484		520.7		93.0	10	123		0		
Surr: Terphenyl-d14 (surr)	472		520.7		90.6	46.2	179		0		

Work Order: 1710168
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710163-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/13/2017** RunNo: **39235**
Client ID: **BATCH** Batch ID: **18515** Analysis Date: **10/13/2017** SeqNo: **754985**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1710168
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710166-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **10/12/2017** RunNo: **39202**
Client ID: **BATCH** Batch ID: **R39202** Analysis Date: **10/12/2017** SeqNo: **754396**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	38.6	0.500						38.96	0.854	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710168**
Logged by:	**Clare Griggs**	Date Received:	**10/12/2017 4:10:00 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 ☐
		No cooler present.		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	21.3

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 10/12/17 Page: 1 of: 1
Project Name: Block 21
Project No: 20434-001-30
Collected by: Chris Brown
Location:
Report To (PM): Chris Brown
PM Email:

Laboratory Project No (internal): 1710168
Special Remarks:

Client: GeoEngineers
Address:
City, State, Zip:
Telephone:
Fax:

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	UST-1-SW-1-6.0	10/12/17	950	S						X		X					
2	UST-1-SW-2-6.0	↓	955	S						X		X					
3	UST-1-SW-3-6.0	↓	1010	S						X		X					
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/12/17 1610	x [signature]	10/12/2017 1610
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:
☐ Standard
☐ 3 Day
☐ 2 Day
☒ Next Day
Same Day ____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710212

October 17, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 10/16/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *02/05/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710212

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710212-001	UST-1-SW-B-8.0	10/16/2017 10:50 AM	10/16/2017 1:05 PM
1710212-002	SC-E17S0	10/16/2017 11:10 AM	10/16/2017 1:05 PM
1710212-003	SC-E17S2	10/16/2017 11:05 AM	10/16/2017 1:05 PM
1710212-004	SC-N19E3	10/16/2017 11:10 AM	10/16/2017 1:05 PM

Case Narrative

WO#: **1710212**
Date: **10/17/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1710212**
Date Reported: **10/17/2017**

Client: GeoEngineers
Collection Date: 10/16/2017 10:50:00 AM
Project: Block 21
Lab ID: 1710212-001
Matrix: Soil
Client Sample ID: **UST-1-SW-B-8.0**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18527		Analyst: SG
Diesel (Fuel Oil)	ND	18.8		mg/Kg-dry	1	10/16/2017 9:27:51 PM
Heavy Oil	ND	47.1		mg/Kg-dry	1	10/16/2017 9:27:51 PM
Surr: 2-Fluorobiphenyl	119	50 - 150		%Rec	1	10/16/2017 9:27:51 PM
Surr: o-Terphenyl	124	50 - 150		%Rec	1	10/16/2017 9:27:51 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18544		Analyst: BT
Naphthalene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
2-Methylnaphthalene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
1-Methylnaphthalene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Acenaphthylene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Acenaphthene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Fluorene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Phenanthrene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Anthracene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Fluoranthene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Pyrene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Benz(a)anthracene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Chrysene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Benzo(b)fluoranthene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Benzo(k)fluoranthene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Benzo(a)pyrene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Indeno(1,2,3-cd)pyrene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Dibenz(a,h)anthracene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Benzo(g,h,i)perylene	ND	40.5		µg/Kg-dry	1	10/17/2017 2:59:13 PM
Surr: 2-Fluorobiphenyl	80.2	10 - 123		%Rec	1	10/17/2017 2:59:13 PM
Surr: Terphenyl-d14 (surr)	88.9	46.2 - 179		%Rec	1	10/17/2017 2:59:13 PM
Sample Moisture (Percent Moisture)				Batch ID: R39260		Analyst: CO
Percent Moisture	3.57	0.500		wt%	1	10/16/2017 4:58:06 PM

Analytical Report

Work Order: **1710212**

Date Reported: **10/17/2017**

Client: GeoEngineers **Collection Date:** 10/16/2017 11:10:00 AM

Project: Block 21

Lab ID: 1710212-002 **Matrix:** Soil

Client Sample ID: SC-E17S0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18527		Analyst: SG
Diesel (Fuel Oil)	ND	22.0		mg/Kg-dry	1	10/16/2017 10:27:08 PM
Heavy Oil	74.3	55.0		mg/Kg-dry	1	10/16/2017 10:27:08 PM
Surr: 2-Fluorobiphenyl	73.8	50 - 150		%Rec	1	10/16/2017 10:27:08 PM
Surr: o-Terphenyl	84.3	50 - 150		%Rec	1	10/16/2017 10:27:08 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18544		Analyst: BT
Naphthalene	ND	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
2-Methylnaphthalene	ND	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
1-Methylnaphthalene	ND	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Acenaphthylene	ND	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Acenaphthene	80.1	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Fluorene	85.6	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Phenanthrene	388	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Anthracene	105	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Fluoranthene	306	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Pyrene	424	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Benz(a)anthracene	170	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Chrysene	212	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Benzo(b)fluoranthene	74.9	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Benzo(k)fluoranthene	63.9	43.9	Q	µg/Kg-dry	1	10/17/2017 5:17:54 PM
Benzo(a)pyrene	121	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Indeno(1,2,3-cd)pyrene	ND	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Dibenz(a,h)anthracene	ND	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Benzo(g,h,i)perylene	49.4	43.9		µg/Kg-dry	1	10/17/2017 5:17:54 PM
Surr: 2-Fluorobiphenyl	76.9	10 - 123		%Rec	1	10/17/2017 5:17:54 PM
Surr: Terphenyl-d14 (surr)	91.9	46.2 - 179		%Rec	1	10/17/2017 5:17:54 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39260		Analyst: CO
Percent Moisture	17.2	0.500		wt%	1	10/16/2017 4:58:06 PM

Analytical Report

Work Order: **1710212**
Date Reported: **10/17/2017**

Client: GeoEngineers
Collection Date: 10/16/2017 11:05:00 AM
Project: Block 21
Lab ID: 1710212-003
Matrix: Soil
Client Sample ID: **SC-E17S2**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18527		Analyst: SG
Diesel (Fuel Oil)	ND	21.8		mg/Kg-dry	1	10/16/2017 9:57:27 PM
Heavy Oil	ND	54.6		mg/Kg-dry	1	10/16/2017 9:57:27 PM
Surr: 2-Fluorobiphenyl	72.8	50 - 150		%Rec	1	10/16/2017 9:57:27 PM
Surr: o-Terphenyl	79.3	50 - 150		%Rec	1	10/16/2017 9:57:27 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18544		Analyst: BT
Naphthalene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
2-Methylnaphthalene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
1-Methylnaphthalene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Acenaphthylene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Acenaphthene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Fluorene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Phenanthrene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Anthracene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Fluoranthene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Pyrene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Benz(a)anthracene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Chrysene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Benzo(b)fluoranthene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Benzo(k)fluoranthene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Benzo(a)pyrene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Indeno(1,2,3-cd)pyrene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Dibenz(a,h)anthracene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Benzo(g,h,i)perylene	ND	38.5		µg/Kg-dry	1	10/17/2017 5:39:42 PM
Surr: 2-Fluorobiphenyl	66.4	10 - 123		%Rec	1	10/17/2017 5:39:42 PM
Surr: Terphenyl-d14 (surr)	90.2	46.2 - 179		%Rec	1	10/17/2017 5:39:42 PM
Sample Moisture (Percent Moisture)				Batch ID: R39260		Analyst: CO
Percent Moisture	11.0	0.500		wt%	1	10/16/2017 4:58:06 PM

Analytical Report

Work Order: **1710212**
Date Reported: **10/17/2017**

Client: GeoEngineers
Collection Date: 10/16/2017 11:10:00 AM
Project: Block 21
Lab ID: 1710212-004
Matrix: Soil
Client Sample ID: **SC-N19E3**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18527		Analyst: SG
Diesel (Fuel Oil)	ND	20.4		mg/Kg-dry	1	10/17/2017 1:25:02 AM
Heavy Oil	94.6	50.9		mg/Kg-dry	1	10/17/2017 1:25:02 AM
Surr: 2-Fluorobiphenyl	69.1	50 - 150		%Rec	1	10/17/2017 1:25:02 AM
Surr: o-Terphenyl	78.6	50 - 150		%Rec	1	10/17/2017 1:25:02 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18544		Analyst: BT
Naphthalene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
2-Methylnaphthalene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
1-Methylnaphthalene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Acenaphthylene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Acenaphthene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Fluorene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Phenanthrene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Anthracene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Fluoranthene	77.2	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Pyrene	61.9	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Benz(a)anthracene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Chrysene	56.3	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Benzo(b)fluoranthene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Benzo(k)fluoranthene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Benzo(a)pyrene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Indeno(1,2,3-cd)pyrene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Dibenz(a,h)anthracene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Benzo(g,h,i)perylene	ND	41.8		µg/Kg-dry	1	10/17/2017 6:01:26 PM
Surr: 2-Fluorobiphenyl	78.7	10 - 123		%Rec	1	10/17/2017 6:01:26 PM
Surr: Terphenyl-d14 (surr)	93.2	46.2 - 179		%Rec	1	10/17/2017 6:01:26 PM
Sample Moisture (Percent Moisture)				Batch ID: R39260		Analyst: CO
Percent Moisture	11.9	0.500		wt%	1	10/16/2017 4:58:06 PM

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18527**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/16/2017**	RunNo: **39256**
Client ID: **MBLKS**	Batch ID: **18527**		Analysis Date: **10/16/2017**	SeqNo: **755424**

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	14.0		20.00		70.2	50	150				
Surr: o-Terphenyl	14.9		20.00		74.7	50	150				

Sample ID **LCS-18527**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/16/2017**	RunNo: **39256**
Client ID: **LCSS**	Batch ID: **18527**		Analysis Date: **10/16/2017**	SeqNo: **755425**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	419	20.0	500.0	0	83.9	65	135				
Surr: 2-Fluorobiphenyl	15.1		20.00		75.4	50	150				
Surr: o-Terphenyl	16.4		20.00		82.0	50	150				

Sample ID **1710202-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/16/2017**	RunNo: **39256**
Client ID: **BATCH**	Batch ID: **18527**		Analysis Date: **10/16/2017**	SeqNo: **755601**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	501	23.2	580.6	0	86.3	65	135				
Surr: 2-Fluorobiphenyl	17.5		23.22		75.2	50	150				
Surr: o-Terphenyl	19.2		23.22		82.7	50	150				

Sample ID **1710202-001AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **10/16/2017**	RunNo: **39256**
Client ID: **BATCH**	Batch ID: **18527**		Analysis Date: **10/16/2017**	SeqNo: **755602**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	404	20.9	521.9	0	77.4	65	135	501.2	21.5	30	
Surr: 2-Fluorobiphenyl	11.0		20.88		52.5	50	150		0		
Surr: o-Terphenyl	12.8		20.88		61.3	50	150		0		

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1710215-007ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/16/2017** RunNo: **39256**
Client ID: **BATCH** Batch ID: **18527** Analysis Date: **10/17/2017** SeqNo: **755617**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.0						0		30	
Heavy Oil	ND	52.5						0		30	
Surr: 2-Fluorobiphenyl	16.5		20.99		78.8	50	150		0		
Surr: o-Terphenyl	18.2		20.99		86.9	50	150		0		

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18544**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/17/2017**	RunNo: **39295**
Client ID: **MBLKS**	Batch ID: **18544**		Analysis Date: **10/17/2017**	SeqNo: **756156**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	524		500.0		105	10	123				
Surr: Terphenyl-d14 (surr)	610		500.0		122	46.2	179				

Sample ID **LCS-18544**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/17/2017**	RunNo: **39295**
Client ID: **LCSS**	Batch ID: **18544**		Analysis Date: **10/17/2017**	SeqNo: **756157**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	934	40.0	1,000	0	93.4	46.4	125				
2-Methylnaphthalene	822	40.0	1,000	0	82.2	45.1	135				
1-Methylnaphthalene	1,040	40.0	1,000	0	104	46.2	133				
Acenaphthylene	1,000	40.0	1,000	0	100	32.8	136				
Acenaphthene	924	40.0	1,000	0	92.4	38.7	129				

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18544** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/17/2017** RunNo: **39295**
Client ID: **LCSS** Batch ID: **18544** Analysis Date: **10/17/2017** SeqNo: **756157**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	967	40.0	1,000	0	96.7	41.4	144				
Phenanthrene	868	40.0	1,000	0	86.8	43.9	133				
Anthracene	914	40.0	1,000	0	91.4	44.2	136				
Fluoranthene	1,030	40.0	1,000	0	103	45.9	137				
Pyrene	1,020	40.0	1,000	0	102	46.2	137				
Benz(a)anthracene	1,030	40.0	1,000	0	103	41.2	141				
Chrysene	1,170	40.0	1,000	0	117	46.9	138				
Benzo(b)fluoranthene	767	40.0	1,000	0	76.7	41	155				
Benzo(k)fluoranthene	1,250	40.0	1,000	0	125	41.8	153				
Benzo(a)pyrene	955	40.0	1,000	0	95.5	30.2	171				
Indeno(1,2,3-cd)pyrene	977	40.0	1,000	0	97.7	31.3	159				
Dibenz(a,h)anthracene	994	40.0	1,000	0	99.4	28	158				
Benzo(g,h,i)perylene	974	40.0	1,000	0	97.4	32.4	144				
Surr: 2-Fluorobiphenyl	563		500.0		113	10	123				
Surr: Terphenyl-d14 (surr)	576		500.0		115	46.2	179				

Sample ID **1710212-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/17/2017** RunNo: **39295**
Client ID: **UST-1-SW-B-8.0** Batch ID: **18544** Analysis Date: **10/17/2017** SeqNo: **756159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.2						0		30	
2-Methylnaphthalene	ND	40.2						0		30	
1-Methylnaphthalene	ND	40.2						0		30	
Acenaphthylene	ND	40.2						0		30	
Acenaphthene	ND	40.2						0		30	
Fluorene	ND	40.2						0		30	
Phenanthrene	ND	40.2						0		30	
Anthracene	ND	40.2						0		30	
Fluoranthene	ND	40.2						0		30	
Pyrene	ND	40.2						0		30	

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710212-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/17/2017** RunNo: **39295**
Client ID: **UST-1-SW-B-8.0** Batch ID: **18544** Analysis Date: **10/17/2017** SeqNo: **756159**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.2						0		30	
Chrysene	ND	40.2						0		30	
Benzo(b)fluoranthene	ND	40.2						0		30	
Benzo(k)fluoranthene	ND	40.2						0		30	
Benzo(a)pyrene	ND	40.2						0		30	
Indeno(1,2,3-cd)pyrene	ND	40.2						0		30	
Dibenz(a,h)anthracene	ND	40.2						0		30	
Benzo(g,h,i)perylene	ND	40.2						0		30	
Surr: 2-Fluorobiphenyl	422		502.4		83.9	10	123		0		
Surr: Terphenyl-d14 (surr)	488		502.4		97.1	46.2	179		0		

Sample ID **1710212-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/17/2017** RunNo: **39295**
Client ID: **UST-1-SW-B-8.0** Batch ID: **18544** Analysis Date: **10/17/2017** SeqNo: **756160**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	795	38.9	972.8	0	81.7	42.9	138				
2-Methylnaphthalene	712	38.9	972.8	0	73.2	42.8	151				
1-Methylnaphthalene	904	38.9	972.8	0	93.0	41.6	148				
Acenaphthylene	853	38.9	972.8	0	87.6	32.6	160				
Acenaphthene	782	38.9	972.8	0	80.4	46.3	142				
Fluorene	824	38.9	972.8	0	84.7	43.4	153				
Phenanthrene	766	38.9	972.8	0	78.7	45.5	140				
Anthracene	754	38.9	972.8	0	77.5	32.6	160				
Fluoranthene	847	38.9	972.8	0	87.1	44.6	161				
Pyrene	846	38.9	972.8	0	87.0	48.3	158				
Benz(a)anthracene	838	38.9	972.8	0	86.2	34.9	139				
Chrysene	1,000	38.9	972.8	0	103	45.2	146				
Benzo(b)fluoranthene	648	38.9	972.8	0	66.6	42.2	168				
Benzo(k)fluoranthene	1,030	38.9	972.8	0	106	34.8	147				
Benzo(a)pyrene	782	38.9	972.8	0	80.4	34.4	179				

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710212-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/17/2017** RunNo: **39295**
Client ID: **UST-1-SW-B-8.0** Batch ID: **18544** Analysis Date: **10/17/2017** SeqNo: **756160**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	810	38.9	972.8	0	83.3	11.8	140				
Dibenz(a,h)anthracene	817	38.9	972.8	0	84.0	17.3	156				
Benzo(g,h,i)perylene	804	38.9	972.8	0	82.7	24.9	119				
Surr: 2-Fluorobiphenyl	434		486.4		89.2	10	123				
Surr: Terphenyl-d14 (surr)	438		486.4		90.1	46.2	179				

Sample ID **1710212-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/17/2017** RunNo: **39295**
Client ID: **UST-1-SW-B-8.0** Batch ID: **18544** Analysis Date: **10/17/2017** SeqNo: **756161**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	790	39.7	993.3	0	79.6	42.9	138	795.0	0.604	30	
2-Methylnaphthalene	697	39.7	993.3	0	70.1	42.8	151	711.8	2.14	30	
1-Methylnaphthalene	922	39.7	993.3	0	92.8	41.6	148	904.3	1.96	30	
Acenaphthylene	849	39.7	993.3	0	85.5	32.6	160	852.6	0.416	30	
Acenaphthene	783	39.7	993.3	0	78.8	46.3	142	782.2	0.112	30	
Fluorene	810	39.7	993.3	0	81.6	43.4	153	824.4	1.71	30	
Phenanthrene	714	39.7	993.3	0	71.9	45.5	140	765.6	6.95	30	
Anthracene	779	39.7	993.3	0	78.4	32.6	160	753.8	3.22	30	
Fluoranthene	833	39.7	993.3	0	83.9	44.6	161	847.0	1.63	30	
Pyrene	830	39.7	993.3	0	83.6	48.3	158	846.5	1.95	30	
Benz(a)anthracene	817	39.7	993.3	0	82.2	34.9	139	838.4	2.59	30	
Chrysene	988	39.7	993.3	0	99.5	45.2	146	1,001	1.21	30	
Benzo(b)fluoranthene	588	39.7	993.3	0	59.2	42.2	168	648.2	9.73	30	
Benzo(k)fluoranthene	1,070	39.7	993.3	0	108	34.8	147	1,034	3.33	30	
Benzo(a)pyrene	759	39.7	993.3	0	76.4	34.4	179	781.9	3.01	30	
Indeno(1,2,3-cd)pyrene	806	39.7	993.3	0	81.1	11.8	140	809.9	0.490	30	
Dibenz(a,h)anthracene	799	39.7	993.3	0	80.5	17.3	156	817.3	2.22	30	
Benzo(g,h,i)perylene	794	39.7	993.3	0	79.9	24.9	119	804.3	1.30	30	
Surr: 2-Fluorobiphenyl	458		496.6		92.2	10	123		0		
Surr: Terphenyl-d14 (surr)	454		496.6		91.3	46.2	179		0		

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID	**1710212-001AMSD**	SampType:	**MSD**			Units:	**µg/Kg-dry**	Prep Date:	**10/17/2017**		RunNo:	**39295**
Client ID:	**UST-1-SW-B-8.0**	Batch ID:	**18544**					Analysis Date:	**10/17/2017**		SeqNo:	**756161**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1710212
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710208-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/16/2017**		RunNo: **39260**	
Client ID: **BATCH**	Batch ID: **R39260**						Analysis Date: **10/16/2017**		SeqNo: **755510**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.5	0.500						11.47	8.28	20	

Sample ID **1710215-007ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/16/2017**		RunNo: **39260**	
Client ID: **BATCH**	Batch ID: **R39260**						Analysis Date: **10/16/2017**		SeqNo: **755524**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	8.32	0.500						8.022	3.63	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710212**
Logged by:	**Clare Griggs**	Date Received:	**10/16/2017 1:05:00 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 ☐
	Samples received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: Page: 1 of: 1

Laboratory Project No (internal): 1710212

Special Remarks:

Project Name: Block 21

Project No: see previous project forms

Collected by: Callen Driscoll

Location: Seattle, WA

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Client: GeoEngineers

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	UST-1-B-101617	10/16/17	1050	S						X		X						
2	SS-1-101617	"	1110	"						X		X						
3	SS-2-101617	"	1105	"						X		X						
4	SS-3-101617	"	1110	"						X		X						
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/16/17 1305	x [signature]	10/16/17 1305
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: Page: 1 of: 1

Laboratory Project No (internal): 1710212

Project Name: Block 21

Special Remarks: Sample ID changes per C.D. 1/29/18 CW

Project No: see previous project forms

Collected by: Callen Driscoll

Location: Seattle, WA

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Client: GeoEngineers

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~UST-1-B-101617~~	10/16/17	1050	S						X	X							UST-1-SW-B-8.0
2	~~SS-1-101617~~		1110							X	X							SC-E17S0
3	~~SS-2-101617~~		1105							X	X							SC-E17S2
4	~~SS-3-101617~~		1110							X	X							SC-N19E3
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 10/16/17 1305

Relinquished x Date/Time

Received [signature] Date/Time 10/16/17 1305

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710309

October 20, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 10/19/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *02/05/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710309

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710309-001	SC-E21S0	10/19/2017 9:00 AM	10/19/2017 9:37 AM

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

Case Narrative

WO#: **1710309**
Date: **10/20/2017**

CLIENT: GeoEngineers
Project: Block 21

WorkOrder Narrative:
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").

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 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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1710309**

Date Reported: **10/20/2017**

Client: GeoEngineers **Collection Date:** 10/19/2017 9:00:00 AM

Project: Block 21

Lab ID: 1710309-001 **Matrix:** Soil

Client Sample ID: SC-E21S0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18578		Analyst: SB
Diesel (Fuel Oil)	ND	20.2		mg/Kg-dry	1	10/19/2017 1:33:15 PM
Heavy Oil	ND	50.5		mg/Kg-dry	1	10/19/2017 1:33:15 PM
Surr: 2-Fluorobiphenyl	78.0	50 - 150		%Rec	1	10/19/2017 1:33:15 PM
Surr: o-Terphenyl	87.8	50 - 150		%Rec	1	10/19/2017 1:33:15 PM
Sample Moisture (Percent Moisture)				Batch ID: R39351		Analyst: CO
Percent Moisture	7.93	0.500		wt%	1	10/19/2017 4:22:14 PM

Work Order: 1710309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18578**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/19/2017**	RunNo: **39347**
Client ID: **MBLKS**	Batch ID: **18578**		Analysis Date: **10/19/2017**	SeqNo: **757189**

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	15.3		20.00		76.6	50	150				
Surr: o-Terphenyl	16.7		20.00		83.4	50	150				

Sample ID **LCS-18578**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/19/2017**	RunNo: **39347**
Client ID: **LCSS**	Batch ID: **18578**		Analysis Date: **10/19/2017**	SeqNo: **757190**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	479	20.0	500.0	0	95.9	65	135				
Surr: 2-Fluorobiphenyl	17.2		20.00		86.1	50	150				
Surr: o-Terphenyl	19.7		20.00		98.4	50	150				

Sample ID **1710275-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/19/2017**	RunNo: **39347**
Client ID: **BATCH**	Batch ID: **18578**		Analysis Date: **10/19/2017**	SeqNo: **757194**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	24.0						0		30	
Heavy Oil	ND	60.0						0		30	
Surr: 2-Fluorobiphenyl	17.9		24.02		74.4	50	150		0		
Surr: o-Terphenyl	20.7		24.02		86.2	50	150		0		

Sample ID **1710275-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/19/2017**	RunNo: **39347**
Client ID: **BATCH**	Batch ID: **18578**		Analysis Date: **10/19/2017**	SeqNo: **757616**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	534	22.2	553.9	0	96.4	65	135				
Surr: 2-Fluorobiphenyl	17.4		22.16		78.7	50	150				
Surr: o-Terphenyl	21.2		22.16		95.6	50	150				

Work Order: 1710309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1710275-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **10/19/2017**			RunNo: **39347**		
Client ID: **BATCH**	Batch ID: **18578**					Analysis Date: **10/19/2017**			SeqNo: **757616**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1710275-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **10/19/2017**			RunNo: **39347**		
Client ID: **BATCH**	Batch ID: **18578**					Analysis Date: **10/19/2017**			SeqNo: **757617**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	535	24.1	603.4	0	88.6	65	135	534.1	0.0802	30	
Surr: 2-Fluorobiphenyl	19.2		24.14		79.7	50	150		0		
Surr: o-Terphenyl	22.7		24.14		94.2	50	150		0		

Work Order: 1710309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710172-016ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/19/2017**		RunNo: **39351**	
Client ID: **BATCH**	Batch ID: **R39351**						Analysis Date: **10/19/2017**		SeqNo: **757319**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.5	0.500						12.00	4.15	20	

Sample ID **1710275-004ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/19/2017**		RunNo: **39351**	
Client ID: **BATCH**	Batch ID: **R39351**						Analysis Date: **10/19/2017**		SeqNo: **757339**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	10.7	0.500						10.82	1.55	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710309**
Logged by:	**Clare Griggs**	Date Received:	**10/19/2017 9:37:00 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 ☐
	Sample received straight from field.			
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:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 10/19/17 Page: of:

Laboratory Project No (internal): 1710309

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous form

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brow

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geengineers.com; cdris coil@geeng.ineers.com

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 SS21-101917	10/19/17	900	S						X								
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 10/19/17 937

Relinquished x Date/Time

Received x [signature] Date/Time 10/19/17 0937

Received x Date/Time

Turn-around Time:

☐ Standard
☐ 3 Day
☐ 2 Day
☒ Next Day
Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/19/17 Page: of:

Laboratory Project No (internal): 1710309

Project Name: Block 21

Special Remarks: Sample ID change per C.D. 1/29/18 CW

Project No: see previous form

Collected by: CMD

Location: Seattle, WA

Report To (PM): Chris Brow

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

PM Email: cbrow@geeengineers.com; cdriscoll@geengineers.com

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~SS21-101917~~	10/19/17	9am	S					X									SC-E2150
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 10/19/17 937

Relinquished x Date/Time

Received x [signature] Date/Time 10/19/17 0937

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710411

October 26, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 10/25/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Hydrocarbon Identification by NWTPH-HCID
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Volatile Organic Compounds by EPA Method 8260C

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/05/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710411

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710411-001	SC-E14	10/25/2017 10:45 AM	10/25/2017 11:56 AM
1710411-002	SC-E17	10/25/2017 11:15 AM	10/25/2017 11:56 AM

Case Narrative

WO#: **1710411**
Date: **10/26/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Client: GeoEngineers
Collection Date: 10/25/2017 10:45:00 AM
Project: Block 21
Lab ID: 1710411-001
Matrix: Soil
Client Sample ID: **SC-E14**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18653		Analyst: SB
Diesel (Fuel Oil)	ND	22.6		mg/Kg-dry	1	10/26/2017 10:16:39 AM
Diesel Range Organics (C12-C24)	2,560	226	D	mg/Kg-dry	10	10/26/2017 11:16:19 AM
Heavy Oil	228	56.6		mg/Kg-dry	1	10/26/2017 10:16:39 AM
Surr: 2-Fluorobiphenyl	104	50 - 150		%Rec	1	10/26/2017 10:16:39 AM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	10/26/2017 10:16:39 AM

NOTES:
DRO - Indicates the presence of unresolved compounds eluting from dodecane through tetracosane (~C12-C24). Product resembles a combination of Kerosene and Gx.

Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18657		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Chloromethane	ND	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Vinyl chloride	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Bromomethane	ND	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Chloroethane	ND	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,1-Dichloroethene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Methylene chloride	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
trans-1,2-Dichloroethene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,1-Dichloroethane	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
2,2-Dichloropropane	ND	2.32	DQ	mg/Kg-dry	20	10/26/2017 4:18:00 PM
cis-1,2-Dichloroethene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Chloroform	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,1-Dichloropropene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Carbon tetrachloride	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2-Dichloroethane (EDC)	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Benzene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Trichloroethene (TCE)	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2-Dichloropropane	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Bromodichloromethane	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Dibromomethane	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
cis-1,3-Dichloropropene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Toluene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
trans-1,3-Dichloropropylene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,1,2-Trichloroethane	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,3-Dichloropropane	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM

Client: GeoEngineers **Collection Date:** 10/25/2017 10:45:00 AM

Project: Block 21

Lab ID: 1710411-001 **Matrix:** Soil

Client Sample ID: SC-E14

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18657		Analyst: EM
Tetrachloroethene (PCE)	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Dibromochloromethane	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2-Dibromoethane (EDB)	ND	0.116	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Chlorobenzene	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,1,1,2-Tetrachloroethane	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Ethylbenzene	2.17	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
m,p-Xylene	10.4	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
o-Xylene	1.07	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Styrene	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Isopropylbenzene	2.88	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Bromoform	ND	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,1,2,2-Tetrachloroethane	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
n-Propylbenzene	14.9	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Bromobenzene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,3,5-Trimethylbenzene	45.5	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
2-Chlorotoluene	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
4-Chlorotoluene	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
tert-Butylbenzene	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2,3-Trichloropropane	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2,4-Trichlorobenzene	ND	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
sec-Butylbenzene	4.26	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
4-Isopropyltoluene	3.76	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,3-Dichlorobenzene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,4-Dichlorobenzene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
n-Butylbenzene	30.7	0.579	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2-Dichlorobenzene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2-Dibromo-3-chloropropane	ND	11.6	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
1,2,4-Trimethylbenzene	229	2.32	D	mg/Kg-dry	100	10/26/2017 5:21:00 PM
Hexachlorobutadiene	ND	1.16	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Naphthalene	108	5.79	D	mg/Kg-dry	100	10/26/2017 5:21:00 PM
1,2,3-Trichlorobenzene	ND	0.464	D	mg/Kg-dry	20	10/26/2017 4:18:00 PM
Surr: Dibromofluoromethane	97.2	56.5 - 129	D	%Rec	20	10/26/2017 4:18:00 PM
Surr: Toluene-d8	105	64.5 - 151	D	%Rec	20	10/26/2017 4:18:00 PM
Surr: 1-Bromo-4-fluorobenzene	111	43.2 - 143	D	%Rec	20	10/26/2017 4:18:00 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Diluted due to matrix.

Analytical Report

Work Order: **1710411**
Date Reported: **10/26/2017**

Client: GeoEngineers
Collection Date: 10/25/2017 10:45:00 AM
Project: Block 21
Lab ID: 1710411-001
Matrix: Soil
Client Sample ID: **SC-E14**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Sample Moisture (Percent Moisture)				Batch ID: R39493		Analyst: CO
Percent Moisture	15.1	0.500		wt%	1	10/25/2017 5:38:42 PM

Analytical Report

Work Order: **1710411**
Date Reported: **10/26/2017**

Client: GeoEngineers
Collection Date: 10/25/2017 11:15:00 AM
Project: Block 21
Lab ID: 1710411-002
Matrix: Soil
Client Sample ID: **SC-E17**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 18653		Analyst: SB
Gasoline	ND	24.4		mg/Kg-dry	1	10/26/2017 10:46:28 AM
Mineral Spirits	ND	36.6		mg/Kg-dry	1	10/26/2017 10:46:28 AM
Kerosene	ND	61.0		mg/Kg-dry	1	10/26/2017 10:46:28 AM
Diesel (Fuel Oil)	ND	61.0		mg/Kg-dry	1	10/26/2017 10:46:28 AM
Heavy Oil	ND	122		mg/Kg-dry	1	10/26/2017 10:46:28 AM
Mineral Oil	ND	122		mg/Kg-dry	1	10/26/2017 10:46:28 AM
Surr: 2-Fluorobiphenyl	93.0	50 - 150		%Rec	1	10/26/2017 10:46:28 AM
Surr: o-Terphenyl	96.9	50 - 150		%Rec	1	10/26/2017 10:46:28 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18654		Analyst: BT
Naphthalene	381	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
2-Methylnaphthalene	174	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
1-Methylnaphthalene	141	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Acenaphthylene	ND	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Acenaphthene	383	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Fluorene	319	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Phenanthrene	1,390	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Anthracene	163	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Fluoranthene	636	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Pyrene	497	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Benz(a)anthracene	138	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Chrysene	179	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Benzo(b)fluoranthene	ND	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Benzo(k)fluoranthene	82.8	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Benzo(a)pyrene	66.1	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Indeno(1,2,3-cd)pyrene	ND	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Dibenz(a,h)anthracene	ND	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Benzo(g,h,i)perylene	ND	49.1		µg/Kg-dry	1	10/25/2017 6:52:00 PM
Surr: 2-Fluorobiphenyl	85.5	10 - 123		%Rec	1	10/25/2017 6:52:00 PM
Surr: Terphenyl-d14 (surr)	98.3	46.2 - 179		%Rec	1	10/25/2017 6:52:00 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18657		Analyst: EM
Dichlorodifluoromethane (CFC-12)	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Chloromethane	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Vinyl chloride	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Bromomethane	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM

Client: GeoEngineers
Collection Date: 10/25/2017 11:15:00 AM
Project: Block 21
Lab ID: 1710411-002
Matrix: Soil
Client Sample ID: **SC-E17**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18657		Analyst: EM
Chloroethane	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,1-Dichloroethene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Methylene chloride	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
trans-1,2-Dichloroethene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,1-Dichloroethane	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
2,2-Dichloropropane	ND	0.127	Q	mg/Kg-dry	1	10/26/2017 3:46:00 PM
cis-1,2-Dichloroethene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Chloroform	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,1-Dichloropropene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Carbon tetrachloride	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2-Dichloroethane (EDC)	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Benzene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Trichloroethene (TCE)	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2-Dichloropropane	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Bromodichloromethane	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Dibromomethane	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
cis-1,3-Dichloropropene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Toluene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
trans-1,3-Dichloropropylene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,1,2-Trichloroethane	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,3-Dichloropropane	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Tetrachloroethene (PCE)	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Dibromochloromethane	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2-Dibromoethane (EDB)	ND	0.00636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Chlorobenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Ethylbenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
m,p-Xylene	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
o-Xylene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Styrene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Isopropylbenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Bromoform	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
n-Propylbenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Bromobenzene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,3,5-Trimethylbenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
2-Chlorotoluene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM

Client: GeoEngineers
Collection Date: 10/25/2017 11:15:00 AM
Project: Block 21
Lab ID: 1710411-002
Matrix: Soil
Client Sample ID: **SC-E17**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18657		Analyst: EM
4-Chlorotoluene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
tert-Butylbenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2,3-Trichloropropane	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2,4-Trichlorobenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
sec-Butylbenzene	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
4-Isopropyltoluene	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,3-Dichlorobenzene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,4-Dichlorobenzene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
n-Butylbenzene	ND	0.0318		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2-Dichlorobenzene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2-Dibromo-3-chloropropane	ND	0.636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2,4-Trimethylbenzene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Hexachlorobutadiene	ND	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Naphthalene	0.861	0.0636		mg/Kg-dry	1	10/26/2017 3:46:00 PM
1,2,3-Trichlorobenzene	ND	0.0254		mg/Kg-dry	1	10/26/2017 3:46:00 PM
Surr: Dibromofluoromethane	116	56.5 - 129		%Rec	1	10/26/2017 3:46:00 PM
Surr: Toluene-d8	107	64.5 - 151		%Rec	1	10/26/2017 3:46:00 PM
Surr: 1-Bromo-4-fluorobenzene	106	43.2 - 143		%Rec	1	10/26/2017 3:46:00 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39493		Analyst: CO
Percent Moisture	23.1	0.500		wt%	1	10/25/2017 5:38:42 PM

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18653**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/25/2017**	RunNo: **39504**
Client ID: **MBLKS**	Batch ID: **18653**		Analysis Date: **10/25/2017**	SeqNo: **760276**

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	19.7		20.00		98.4	50	150				
Surr: o-Terphenyl	20.0		20.00		100	50	150				

Sample ID **LCS-18653**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/25/2017**	RunNo: **39504**
Client ID: **LCSS**	Batch ID: **18653**		Analysis Date: **10/26/2017**	SeqNo: **760277**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	521	20.0	500.0	0	104	65	135				
Surr: 2-Fluorobiphenyl	20.0		20.00		99.8	50	150				
Surr: o-Terphenyl	20.6		20.00		103	50	150				

Sample ID **1710410-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **10/25/2017**	RunNo: **39504**
Client ID: **BATCH**	Batch ID: **18653**		Analysis Date: **10/26/2017**	SeqNo: **760859**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.8						0		30	
Heavy Oil	ND	52.0						0		30	
Surr: 2-Fluorobiphenyl	21.8		20.80		105	50	150		0		
Surr: o-Terphenyl	22.1		20.80		106	50	150		0		

Sample ID **1710410-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **10/25/2017**	RunNo: **39504**
Client ID: **BATCH**	Batch ID: **18653**		Analysis Date: **10/26/2017**	SeqNo: **760860**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	544	19.8	495.1	0	110	65	135				
Surr: 2-Fluorobiphenyl	20.6		19.80		104	50	150				
Surr: o-Terphenyl	21.9		19.80		111	50	150				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1710410-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **10/25/2017**			RunNo: **39504**		
Client ID: **BATCH**	Batch ID: **18653**					Analysis Date: **10/26/2017**			SeqNo: **760860**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1710410-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **10/25/2017**			RunNo: **39504**		
Client ID: **BATCH**	Batch ID: **18653**					Analysis Date: **10/26/2017**			SeqNo: **760861**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	548	20.9	522.0	0	105	65	135	544.0	0.728	30	
Surr: 2-Fluorobiphenyl	22.0		20.88		105	50	150		0		
Surr: o-Terphenyl	23.3		20.88		111	50	150		0		

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Hydrocarbon Identification by NWTPH-HCID

Sample ID **MB-18653**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/25/2017**	RunNo: **39505**
Client ID: **MBLKS**	Batch ID: **18653**		Analysis Date: **10/25/2017**	SeqNo: **760290**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	19.7		20.00		98.4	50	150				
Surr: o-Terphenyl	20.0		20.00		100	50	150				

Sample ID **LCS-18653**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/25/2017**	RunNo: **39505**
Client ID: **LCSS**	Batch ID: **18653**		Analysis Date: **10/26/2017**	SeqNo: **760291**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	521	50.0	500.0	0	104	65	135				
Surr: 2-Fluorobiphenyl	20.0		20.00		99.8	50	150				
Surr: o-Terphenyl	20.6		20.00		103	50	150				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18654**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/25/2017**	RunNo: **39517**
Client ID: **MBLKS**	Batch ID: **18654**		Analysis Date: **10/25/2017**	SeqNo: **760502**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	533		500.0		107	10	123				
Surr: Terphenyl-d14 (surr)	559		500.0		112	46.2	179				

Sample ID **LCS-18654**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/25/2017**	RunNo: **39517**
Client ID: **LCSS**	Batch ID: **18654**		Analysis Date: **10/25/2017**	SeqNo: **760503**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	813	40.0	1,000	0	81.3	46.4	125				
2-Methylnaphthalene	763	40.0	1,000	0	76.3	45.1	135				
1-Methylnaphthalene	812	40.0	1,000	0	81.2	46.2	133				
Acenaphthylene	796	40.0	1,000	0	79.6	32.8	136				
Acenaphthene	875	40.0	1,000	0	87.5	38.7	129				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18654** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/25/2017** RunNo: **39517**
Client ID: **LCSS** Batch ID: **18654** Analysis Date: **10/25/2017** SeqNo: **760503**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	778	40.0	1,000	0	77.8	41.4	144				
Phenanthrene	859	40.0	1,000	0	85.9	43.9	133				
Anthracene	954	40.0	1,000	0	95.4	44.2	136				
Fluoranthene	842	40.0	1,000	0	84.2	45.9	137				
Pyrene	845	40.0	1,000	0	84.5	46.2	137				
Benz(a)anthracene	790	40.0	1,000	0	79.0	41.2	141				
Chrysene	1,030	40.0	1,000	0	103	46.9	138				
Benzo(b)fluoranthene	683	40.0	1,000	0	68.3	41	155				
Benzo(k)fluoranthene	1,030	40.0	1,000	0	103	41.8	153				
Benzo(a)pyrene	806	40.0	1,000	0	80.6	30.2	171				
Indeno(1,2,3-cd)pyrene	800	40.0	1,000	0	80.0	31.3	159				
Dibenz(a,h)anthracene	780	40.0	1,000	0	78.0	28	158				
Benzo(g,h,i)perylene	838	40.0	1,000	0	83.8	32.4	144				
Surr: 2-Fluorobiphenyl	583		500.0		117	10	123				
Surr: Terphenyl-d14 (surr)	581		500.0		116	46.2	179				

Sample ID **1710411-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39517**
Client ID: **SC-E17** Batch ID: **18654** Analysis Date: **10/25/2017** SeqNo: **760505**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	474	48.0						380.6	21.8	30	
2-Methylnaphthalene	249	48.0						174.2	35.4	30	R
1-Methylnaphthalene	172	48.0						141.5	19.4	30	
Acenaphthylene	ND	48.0						0		30	
Acenaphthene	380	48.0						383.1	0.870	30	
Fluorene	297	48.0						319.1	7.19	30	
Phenanthrene	968	48.0						1,389	35.7	30	R
Anthracene	128	48.0						162.6	23.6	30	
Fluoranthene	373	48.0						636.0	52.1	30	R
Pyrene	256	48.0						496.7	63.9	30	R

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710411-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39517**
Client ID: **SC-E17** Batch ID: **18654** Analysis Date: **10/25/2017** SeqNo: **760505**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	57.0	48.0						137.8	82.9	30	R
Chrysene	75.6	48.0						179.1	81.3	30	R
Benzo(b)fluoranthene	ND	48.0						0		30	
Benzo(k)fluoranthene	ND	48.0						82.82	84.9	30	R
Benzo(a)pyrene	ND	48.0						66.06	100	30	
Indeno(1,2,3-cd)pyrene	ND	48.0						0		30	
Dibenz(a,h)anthracene	ND	48.0						0		30	
Benzo(g,h,i)perylene	ND	48.0						0		30	
Surr: 2-Fluorobiphenyl	534		599.6		89.1	10	123		0		
Surr: Terphenyl-d14 (surr)	581		599.6		96.9	46.2	179		0		

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID **1710411-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39517**
Client ID: **SC-E17** Batch ID: **18654** Analysis Date: **10/25/2017** SeqNo: **760506**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,170	51.8	1,295	380.6	61.3	42.9	138				
2-Methylnaphthalene	850	51.8	1,295	174.2	52.2	42.8	151				
1-Methylnaphthalene	824	51.8	1,295	141.5	52.7	41.6	148				
Acenaphthylene	699	51.8	1,295	9.726	53.2	32.6	160				
Acenaphthene	1,060	51.8	1,295	383.1	52.0	46.3	142				
Fluorene	905	51.8	1,295	319.1	45.2	43.4	153				
Phenanthrene	1,580	51.8	1,295	1,389	14.8	45.5	140				S
Anthracene	1,090	51.8	1,295	162.6	71.6	32.6	160				
Fluoranthene	1,160	51.8	1,295	636.0	40.5	44.6	161				S
Pyrene	1,040	51.8	1,295	496.7	42.2	48.3	158				S
Benz(a)anthracene	796	51.8	1,295	137.8	50.9	34.9	139				
Chrysene	959	51.8	1,295	179.1	60.2	45.2	146				
Benzo(b)fluoranthene	700	51.8	1,295	42.92	50.7	42.2	168				
Benzo(k)fluoranthene	860	51.8	1,295	82.82	60.0	34.8	147				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710411-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39517**
Client ID: **SC-E17** Batch ID: **18654** Analysis Date: **10/25/2017** SeqNo: **760506**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	804	51.8	1,295	66.06	57.0	34.4	179				
Indeno(1,2,3-cd)pyrene	710	51.8	1,295	22.37	53.1	11.8	140				
Dibenz(a,h)anthracene	677	51.8	1,295	9.285	51.6	17.3	156				
Benzo(g,h,i)perylene	735	51.8	1,295	27.85	54.7	24.9	119				
Surr: 2-Fluorobiphenyl	486		647.4		75.0	10	123				
Surr: Terphenyl-d14 (surr)	511		647.4		79.0	46.2	179				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID **1710411-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39517**
Client ID: **SC-E17** Batch ID: **18654** Analysis Date: **10/25/2017** SeqNo: **760507**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,240	50.8	1,271	380.6	67.9	42.9	138	1,174	5.71	30	
2-Methylnaphthalene	1,050	50.8	1,271	174.2	68.7	42.8	151	849.8	20.8	30	
1-Methylnaphthalene	991	50.8	1,271	141.5	66.9	41.6	148	824.3	18.4	30	
Acenaphthylene	861	50.8	1,271	9.726	67.0	32.6	160	699.0	20.7	30	
Acenaphthene	1,280	50.8	1,271	383.1	70.2	46.3	142	1,056	18.8	30	
Fluorene	1,080	50.8	1,271	319.1	60.1	43.4	153	904.7	17.9	30	
Phenanthrene	1,700	50.8	1,271	1,389	24.2	45.5	140	1,581	7.10	30	S
Anthracene	1,260	50.8	1,271	162.6	86.3	32.6	160	1,089	14.5	30	
Fluoranthene	1,260	50.8	1,271	636.0	48.9	44.6	161	1,160	8.05	30	
Pyrene	1,150	50.8	1,271	496.7	51.5	48.3	158	1,043	9.86	30	
Benz(a)anthracene	923	50.8	1,271	137.8	61.8	34.9	139	796.4	14.7	30	
Chrysene	1,060	50.8	1,271	179.1	69.6	45.2	146	958.5	10.3	30	
Benzo(b)fluoranthene	908	50.8	1,271	42.92	68.1	42.2	168	700.0	25.8	30	
Benzo(k)fluoranthene	1,060	50.8	1,271	82.82	77.2	34.8	147	860.0	21.2	30	
Benzo(a)pyrene	974	50.8	1,271	66.06	71.4	34.4	179	804.2	19.1	30	
Indeno(1,2,3-cd)pyrene	887	50.8	1,271	22.37	68.1	11.8	140	710.1	22.2	30	
Dibenz(a,h)anthracene	852	50.8	1,271	9.285	66.4	17.3	156	676.9	23.0	30	

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710411-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39517**
Client ID: **SC-E17** Batch ID: **18654** Analysis Date: **10/25/2017** SeqNo: **760507**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	929	50.8	1,271	27.85	71.0	24.9	119	735.5	23.3	30	
Surr: 2-Fluorobiphenyl	612		635.3		96.3	10	123		0		
Surr: Terphenyl-d14 (surr)	627		635.3		98.7	46.2	179		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710372-010ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/25/2017**		RunNo: **39493**	
Client ID: **BATCH**	Batch ID: **R39493**						Analysis Date: **10/25/2017**		SeqNo: **760117**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	17.3	0.500						16.68	3.81	20	

Sample ID **1710231-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/25/2017**		RunNo: **39493**	
Client ID: **BATCH**	Batch ID: **R39493**						Analysis Date: **10/25/2017**		SeqNo: **760137**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.1	0.500						15.14	6.39	20	

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18657** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **LCSS** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760529**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.950	0.0200	1.000	0	95.0	14.3	167				
Chloromethane	1.11	0.0500	1.000	0	111	46	144				
Vinyl chloride	1.04	0.0250	1.000	0	104	43.4	151				
Bromomethane	0.520	0.0500	1.000	0	52.0	35	155				
Trichlorofluoromethane (CFC-11)	1.56	0.0200	1.000	0	156	33.8	156				S
Chloroethane	0.431	0.0500	1.000	0	43.1	33.1	147				
1,1-Dichloroethene	1.18	0.0200	1.000	0	118	39	144				
Methylene chloride	1.35	0.0200	1.000	0	135	46.3	140				
trans-1,2-Dichloroethene	1.30	0.0200	1.000	0	130	68	130				
Methyl tert-butyl ether (MTBE)	1.83	0.0500	1.000	0	183	66.3	145				S
1,1-Dichloroethane	1.30	0.0200	1.000	0	130	61.9	137				
2,2-Dichloropropane	1.73	0.100	1.000	0	173	35.5	186				
cis-1,2-Dichloroethene	1.31	0.0200	1.000	0	131	71.3	135				
Chloroform	1.16	0.0200	1.000	0	116	69	145				
1,1,1-Trichloroethane (TCA)	1.16	0.0250	1.000	0	116	69	132				
1,1-Dichloropropene	1.12	0.0200	1.000	0	112	72.7	131				
Carbon tetrachloride	1.10	0.0250	1.000	0	110	63.4	137				
1,2-Dichloroethane (EDC)	1.20	0.0200	1.000	0	120	50.9	162				
Benzene	1.12	0.0200	1.000	0	112	64.3	133				
Trichloroethene (TCE)	1.13	0.0200	1.000	0	113	65.5	137				
1,2-Dichloropropane	1.15	0.0200	1.000	0	115	63.2	142				
Bromodichloromethane	1.14	0.0200	1.000	0	114	53.4	131				
Dibromomethane	1.27	0.0200	1.000	0	127	60.1	146				
cis-1,3-Dichloropropene	1.17	0.0200	1.000	0	117	59.1	143				
Toluene	1.11	0.0200	1.000	0	111	67.3	138				
trans-1,3-Dichloropropylene	1.23	0.0200	1.000	0	123	49.2	149				
1,1,2-Trichloroethane	1.13	0.0200	1.000	0	113	56.9	147				
1,3-Dichloropropane	1.16	0.0250	1.000	0	116	56.1	153				
Tetrachloroethene (PCE)	1.09	0.0250	1.000	0	109	52.7	150				
Dibromochloromethane	1.18	0.0250	1.000	0	118	70.6	144				
1,2-Dibromoethane (EDB)	1.23	0.00500	1.000	0	123	50.5	154				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18657** SampType: **LCS** Units: **mg/Kg** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **LCSS** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760529**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chlorobenzene	1.03	0.0250	1.000	0	103	76.1	123				
1,1,1,2-Tetrachloroethane	1.02	0.0250	1.000	0	102	65.9	141				
Ethylbenzene	1.03	0.0250	1.000	0	103	74	129				
m,p-Xylene	2.01	0.0500	2.000	0	100	70	124				
o-Xylene	1.06	0.0250	1.000	0	106	68.1	139				
Styrene	1.05	0.0250	1.000	0	105	73.3	146				
Isopropylbenzene	1.06	0.0250	1.000	0	106	70	130				
Bromoform	1.17	0.0500	1.000	0	117	44.3	130				
1,1,2,2-Tetrachloroethane	1.11	0.0200	1.000	0	111	44.8	165				
n-Propylbenzene	1.13	0.0250	1.000	0	113	74.8	125				
Bromobenzene	1.09	0.0200	1.000	0	109	49.2	144				
1,3,5-Trimethylbenzene	1.03	0.0250	1.000	0	103	74.6	123				
2-Chlorotoluene	1.07	0.0250	1.000	0	107	76.7	129				
4-Chlorotoluene	1.07	0.0250	1.000	0	107	77.5	125				
tert-Butylbenzene	1.13	0.0250	1.000	0	113	66.2	130				
1,2,3-Trichloropropane	1.20	0.0250	1.000	0	120	67.9	136				
1,2,4-Trichlorobenzene	1.27	0.0250	1.000	0	127	62.6	143				
sec-Butylbenzene	1.16	0.0500	1.000	0	116	75.6	133				
4-Isopropyltoluene	1.13	0.0500	1.000	0	113	76.8	131				
1,3-Dichlorobenzene	1.09	0.0200	1.000	0	109	72.8	128				
1,4-Dichlorobenzene	1.07	0.0200	1.000	0	107	72.6	126				
n-Butylbenzene	1.09	0.0250	1.000	0	109	65.3	136				
1,2-Dichlorobenzene	1.10	0.0200	1.000	0	110	72.8	126				
1,2-Dibromo-3-chloropropane	1.11	0.500	1.000	0	111	40.2	155				
1,2,4-Trimethylbenzene	1.13	0.0200	1.000	0	113	77.5	129				
Hexachlorobutadiene	1.21	0.0500	1.000	0	121	42	151				
Naphthalene	1.23	0.0500	1.000	0	123	58.4	160				
1,2,3-Trichlorobenzene	1.24	0.0200	1.000	0	124	54.8	143				
Surr: Dibromofluoromethane	1.42		1.250		114	56.5	129				
Surr: Toluene-d8	1.30		1.250		104	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.42		1.250		113	43.2	143				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18657**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **10/25/2017**		RunNo: **39514**			
Client ID: **LCSS**	Batch ID: **18657**					Analysis Date: **10/26/2017**		SeqNo: **760529**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID **MB-18657**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **10/25/2017**		RunNo: **39514**			
Client ID: **MBLKS**	Batch ID: **18657**					Analysis Date: **10/26/2017**		SeqNo: **760530**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0200									
Chloromethane	ND	0.0500									
Vinyl chloride	ND	0.0250									
Bromomethane	ND	0.0500									
Trichlorofluoromethane (CFC-11)	ND	0.0200									
Chloroethane	ND	0.0500									
1,1-Dichloroethene	ND	0.0200									
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	0.100									Q
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0250									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0250									
1,2-Dichloroethane (EDC)	ND	0.0200									
Benzene	ND	0.0200									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
Dibromomethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18657** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **MBLKS** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	ND	0.0200									
trans-1,3-Dichloropropylene	ND	0.0200									
1,1,2-Trichloroethane	ND	0.0200									
1,3-Dichloropropane	ND	0.0250									
Tetrachloroethene (PCE)	ND	0.0250									
Dibromochloromethane	ND	0.0250									
1,2-Dibromoethane (EDB)	ND	0.00500									
Chlorobenzene	ND	0.0250									
1,1,1,2-Tetrachloroethane	ND	0.0250									
Ethylbenzene	ND	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Styrene	ND	0.0250									
Isopropylbenzene	ND	0.0250									
Bromoform	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									
n-Propylbenzene	ND	0.0250									
Bromobenzene	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.0250									
2-Chlorotoluene	ND	0.0250									
4-Chlorotoluene	ND	0.0250									
tert-Butylbenzene	ND	0.0250									
1,2,3-Trichloropropane	ND	0.0250									
1,2,4-Trichlorobenzene	ND	0.0250									
sec-Butylbenzene	ND	0.0500									
4-Isopropyltoluene	ND	0.0500									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
n-Butylbenzene	ND	0.0250									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.500									

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18657** SampType: **MBLK** Units: **mg/Kg** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **MBLKS** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760530**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	0.0200									
Hexachlorobutadiene	ND	0.0500									
Naphthalene	ND	0.0500									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	1.42		1.250		114	56.5	129				
Surr: Toluene-d8	1.31		1.250		105	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.29		1.250		103	43.2	143				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1710410-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760525**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0184						0		30	
Chloromethane	ND	0.0460						0		30	
Vinyl chloride	ND	0.0230						0		30	
Bromomethane	ND	0.0460						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0184						0		30	
Chloroethane	ND	0.0460						0		30	
1,1-Dichloroethene	ND	0.0184						0		30	
Methylene chloride	ND	0.0184						0		30	
trans-1,2-Dichloroethene	ND	0.0184						0		30	
Methyl tert-butyl ether (MTBE)	ND	0.0460						0		30	
1,1-Dichloroethane	ND	0.0184						0		30	
2,2-Dichloropropane	ND	0.0919						0		30	Q
cis-1,2-Dichloroethene	ND	0.0184						0		30	
Chloroform	ND	0.0184						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0230						0		30	
1,1-Dichloropropene	ND	0.0184						0		30	
Carbon tetrachloride	ND	0.0230						0		30	

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710410-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760525**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane (EDC)	ND	0.0184						0		30	
Benzene	ND	0.0184						0		30	
Trichloroethene (TCE)	ND	0.0184						0		30	
1,2-Dichloropropane	ND	0.0184						0		30	
Bromodichloromethane	ND	0.0184						0		30	
Dibromomethane	ND	0.0184						0		30	
cis-1,3-Dichloropropene	ND	0.0184						0		30	
Toluene	ND	0.0184						0		30	
trans-1,3-Dichloropropylene	ND	0.0184						0		30	
1,1,2-Trichloroethane	ND	0.0184						0		30	
1,3-Dichloropropane	ND	0.0230						0		30	
Tetrachloroethene (PCE)	ND	0.0230						0		30	
Dibromochloromethane	ND	0.0230						0		30	
1,2-Dibromoethane (EDB)	ND	0.00460						0		30	
Chlorobenzene	ND	0.0230						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0230						0		30	
Ethylbenzene	ND	0.0230						0		30	
m,p-Xylene	ND	0.0460						0		30	
o-Xylene	ND	0.0230						0		30	
Styrene	ND	0.0230						0		30	
Isopropylbenzene	ND	0.0230						0		30	
Bromoform	ND	0.0460						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0184						0		30	
n-Propylbenzene	ND	0.0230						0		30	
Bromobenzene	ND	0.0184						0		30	
1,3,5-Trimethylbenzene	ND	0.0230						0		30	
2-Chlorotoluene	ND	0.0230						0		30	
4-Chlorotoluene	ND	0.0230						0		30	
tert-Butylbenzene	ND	0.0230						0		30	
1,2,3-Trichloropropane	ND	0.0230						0		30	
1,2,4-Trichlorobenzene	ND	0.0230						0		30	

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710410-002BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760525**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
sec-Butylbenzene	ND	0.0460						0		30	
4-Isopropyltoluene	ND	0.0460						0		30	
1,3-Dichlorobenzene	ND	0.0184						0		30	
1,4-Dichlorobenzene	ND	0.0184						0		30	
n-Butylbenzene	ND	0.0230						0		30	
1,2-Dichlorobenzene	ND	0.0184						0		30	
1,2-Dibromo-3-chloropropane	ND	0.460						0		30	
1,2,4-Trimethylbenzene	ND	0.0184						0		30	
Hexachlorobutadiene	ND	0.0460						0		30	
Naphthalene	ND	0.0460						0		30	
1,2,3-Trichlorobenzene	ND	0.0184						0		30	
Surr: Dibromofluoromethane	1.28		1.149		111	56.5	129		0		
Surr: Toluene-d8	1.18		1.149		103	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.28		1.149		111	43.2	143		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1710410-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760932**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.34	0.0186	0.9277	0	145	43.5	121				S
Chloromethane	1.16	0.0464	0.9277	0	125	45	130				
Vinyl chloride	1.07	0.0232	0.9277	0	115	43.6	150				
Bromomethane	0.458	0.0464	0.9277	0	49.4	21.3	120				
Trichlorofluoromethane (CFC-11)	1.53	0.0186	0.9277	0	165	35	131				S
Chloroethane	0.344	0.0464	0.9277	0	37.1	31.9	123				
1,1-Dichloroethene	0.995	0.0186	0.9277	0	107	47.3	147				
Methylene chloride	1.11	0.0186	0.9277	0	120	54.7	142				
trans-1,2-Dichloroethene	1.12	0.0186	0.9277	0	120	52	136				
Methyl tert-butyl ether (MTBE)	1.48	0.0464	0.9277	0	160	58.5	167				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710410-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760932**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethane	1.16	0.0186	0.9277	0	125	51.8	141				
2,2-Dichloropropane	1.73	0.0928	0.9277	0	186	36	123				S
cis-1,2-Dichloroethene	1.17	0.0186	0.9277	0	126	58.6	136				
Chloroform	1.01	0.0186	0.9277	0	109	53.2	129				
1,1,1-Trichloroethane (TCA)	0.992	0.0232	0.9277	0	107	58.3	145				
1,1-Dichloropropene	0.982	0.0186	0.9277	0	106	55.1	138				
Carbon tetrachloride	0.915	0.0232	0.9277	0	98.6	53.3	144				
1,2-Dichloroethane (EDC)	1.03	0.0186	0.9277	0	112	51.3	139				
Benzene	0.990	0.0186	0.9277	0	107	63.5	133				
Trichloroethene (TCE)	0.964	0.0186	0.9277	0	104	61.6	147				
1,2-Dichloropropane	0.992	0.0186	0.9277	0	107	59	136				
Bromodichloromethane	0.987	0.0186	0.9277	0	106	50.7	141				
Dibromomethane	1.09	0.0186	0.9277	0	117	50.6	137				
cis-1,3-Dichloropropene	0.988	0.0186	0.9277	0	106	50.4	138				
Toluene	0.943	0.0186	0.9277	0	102	63.4	132				
trans-1,3-Dichloropropylene	1.05	0.0186	0.9277	0	113	44.1	147				
1,1,2-Trichloroethane	0.943	0.0186	0.9277	0	102	51.6	137				
1,3-Dichloropropane	1.02	0.0232	0.9277	0	110	53.1	134				
Tetrachloroethene (PCE)	0.897	0.0232	0.9277	0	96.7	35.6	158				
Dibromochloromethane	0.961	0.0232	0.9277	0	104	55.3	140				
1,2-Dibromoethane (EDB)	1.03	0.00464	0.9277	0	112	50.4	136				
Chlorobenzene	0.886	0.0232	0.9277	0	95.5	60	133				
1,1,1,2-Tetrachloroethane	0.869	0.0232	0.9277	0	93.7	53.1	142				
Ethylbenzene	0.903	0.0232	0.9277	0	97.4	54.5	134				
m,p-Xylene	1.75	0.0464	1.855	0	94.1	53.1	132				
o-Xylene	0.940	0.0232	0.9277	0	101	53.3	139				
Styrene	0.906	0.0232	0.9277	0	97.7	51.1	132				
Isopropylbenzene	0.906	0.0232	0.9277	0	97.6	58.9	138				
Bromoform	0.922	0.0464	0.9277	0	99.4	57.9	130				
1,1,2,2-Tetrachloroethane	0.941	0.0186	0.9277	0	101	51.9	131				
n-Propylbenzene	0.964	0.0232	0.9277	0	104	53.6	140				

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710410-001BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760932**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	0.906	0.0186	0.9277	0	97.7	54.2	140				
1,3,5-Trimethylbenzene	0.876	0.0232	0.9277	0	94.4	51.8	136				
2-Chlorotoluene	0.931	0.0232	0.9277	0	100	51.6	136				
4-Chlorotoluene	0.930	0.0232	0.9277	0	100	50.1	139				
tert-Butylbenzene	0.960	0.0232	0.9277	0	103	50.5	135				
1,2,3-Trichloropropane	0.928	0.0232	0.9277	0	100	50.5	131				
1,2,4-Trichlorobenzene	1.19	0.0232	0.9277	0	128	50.8	130				
sec-Butylbenzene	0.968	0.0464	0.9277	0	104	52.6	141				
4-Isopropyltoluene	0.963	0.0464	0.9277	0	104	52.9	134				
1,3-Dichlorobenzene	0.938	0.0186	0.9277	0	101	52.6	131				
1,4-Dichlorobenzene	0.938	0.0186	0.9277	0	101	52.9	129				
n-Butylbenzene	0.977	0.0232	0.9277	0	105	52.6	130				
1,2-Dichlorobenzene	0.939	0.0186	0.9277	0	101	55.8	129				
1,2-Dibromo-3-chloropropane	0.923	0.464	0.9277	0	99.4	40.5	131				
1,2,4-Trimethylbenzene	0.958	0.0186	0.9277	0	103	50.6	137				
Hexachlorobutadiene	0.988	0.0464	0.9277	0	106	40.6	158				
Naphthalene	1.38	0.0464	0.9277	0	149	52.3	124				S
1,2,3-Trichlorobenzene	1.18	0.0186	0.9277	0	127	54.4	124				S
Surr: Dibromofluoromethane	1.30		1.160		112	56.5	129				
Surr: Toluene-d8	1.23		1.160		106	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.30		1.160		112	43.2	143				

NOTES:
S - Outlying spike recoveries observed.

Sample ID **1710410-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760931**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.45	0.0186	0.9277	0	156	43.5	121	1.341	7.67	30	S
Chloromethane	1.28	0.0464	0.9277	0	138	45	130	1.162	9.96	30	S
Vinyl chloride	1.15	0.0232	0.9277	0	124	43.6	150	1.068	7.57	30	

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710410-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760931**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromomethane	0.538	0.0464	0.9277	0	58.0	21.3	120	0.4584	15.9	30	
Trichlorofluoromethane (CFC-11)	1.39	0.0186	0.9277	0	149	35	131	1.528	9.84	30	S
Chloroethane	0.472	0.0464	0.9277	0	50.9	31.9	123	0.3440	31.4	30	R
1,1-Dichloroethene	1.09	0.0186	0.9277	0	117	47.3	147	0.9946	9.07	30	
Methylene chloride	1.14	0.0186	0.9277	0	123	54.7	142	1.113	2.41	30	
trans-1,2-Dichloroethene	0.891	0.0186	0.9277	0	96.0	52	136	1.118	22.6	30	
Methyl tert-butyl ether (MTBE)	1.04	0.0464	0.9277	0	112	58.5	167	1.484	35.5	30	R
1,1-Dichloroethane	1.27	0.0186	0.9277	0	137	51.8	141	1.163	9.02	30	
2,2-Dichloropropane	2.01	0.0928	0.9277	0	217	36	123	1.726	15.2	30	S
cis-1,2-Dichloroethene	1.21	0.0186	0.9277	0	131	58.6	136	1.167	3.93	30	
Chloroform	1.06	0.0186	0.9277	0	115	53.2	129	1.012	5.02	30	
1,1,1-Trichloroethane (TCA)	1.06	0.0232	0.9277	0	114	58.3	145	0.9917	6.60	30	
1,1-Dichloropropene	1.03	0.0186	0.9277	0	111	55.1	138	0.9819	4.64	30	
Carbon tetrachloride	0.984	0.0232	0.9277	0	106	53.3	144	0.9149	7.31	30	
1,2-Dichloroethane (EDC)	1.03	0.0186	0.9277	0	111	51.3	139	1.035	0.206	30	
Benzene	1.03	0.0186	0.9277	0	111	63.5	133	0.9904	3.73	30	
Trichloroethene (TCE)	1.03	0.0186	0.9277	0	111	61.6	147	0.9637	6.35	30	
1,2-Dichloropropane	0.977	0.0186	0.9277	0	105	59	136	0.9917	1.45	30	
Bromodichloromethane	0.993	0.0186	0.9277	0	107	50.7	141	0.9867	0.684	30	
Dibromomethane	1.04	0.0186	0.9277	0	112	50.6	137	1.086	4.26	30	
cis-1,3-Dichloropropene	0.988	0.0186	0.9277	0	107	50.4	138	0.9875	0.0592	30	
Toluene	0.978	0.0186	0.9277	0	105	63.4	132	0.9430	3.69	30	
trans-1,3-Dichloropropylene	1.00	0.0186	0.9277	0	108	44.1	147	1.046	4.30	30	
1,1,2-Trichloroethane	0.954	0.0186	0.9277	0	103	51.6	137	0.9434	1.09	30	
1,3-Dichloropropane	1.03	0.0232	0.9277	0	111	53.1	134	1.016	1.00	30	
Tetrachloroethene (PCE)	0.913	0.0232	0.9277	0	98.5	35.6	158	0.8972	1.80	30	
Dibromochloromethane	0.980	0.0232	0.9277	0	106	55.3	140	0.9612	1.96	30	
1,2-Dibromoethane (EDB)	1.00	0.00464	0.9277	0	108	50.4	136	1.035	3.40	30	
Chlorobenzene	0.955	0.0232	0.9277	0	103	60	133	0.8860	7.53	30	
1,1,1,2-Tetrachloroethane	0.893	0.0232	0.9277	0	96.2	53.1	142	0.8689	2.68	30	
Ethylbenzene	0.951	0.0232	0.9277	0	102	54.5	134	0.9031	5.12	30	

Work Order: 1710411
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1710410-001BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **10/25/2017** RunNo: **39514**
Client ID: **BATCH** Batch ID: **18657** Analysis Date: **10/26/2017** SeqNo: **760931**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
m,p-Xylene	1.78	0.0464	1.855	0	96.1	53.1	132	1.746	2.09	30	
o-Xylene	0.937	0.0232	0.9277	0	101	53.3	139	0.9401	0.331	30	
Styrene	0.924	0.0232	0.9277	0	99.6	51.1	132	0.9060	2.00	30	
Isopropylbenzene	0.966	0.0232	0.9277	0	104	58.9	138	0.9059	6.46	30	
Bromoform	0.902	0.0464	0.9277	0	97.3	57.9	130	0.9221	2.17	30	
1,1,2,2-Tetrachloroethane	0.919	0.0186	0.9277	0	99.0	51.9	131	0.9408	2.39	30	
n-Propylbenzene	1.00	0.0232	0.9277	0	108	53.6	140	0.9641	3.90	30	
Bromobenzene	0.941	0.0186	0.9277	0	101	54.2	140	0.9063	3.72	30	
1,3,5-Trimethylbenzene	0.889	0.0232	0.9277	0	95.9	51.8	136	0.8760	1.52	30	
2-Chlorotoluene	0.985	0.0232	0.9277	0	106	51.6	136	0.9310	5.59	30	
4-Chlorotoluene	0.960	0.0232	0.9277	0	104	50.1	139	0.9305	3.16	30	
tert-Butylbenzene	1.02	0.0232	0.9277	0	110	50.5	135	0.9600	5.95	30	
1,2,3-Trichloropropane	0.890	0.0232	0.9277	0	95.9	50.5	131	0.9285	4.27	30	
1,2,4-Trichlorobenzene	1.15	0.0232	0.9277	0	124	50.8	130	1.192	3.85	30	
sec-Butylbenzene	1.01	0.0464	0.9277	0	109	52.6	141	0.9683	4.06	30	
4-Isopropyltoluene	0.986	0.0464	0.9277	0	106	52.9	134	0.9632	2.34	30	
1,3-Dichlorobenzene	0.933	0.0186	0.9277	0	101	52.6	131	0.9376	0.503	30	
1,4-Dichlorobenzene	0.935	0.0186	0.9277	0	101	52.9	129	0.9376	0.240	30	
n-Butylbenzene	0.965	0.0232	0.9277	0	104	52.6	130	0.9765	1.23	30	
1,2-Dichlorobenzene	0.947	0.0186	0.9277	0	102	55.8	129	0.9395	0.821	30	
1,2-Dibromo-3-chloropropane	0.930	0.464	0.9277	0	100	40.5	131	0.9225	0.767	30	
1,2,4-Trimethylbenzene	1.00	0.0186	0.9277	0	108	50.6	137	0.9581	4.69	30	
Hexachlorobutadiene	1.04	0.0464	0.9277	0	112	40.6	158	0.9877	5.02	30	
Naphthalene	1.23	0.0464	0.9277	0	133	52.3	124	1.378	11.2	30	S
1,2,3-Trichlorobenzene	1.05	0.0186	0.9277	0	113	54.4	124	1.177	11.4	30	
Surr: Dibromofluoromethane	1.31		1.160		113	56.5	129		0		
Surr: Toluene-d8	1.21		1.160		104	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.30		1.160		112	43.2	143		0		

NOTES:
S - Outlying spike recoveries observed.
R - High RPD observed, spike recoveries are within range.

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710411**
Logged by:	**Brianna Barnes**	Date Received:	**10/25/2017 11:56:00 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 ☐
		Received straight from field		
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 ☐
		MeOH VOAs extracted for each sample		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	18.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/25/17 Page: 1 of: 1

Laboratory Project No (internal): 1710411

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous report

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com, cdriscoll@geoengineers.com,

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	SS EI4-102517	10/25/17	1045	S						X								
2	SS EI7-102517	/	1115	S							X							
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/25/17 1156	x [signature]	10/25/17 1156
Relinquished x	Date/Time	Received x	Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day ~~ASAP~~ BB 10/25
- Same Day _____ (specify)

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 10/25/17 Page: 1 of: 1

Laboratory Project No (internal): 1710411

Project Name: Block 21

Special Remarks: Edits per C.B. 10/25/17 Next Day TAT BB

Client: GGI

Project No: see previous report

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@ggeengineers.com, cdriscoll@ggeengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	SSE14-102517	10/25/17	1045	S	X				X									
2	SSE17-102517	"	1115	S	X			X	X		X							HCID: Quantify Detections
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 10/25/17 1156

Relinquished x Date/Time

Received x [signature] Date/Time 10/25/17 1156

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day ~~ASAP~~ BB 10/25
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/25/17 Page: 1 of: 1

Laboratory Project No (internal): 1710411

Project Name: Block 21

Special Remarks: Edits per C.B. 10/25/17 Next Day TAT BB

Project No: see previous report

Sample ID changes per C.D. 1/24/18 CW

Client: GGI

Collected by: CMD

Address:

Location: Seattle

City, State, Zip:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Telephone:

PM Email: cbrown@geoengineers.com, cdriscoll@geoengineers.com

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) & Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~SS-E14-102517~~	10/25/17	1045	S	X					X								SC-E14
2	~~SS-E17-102517~~		1115	S	X			X		X		X						HCID: Quantify Detections SC-E17
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ ~~Next Day ASAP~~ BB 10/25
- Same Day _____ (specify)

Relinquished	Date/Time	Received	Date/Time
x [signature]	10/25/17 1156	x [signature]	10/25/17 1156
Relinquished x	Date/Time	Received x	Date/Time

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710443

October 27, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 10/26/2017 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710443

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710443-001	SC-E17-6.0	10/26/2017 11:35 AM	10/26/2017 12:16 PM

Case Narrative

WO#: **1710443**
Date: **10/27/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1710443**

Date Reported: **10/27/2017**

Client: GeoEngineers **Collection Date:** 10/26/2017 11:35:00 AM

Project: Block 21

Lab ID: 1710443-001 **Matrix:** Soil

Client Sample ID: SC-E17-6.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18673		Analyst: BT
Naphthalene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
2-Methylnaphthalene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
1-Methylnaphthalene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Acenaphthylene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Acenaphthene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Fluorene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Phenanthrene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Anthracene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Fluoranthene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Pyrene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Benz(a)anthracene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Chrysene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Benzo(b)fluoranthene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Benzo(k)fluoranthene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Benzo(a)pyrene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Indeno(1,2,3-cd)pyrene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Dibenz(a,h)anthracene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Benzo(g,h,i)perylene	ND	52.3		µg/Kg-dry	1	10/27/2017 3:03:00 AM
Surr: 2-Fluorobiphenyl	80.8	10 - 123		%Rec	1	10/27/2017 3:03:00 AM
Surr: Terphenyl-d14 (surr)	91.3	46.2 - 179		%Rec	1	10/27/2017 3:03:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R39519		Analyst: CO
Percent Moisture	25.9	0.500		wt%	1	10/26/2017 4:03:38 PM

Work Order: 1710443
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18673**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **10/26/2017**	RunNo: **39535**
Client ID: **MBLKS**	Batch ID: **18673**		Analysis Date: **10/26/2017**	SeqNo: **760993**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	556		500.0		111	10	123				
Surr: Terphenyl-d14 (surr)	604		500.0		121	46.2	179				

Sample ID **LCS-18673**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **10/26/2017**	RunNo: **39535**
Client ID: **LCSS**	Batch ID: **18673**		Analysis Date: **10/26/2017**	SeqNo: **760994**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	754	40.0	1,000	0	75.4	46.4	125				
2-Methylnaphthalene	721	40.0	1,000	0	72.1	45.1	135				
1-Methylnaphthalene	745	40.0	1,000	0	74.5	46.2	133				
Acenaphthylene	740	40.0	1,000	0	74.0	32.8	136				
Acenaphthene	791	40.0	1,000	0	79.1	38.7	129				

Work Order: 1710443
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18673** SampType: **LCS** Units: **µg/Kg** Prep Date: **10/26/2017** RunNo: **39535**
Client ID: **LCSS** Batch ID: **18673** Analysis Date: **10/26/2017** SeqNo: **760994**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	715	40.0	1,000	0	71.5	41.4	144				
Phenanthrene	768	40.0	1,000	0	76.8	43.9	133				
Anthracene	892	40.0	1,000	0	89.2	44.2	136				
Fluoranthene	755	40.0	1,000	0	75.5	45.9	137				
Pyrene	771	40.0	1,000	0	77.1	46.2	137				
Benz(a)anthracene	734	40.0	1,000	0	73.4	41.2	141				
Chrysene	903	40.0	1,000	0	90.3	46.9	138				
Benzo(b)fluoranthene	715	40.0	1,000	0	71.5	41	155				
Benzo(k)fluoranthene	853	40.0	1,000	0	85.3	41.8	153				
Benzo(a)pyrene	758	40.0	1,000	0	75.8	30.2	171				
Indeno(1,2,3-cd)pyrene	748	40.0	1,000	0	74.8	31.3	159				
Dibenz(a,h)anthracene	721	40.0	1,000	0	72.1	28	158				
Benzo(g,h,i)perylene	750	40.0	1,000	0	75.0	32.4	144				
Surr: 2-Fluorobiphenyl	550		500.0		110	10	123				
Surr: Terphenyl-d14 (surr)	544		500.0		109	46.2	179				

Sample ID **1710380-004ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/26/2017** RunNo: **39535**
Client ID: **BATCH** Batch ID: **18673** Analysis Date: **10/27/2017** SeqNo: **760996**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,370	38.2						1,193	14.1	30	
2-Methylnaphthalene	3,010	38.2						2,598	14.7	30	
1-Methylnaphthalene	1,250	38.2						1,089	14.0	30	
Acenaphthylene	ND	38.2						0		30	
Acenaphthene	ND	38.2						0		30	
Fluorene	ND	38.2						0		30	
Phenanthrene	ND	38.2						0		30	
Anthracene	ND	38.2						0		30	
Fluoranthene	ND	38.2						0		30	
Pyrene	ND	38.2						0		30	

Work Order: 1710443
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710380-004ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **10/26/2017** RunNo: **39535**
Client ID: **BATCH** Batch ID: **18673** Analysis Date: **10/27/2017** SeqNo: **760996**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	38.2						0		30	
Chrysene	ND	38.2						0		30	
Benzo(b)fluoranthene	ND	38.2						0		30	
Benzo(k)fluoranthene	ND	38.2						0		30	
Benzo(a)pyrene	ND	38.2						0		30	
Indeno(1,2,3-cd)pyrene	ND	38.2						0		30	
Dibenz(a,h)anthracene	ND	38.2						0		30	
Benzo(g,h,i)perylene	ND	38.2						0		30	
Surr: 2-Fluorobiphenyl	446		477.7		93.3	10	123		0		
Surr: Terphenyl-d14 (surr)	483		477.7		101	46.2	179		0		

Sample ID **1710380-004AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/26/2017** RunNo: **39535**
Client ID: **BATCH** Batch ID: **18673** Analysis Date: **10/27/2017** SeqNo: **760997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2,290	38.6	966.0	1,193	113	42.9	138				
2-Methylnaphthalene	4,240	38.6	966.0	2,598	170	42.8	151				S
1-Methylnaphthalene	2,100	38.6	966.0	1,089	104	41.6	148				
Acenaphthylene	613	38.6	966.0	0	63.4	32.6	160				
Acenaphthene	654	38.6	966.0	0	67.7	46.3	142				
Fluorene	577	38.6	966.0	3.672	59.4	43.4	153				
Phenanthrene	622	38.6	966.0	0	64.4	45.5	140				
Anthracene	724	38.6	966.0	0	75.0	32.6	160				
Fluoranthene	616	38.6	966.0	0	63.8	44.6	161				
Pyrene	630	38.6	966.0	0	65.2	48.3	158				
Benz(a)anthracene	567	38.6	966.0	0	58.7	34.9	139				
Chrysene	723	38.6	966.0	0	74.8	45.2	146				
Benzo(b)fluoranthene	585	38.6	966.0	0	60.5	42.2	168				
Benzo(k)fluoranthene	676	38.6	966.0	0	70.0	34.8	147				
Benzo(a)pyrene	623	38.6	966.0	0	64.5	34.4	179				

Work Order: 1710443
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710380-004AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **10/26/2017** RunNo: **39535**
Client ID: **BATCH** Batch ID: **18673** Analysis Date: **10/27/2017** SeqNo: **760997**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	607	38.6	966.0	0	62.8	11.8	140				
Dibenz(a,h)anthracene	585	38.6	966.0	0	60.6	17.3	156				
Benzo(g,h,i)perylene	612	38.6	966.0	0	63.3	24.9	119				
Surr: 2-Fluorobiphenyl	453		483.0		93.8	10	123				
Surr: Terphenyl-d14 (surr)	423		483.0		87.6	46.2	179				

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Sample ID **1710380-004AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/26/2017** RunNo: **39535**
Client ID: **BATCH** Batch ID: **18673** Analysis Date: **10/27/2017** SeqNo: **760998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	2,380	39.8	995.3	1,193	119	42.9	138	2,289	3.96	30	
2-Methylnaphthalene	4,330	39.8	995.3	2,598	174	42.8	151	4,243	2.12	30	S
1-Methylnaphthalene	2,150	39.8	995.3	1,089	106	41.6	148	2,098	2.27	30	
Acenaphthylene	651	39.8	995.3	0	65.4	32.6	160	612.9	5.97	30	
Acenaphthene	696	39.8	995.3	0	69.9	46.3	142	654.0	6.19	30	
Fluorene	615	39.8	995.3	3.672	61.4	43.4	153	577.3	6.32	30	
Phenanthrene	672	39.8	995.3	0	67.5	45.5	140	622.2	7.62	30	
Anthracene	768	39.8	995.3	0	77.2	32.6	160	724.1	5.89	30	
Fluoranthene	662	39.8	995.3	0	66.5	44.6	161	616.1	7.19	30	
Pyrene	665	39.8	995.3	0	66.8	48.3	158	630.0	5.40	30	
Benz(a)anthracene	620	39.8	995.3	0	62.3	34.9	139	566.8	9.04	30	
Chrysene	778	39.8	995.3	0	78.2	45.2	146	722.7	7.40	30	
Benzo(b)fluoranthene	572	39.8	995.3	0	57.5	42.2	168	584.9	2.15	30	
Benzo(k)fluoranthene	788	39.8	995.3	0	79.2	34.8	147	676.4	15.2	30	
Benzo(a)pyrene	665	39.8	995.3	0	66.8	34.4	179	623.2	6.41	30	
Indeno(1,2,3-cd)pyrene	628	39.8	995.3	0	63.1	11.8	140	607.1	3.34	30	
Dibenz(a,h)anthracene	625	39.8	995.3	0	62.8	17.3	156	585.1	6.56	30	
Benzo(g,h,i)perylene	639	39.8	995.3	0	64.2	24.9	119	611.8	4.36	30	
Surr: 2-Fluorobiphenyl	485		497.6		97.4	10	123		0		

Work Order: 1710443
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1710380-004AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **10/26/2017** RunNo: **39535**
Client ID: **BATCH** Batch ID: **18673** Analysis Date: **10/27/2017** SeqNo: **760998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Terphenyl-d14 (surr)	475		497.6		95.4	46.2	179		0		

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).

Work Order: 1710443
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710440-005BDUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/26/2017**		RunNo: **39519**	
Client ID: **BATCH**	Batch ID: **R39519**						Analysis Date: **10/26/2017**		SeqNo: **760657**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	22.0	0.500						19.16	13.6	20	

Sample ID **1710449-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/26/2017**		RunNo: **39519**	
Client ID: **BATCH**	Batch ID: **R39519**						Analysis Date: **10/26/2017**		SeqNo: **760663**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.05	0.500						8.714	3.81	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710443**
Logged by:	**Brianna Barnes**	Date Received:	**10/26/2017 12:16:00 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 ☐
		Received straight from field		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	18.5

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: | Page: of:

Laboratory Project No (internal): 1710443

Project Name: Block 71

Special Remarks: Tomorrow by noon

Client: GEI

Project No: see previous report

Address:

Collected by: Callen Driscoll

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Braun

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbraun@geoengineers.com; cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	SS E17-6.0	10/26/17	1135	S							X							
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	10/26/17 1216	x	10/26/17 1216
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: | Page: of:

Laboratory Project No (internal): 1710443

Project Name: Block 71

Special Remarks: Tomorrow by noon
Sample ID change per C.D. 1/29/18 cw

Client: GEI

Project No: see previous report

Address:

Collected by: Callen Driscoll

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Braun

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbraun@geoengineers.com; cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	~~SS E17-6.0~~	10/26/17	1135	S							X									SC-E17-6.0
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	10/26/17 1216	x	10/26/17 1216
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1710449

October 27, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 10/26/2017 for the analyses presented in the following report.

Hydrocarbon Identification by NWTPH-HCID
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1710449

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1710449-001	UST-3-PR	10/26/2017 2:00 PM	10/26/2017 2:20 PM

Case Narrative

WO#: **1710449**
Date: **10/27/2017**

CLIENT: GeoEngineers
Project: Block 21

WorkOrder Narrative:
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").

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 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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1710449**

Date Reported: **10/27/2017**

Client: GeoEngineers **Collection Date:** 10/26/2017 2:00:00 PM

Project: Block 21

Lab ID: 1710449-001 **Matrix:** Soil

Client Sample ID: **UST-3-PR**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 18669		Analyst: SB
Gasoline	ND	20.6		mg/Kg-dry	1	10/27/2017 5:04:37 AM
Mineral Spirits	ND	30.9		mg/Kg-dry	1	10/27/2017 5:04:37 AM
Kerosene	ND	51.4		mg/Kg-dry	1	10/27/2017 5:04:37 AM
Diesel (Fuel Oil)	ND	51.4		mg/Kg-dry	1	10/27/2017 5:04:37 AM
Heavy Oil	DETECT	103		mg/Kg-dry	1	10/27/2017 5:04:37 AM
Mineral Oil	ND	103		mg/Kg-dry	1	10/27/2017 5:04:37 AM
Surr: 2-Fluorobiphenyl	145	50 - 150		%Rec	1	10/27/2017 5:04:37 AM
Surr: o-Terphenyl	156	50 - 150	S	%Rec	1	10/27/2017 5:04:37 AM

NOTES:

S - Outlying surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample Moisture (Percent Moisture)				Batch ID: R39519		Analyst: CO
Percent Moisture	8.71	0.500		wt%	1	10/26/2017 4:03:38 PM

Work Order: 1710449
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Hydrocarbon Identification by NWTPH-HCID

Sample ID **MB-18669**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/26/2017**	RunNo: **39539**
Client ID: **MBLKS**	Batch ID: **18669**		Analysis Date: **10/26/2017**	SeqNo: **761068**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	20.7		20.00		104	50	150				
Surr: o-Terphenyl	20.8		20.00		104	50	150				

Sample ID **LCS-18669**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/26/2017**	RunNo: **39539**
Client ID: **LCSS**	Batch ID: **18669**		Analysis Date: **10/26/2017**	SeqNo: **761069**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	510	50.0	500.0	0	102	65	135				
Surr: 2-Fluorobiphenyl	21.2		20.00		106	50	150				
Surr: o-Terphenyl	22.2		20.00		111	50	150				

Work Order: 1710449
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710440-005BDUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/26/2017**		RunNo: **39519**	
Client ID: **BATCH**	Batch ID: **R39519**						Analysis Date: **10/26/2017**		SeqNo: **760657**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	22.0	0.500						19.16	13.6	20	

Sample ID **1710449-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **10/26/2017**		RunNo: **39519**	
Client ID: **UST-3-PR**	Batch ID: **R39519**						Analysis Date: **10/26/2017**		SeqNo: **760663**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	9.05	0.500						8.714	3.81	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1710449**
Logged by:	**Clare Griggs**	Date Received:	**10/26/2017 2:20:00 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 ☐
	Sample received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: Page: of:

Laboratory Project No (internal): 1710449

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous form

Address:

Collected by: Callen Driscoll

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com, cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	PCS-UST3-102617	10/26/17	1400	S				X											
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 10/26/17 1426

Relinquished x Date/Time

Received x [signature] Date/Time 10/26/17 1420

Received x Date/Time

Turn-around Time:

☐ Standard
☐ 3 Day
☐ 2 Day
☒ Next Day
Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Laboratory Project No (internal): 1710449

Date: Page: of:

Special Remarks: Sample ID change per C.D. 1/29/18 cw

Project Name: Block 21

Project No: see previous form

Collected by: Callen Driscoll

Location: Seattle

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com, cdriscoll@geoengineers.com

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	~~PCS-UST3-102617~~	10/26/17	1400	S				X														UST-3-PR
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 10/26/17 1426

Relinquished x Date/Time

Received x [signature] Date/Time 10/26/17 1420

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21 - Rufus 2.0
Work Order Number: 1711001

November 02, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 11/1/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Hydrocarbon Identification by NWTPH-HCID
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Volatile Organic Compounds by EPA Method 8260C

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
Laboratory Director

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0
Work Order: 1711001

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711001-001	UST-3-PR	10/31/2017 8:20 AM	11/01/2017 8:50 AM
1711001-002	E20S4-18	10/31/2017 10:00 AM	11/01/2017 8:50 AM
1711001-003	E25S9-18	10/31/2017 10:45 AM	11/01/2017 8:50 AM

Case Narrative

WO#: **1711001**
Date: **11/2/2017**

CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711001**
Date Reported: **11/2/2017**

Client: GeoEngineers
Collection Date: 10/31/2017 8:20:00 AM
Project: Block 21 - Rufus 2.0
Lab ID: 1711001-001
Matrix: Product
Client Sample ID: **UST-3-PR**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by NWTPH-HCID				Batch ID: 18731		Analyst: SB
Gasoline	ND	18,200	D	mg/Kg	100	11/2/2017 2:33:41 AM
Mineral Spirits	DETECT	27,300	D	mg/Kg	100	11/2/2017 2:33:41 AM
Kerosene	ND	45,500	D	mg/Kg	100	11/2/2017 2:33:41 AM
Diesel (Fuel Oil)	ND	45,500	D	mg/Kg	100	11/2/2017 2:33:41 AM
Heavy Oil	DETECT	90,900	D	mg/Kg	100	11/2/2017 2:33:41 AM
Mineral Oil	ND	90,900	D	mg/Kg	100	11/2/2017 2:33:41 AM
Surr: 2-Fluorobiphenyl	80.0	50 - 150	D	%Rec	10	11/2/2017 3:03:09 AM
Surr: o-Terphenyl	78.5	50 - 150	D	%Rec	10	11/2/2017 3:03:09 AM

Analytical Report

Work Order: **1711001**
Date Reported: **11/2/2017**

Client: GeoEngineers
Collection Date: 10/31/2017 10:00:00 AM
Project: Block 21 - Rufus 2.0
Lab ID: 1711001-002
Matrix: Soil
Client Sample ID: **E20S4-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18730		Analyst: SB
Diesel (Fuel Oil)	21,700	1,160	D	mg/Kg-dry	50	11/2/2017 5:01:24 AM
Heavy Oil	ND	58.0		mg/Kg-dry	1	11/1/2017 2:10:32 PM
Surr: 2-Fluorobiphenyl	92.5	50 - 150		%Rec	1	11/1/2017 2:10:32 PM
Surr: o-Terphenyl	124	50 - 150		%Rec	1	11/1/2017 2:10:32 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18729		Analyst: BT
Benz(a)anthracene	ND	47.3		µg/Kg-dry	1	11/1/2017 5:33:05 PM
Chrysene	148	47.3		µg/Kg-dry	1	11/1/2017 5:33:05 PM
Benzo(b)fluoranthene	ND	47.3		µg/Kg-dry	1	11/1/2017 5:33:05 PM
Benzo(k)fluoranthene	ND	47.3		µg/Kg-dry	1	11/1/2017 5:33:05 PM
Benzo(a)pyrene	ND	47.3		µg/Kg-dry	1	11/1/2017 5:33:05 PM
Indeno(1,2,3-cd)pyrene	ND	47.3		µg/Kg-dry	1	11/1/2017 5:33:05 PM
Dibenz(a,h)anthracene	ND	47.3		µg/Kg-dry	1	11/1/2017 5:33:05 PM
Surr: 2-Fluorobiphenyl	123	10 - 123		%Rec	1	11/1/2017 5:33:05 PM
Surr: Terphenyl-d14 (surr)	126	46.2 - 179		%Rec	1	11/1/2017 5:33:05 PM
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18735		Analyst: MW
Benzene	0.178	0.0221		mg/Kg-dry	1	11/1/2017 5:15:23 PM
Toluene	3.02	0.221	D	mg/Kg-dry	10	11/1/2017 12:00:10 PM
Ethylbenzene	5.33	0.276	D	mg/Kg-dry	10	11/1/2017 12:00:10 PM
m,p-Xylene	17.9	0.551	D	mg/Kg-dry	10	11/1/2017 12:00:10 PM
o-Xylene	9.01	0.276	D	mg/Kg-dry	10	11/1/2017 12:00:10 PM
Surr: Dibromofluoromethane	87.0	56.5 - 129	D	%Rec	10	11/1/2017 12:00:10 PM
Surr: Toluene-d8	96.1	64.5 - 151	D	%Rec	10	11/1/2017 12:00:10 PM
Surr: 1-Bromo-4-fluorobenzene	111	43.2 - 143	D	%Rec	10	11/1/2017 12:00:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R39629		Analyst: CO
Percent Moisture	15.7	0.500		wt%	1	11/1/2017 1:39:30 PM

Analytical Report

Work Order: **1711001**
Date Reported: **11/2/2017**

Client: GeoEngineers
Collection Date: 10/31/2017 10:45:00 AM
Project: Block 21 - Rufus 2.0
Lab ID: 1711001-003
Matrix: Soil
Client Sample ID: **E25S9-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18730		Analyst: SB
Mineral Spirits	145	22.3		mg/Kg-dry	1	11/1/2017 2:40:28 PM
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	11/1/2017 2:40:28 PM
Heavy Oil	6,260	556	D	mg/Kg-dry	10	11/2/2017 5:31:03 AM
Surr: 2-Fluorobiphenyl	104	50 - 150		%Rec	1	11/1/2017 2:40:28 PM
Surr: o-Terphenyl	112	50 - 150		%Rec	1	11/1/2017 2:40:28 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18729		Analyst: BT
Benz(a)anthracene	ND	44.0		µg/Kg-dry	1	11/1/2017 9:59:28 PM
Chrysene	56.7	44.0		µg/Kg-dry	1	11/1/2017 9:59:28 PM
Benzo(b)fluoranthene	ND	44.0		µg/Kg-dry	1	11/1/2017 9:59:28 PM
Benzo(k)fluoranthene	103	44.0		µg/Kg-dry	1	11/1/2017 9:59:28 PM
Benzo(a)pyrene	75.0	44.0		µg/Kg-dry	1	11/1/2017 9:59:28 PM
Indeno(1,2,3-cd)pyrene	ND	44.0		µg/Kg-dry	1	11/1/2017 9:59:28 PM
Dibenz(a,h)anthracene	ND	44.0		µg/Kg-dry	1	11/1/2017 9:59:28 PM
Surr: 2-Fluorobiphenyl	92.8	10 - 123		%Rec	1	11/1/2017 9:59:28 PM
Surr: Terphenyl-d14 (surr)	106	46.2 - 179		%Rec	1	11/1/2017 9:59:28 PM
Sample Moisture (Percent Moisture)				Batch ID: R39629		Analyst: CO
Percent Moisture	13.1	0.500		wt%	1	11/1/2017 1:39:30 PM

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

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

Sample ID **MB-18730**	SampType: **MBLK**			Units: **mg/Kg**		Prep Date: **11/1/2017**		RunNo: **39635**		
Client ID: **MBLKS**	Batch ID: **18730**					Analysis Date: **11/1/2017**		SeqNo: **762882**		
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	18.1		20.00		90.6	50	150				
Surr: o-Terphenyl	20.1		20.00		101	50	150				

Sample ID **LCS-18730**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **11/1/2017**		RunNo: **39635**		
Client ID: **LCSS**	Batch ID: **18730**					Analysis Date: **11/1/2017**		SeqNo: **762883**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	581	20.0	500.0	0	116	65	135				
Surr: 2-Fluorobiphenyl	20.5		20.00		103	50	150				
Surr: o-Terphenyl	22.3		20.00		111	50	150				

Sample ID **1710420-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/1/2017**		RunNo: **39635**		
Client ID: **BATCH**	Batch ID: **18730**					Analysis Date: **11/1/2017**		SeqNo: **763231**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.8						0		30	
Heavy Oil	ND	52.1						0		30	
Surr: 2-Fluorobiphenyl	19.1		20.84		91.5	50	150		0		
Surr: o-Terphenyl	21.6		20.84		104	50	150		0		

Sample ID **1710420-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/1/2017**		RunNo: **39635**		
Client ID: **BATCH**	Batch ID: **18730**					Analysis Date: **11/1/2017**		SeqNo: **763232**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	596	20.9	521.5	0	114	65	135				
Surr: 2-Fluorobiphenyl	22.0		20.86		105	50	150				
Surr: o-Terphenyl	24.7		20.86		119	50	150				

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

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

Sample ID **1710420-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/1/2017**		RunNo: **39635**			
Client ID: **BATCH**	Batch ID: **18730**					Analysis Date: **11/1/2017**		SeqNo: **763232**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1710420-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/1/2017**		RunNo: **39635**			
Client ID: **BATCH**	Batch ID: **18730**					Analysis Date: **11/1/2017**		SeqNo: **763233**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	612	20.8	519.6	0	118	65	135	596.3	2.57	30	
Surr: 2-Fluorobiphenyl	22.1		20.78		106	50	150		0		
Surr: o-Terphenyl	24.5		20.78		118	50	150		0		

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

Hydrocarbon Identification by NWTPH-HCID

Sample ID **MB-18731** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **39650**
Client ID: **MBLKS** Batch ID: **18731** Analysis Date: **11/2/2017** SeqNo: **763154**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	20.0									
Mineral Spirits	ND	30.0									
Kerosene	ND	50.0									
Diesel (Fuel Oil)	ND	50.0									
Heavy Oil	ND	100									
Mineral Oil	ND	100									
Surr: 2-Fluorobiphenyl	17.2		20.00		86.1	50	150				
Surr: o-Terphenyl	18.4		20.00		91.9	50	150				

Sample ID **LCS-18731** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **39650**
Client ID: **LCSS** Batch ID: **18731** Analysis Date: **11/2/2017** SeqNo: **763155**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	497	50.0	500.0	0	99.4	65	135				
Surr: 2-Fluorobiphenyl	18.0		20.00		89.9	50	150				
Surr: o-Terphenyl	20.3		20.00		102	50	150				

Sample ID **LCSD-18731** SampType: **LCSD** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **39650**
Client ID: **LCSS02** Batch ID: **18731** Analysis Date: **11/2/2017** SeqNo: **763156**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	527	50.0	500.0	0	105	65	135	497.1	5.80	30	
Surr: 2-Fluorobiphenyl	18.6		20.00		92.8	50	150		0		
Surr: o-Terphenyl	21.1		20.00		105	50	150		0		

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18729** SampType: **MBLK** Units: **µg/Kg** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **MBLKS** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763607**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	327		500.0		65.4	10	123				
Surr: Terphenyl-d14 (surr)	600		500.0		120	46.2	179				

Sample ID **LCS-18729** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **LCSS** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,150	40.0	1,000	0	115	41.2	141				
Chrysene	1,380	40.0	1,000	0	138	46.9	138				
Benzo(b)fluoranthene	975	40.0	1,000	0	97.5	41	155				
Benzo(k)fluoranthene	1,480	40.0	1,000	0	148	41.8	153				
Benzo(a)pyrene	1,210	40.0	1,000	0	121	30.2	171				
Indeno(1,2,3-cd)pyrene	1,380	40.0	1,000	0	138	31.3	159				
Dibenz(a,h)anthracene	1,360	40.0	1,000	0	136	28	158				
Surr: 2-Fluorobiphenyl	473		500.0		94.7	10	123				
Surr: Terphenyl-d14 (surr)	554		500.0		111	46.2	179				

Sample ID **1711001-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **E20S4-18** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763609**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	47.1						0		30	
Chrysene	207	47.1						148.0	33.4	30	R

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711001-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **E20S4-18** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763609**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	47.1						0		30	
Benzo(k)fluoranthene	ND	47.1						0		30	
Benzo(a)pyrene	ND	47.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	47.1						0		30	
Dibenz(a,h)anthracene	ND	47.1						0		30	
Surr: 2-Fluorobiphenyl	688		589.1		117	10	123		0		
Surr: Terphenyl-d14 (surr)	633		589.1		108	46.2	179		0		

Sample ID **1711001-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **E20S4-18** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,170	47.0	1,176	25.11	97.0	34.9	139				
Chrysene	1,440	47.0	1,176	148.0	110	45.2	146				
Benzo(b)fluoranthene	1,090	47.0	1,176	0	92.5	42.2	168				
Benzo(k)fluoranthene	1,320	47.0	1,176	0	112	34.8	147				
Benzo(a)pyrene	1,210	47.0	1,176	0	103	34.4	179				
Indeno(1,2,3-cd)pyrene	1,280	47.0	1,176	0	109	11.8	140				
Dibenz(a,h)anthracene	1,290	47.0	1,176	0	110	17.3	156				
Surr: 2-Fluorobiphenyl	785		588.0		133	10	123				S
Surr: Terphenyl-d14 (surr)	655		588.0		111	46.2	179				

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1711001-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **E20S4-18** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763611**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,130	43.7	1,094	25.11	101	34.9	139	1,166	2.76	30	
Chrysene	1,300	43.7	1,094	148.0	105	45.2	146	1,440	10.6	30	
Benzo(b)fluoranthene	995	43.7	1,094	0	91.0	42.2	168	1,087	8.85	30	

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711001-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **E20S4-18** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763611**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,270	43.7	1,094	0	116	34.8	147	1,315	3.57	30	
Benzo(a)pyrene	1,140	43.7	1,094	0	105	34.4	179	1,208	5.46	30	
Indeno(1,2,3-cd)pyrene	1,260	43.7	1,094	0	115	11.8	140	1,277	1.46	30	
Dibenz(a,h)anthracene	1,230	43.7	1,094	0	112	17.3	156	1,289	5.05	30	
Surr: 2-Fluorobiphenyl	679		546.8		124	10	123		0		S
Surr: Terphenyl-d14 (surr)	611		546.8		112	46.2	179		0		

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710499-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/1/2017** RunNo: **39629**
Client ID: **BATCH** Batch ID: **R39629** Analysis Date: **11/1/2017** SeqNo: **762718**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	5.40	0.500						5.860	8.17	20	

Sample ID **1711017-004ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/1/2017** RunNo: **39629**
Client ID: **BATCH** Batch ID: **R39629** Analysis Date: **11/1/2017** SeqNo: **762734**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	11.7	0.500						11.73	0.323	20	

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **MB-18735** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **39641**
Client ID: **MBLKS** Batch ID: **18735** Analysis Date: **11/1/2017** SeqNo: **762947**

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	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Surr: Dibromofluoromethane	1.07		1.250		85.4	56.5	129				
Surr: Toluene-d8	1.22		1.250		97.9	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.15		1.250		92.3	43.2	143				

Sample ID **1710509-011BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39641**
Client ID: **BATCH** Batch ID: **18735** Analysis Date: **11/1/2017** SeqNo: **762952**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0172						0		30	
Toluene	ND	0.0172						0		30	
Ethylbenzene	ND	0.0215						0		30	
m,p-Xylene	ND	0.0431						0		30	
o-Xylene	ND	0.0215						0		30	
Surr: Dibromofluoromethane	0.935		1.077		86.8	56.5	129		0		
Surr: Toluene-d8	1.06		1.077		98.7	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.04		1.077		96.4	43.2	143		0		

Sample ID **LCS-18735** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **39641**
Client ID: **LCSS** Batch ID: **18735** Analysis Date: **11/1/2017** SeqNo: **762946**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.04	0.0200	1.000	0	104	64.3	133				
Toluene	1.05	0.0200	1.000	0	105	67.3	138				
Ethylbenzene	1.11	0.0250	1.000	0	111	74	129				
m,p-Xylene	2.06	0.0500	2.000	0	103	70	124				

Work Order: 1711001
CLIENT: GeoEngineers
Project: Block 21 - Rufus 2.0

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18735** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **39641**
Client ID: **LCSS** Batch ID: **18735** Analysis Date: **11/1/2017** SeqNo: **762946**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	0.982	0.0250	1.000	0	98.2	68.1	139				
Surr: Dibromofluoromethane	1.12		1.250		89.6	56.5	129				
Surr: Toluene-d8	1.19		1.250		95.1	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.28		1.250		102	43.2	143				

Sample ID **LCSD-18735** SampType: **LCSD** Units: **mg/Kg** Prep Date: **11/1/2017** RunNo: **39641**
Client ID: **LCSS02** Batch ID: **18735** Analysis Date: **11/1/2017** SeqNo: **762955**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.04	0.0200	1.000	0	104	74.6	124	1.037	0.630	20	
Toluene	1.08	0.0200	1.000	0	108	67.3	138	1.053	2.51	20	
Ethylbenzene	1.08	0.0250	1.000	0	108	74	129	1.112	2.70	20	
m,p-Xylene	2.02	0.0500	2.000	0	101	70	124	2.060	1.89	20	
o-Xylene	0.969	0.0250	1.000	0	96.9	68.1	139	0.9817	1.30	20	
Surr: Dibromofluoromethane	1.14		1.250		91.2	56.5	129		0		
Surr: Toluene-d8	1.20		1.250		95.8	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.28		1.250		103	43.2	143		0		

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711001**
Logged by:	**Clare Griggs**	Date Received:	**11/1/2017 8:50:00 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 ☐
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 ☐ MeOH
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	5.6
Sample	2.1

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 10-31-17 Page: 1 of: 1

Laboratory Project No (internal): 1711001

Special Remarks:

Project Name: Block 21 - Rufus 2.0

Project No: 20434-001-30

Client: GeoEngineers

Address: 1600 Stewart St, Suite 1700

City, State, Zip: Seattle, WA

Collected by: Sydney Branson

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM) cPAHs only	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 UST3-PR	10-31-17	0820	P				X									
2 UST2-E2054-18	↓	1000	S			X		X		X						
3 HH-E2559-18	↓	1045	S					X		X						
4																
5																
6																
7																
8																
9																
10																

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/1/17 850	x [signature]	11/1/17 850
Relinquished x	Date/Time	Received x	Date/Time

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10-31-17 Page: 1 of: 1

Laboratory Project No (internal): 171D01

Project Name: Block 21 - Rufus 2.0

Special Remarks: Sample ID changes per E.D. 1/29/18 cw

Project No: 20434-001-30

Client: GeoEngineers

Collected by: Sydney Branson

Address: 1600 Stewart St, Suite 1700

Location: Seattle, WA

City, State, Zip: Seattle, WA

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Telephone:

PM Email: cbrown@geoengineers.com

Fax:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM) cPAHs only	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 ~~UST3-PR~~	10-31-17	0820	P				X									UST-3-PR
2 ~~UST2-E2054-18~~	↓	1000	S			X		X		X						E2054-18
3 ~~HH-E2589-18~~	↓	1045	S					X		X						E2589-18
4																
5																
6																
7																
8																
9																
10																

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 11/1/17 850

Received x [signature] Date/Time 11/1/17 850

Relinquished x Date/Time

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711018

November 03, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 11/1/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *02/26/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711018

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711018-001	E19 S2-18	11/01/2017 12:45 PM	11/01/2017 1:51 PM
1711018-002	E20 S7-18	11/01/2017 12:30 PM	11/01/2017 1:51 PM

Case Narrative

WO#: **1711018**
Date: **11/3/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711018**
Date Reported: **11/3/2017**

Client: GeoEngineers
Collection Date: 11/1/2017 12:45:00 PM
Project: Block 21
Lab ID: 1711018-001
Matrix: Soil
Client Sample ID: **E19 S2-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18730		Analyst: SB
Diesel (Fuel Oil)	8,470	222	D	mg/Kg-dry	10	11/2/2017 11:17:18 AM
Heavy Oil	ND	55.6		mg/Kg-dry	1	11/2/2017 3:32:43 AM
Surr: 2-Fluorobiphenyl	100	50 - 150		%Rec	1	11/2/2017 3:32:43 AM
Surr: o-Terphenyl	115	50 - 150		%Rec	1	11/2/2017 3:32:43 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18729		Analyst: BT
Naphthalene	2,170	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
2-Methylnaphthalene	8,230	424	D	µg/Kg-dry	10	11/2/2017 7:49:48 PM
1-Methylnaphthalene	6,730	424	D	µg/Kg-dry	10	11/2/2017 7:49:48 PM
Acenaphthylene	194	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Acenaphthene	769	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Fluorene	1,470	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Phenanthrene	4,250	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Anthracene	245	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Fluoranthene	130	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Pyrene	418	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Benz(a)anthracene	ND	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Chrysene	52.0	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Benzo(b)fluoranthene	ND	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Benzo(k)fluoranthene	ND	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Benzo(a)pyrene	ND	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Indeno(1,2,3-cd)pyrene	ND	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Dibenz(a,h)anthracene	ND	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Benzo(g,h,i)perylene	ND	42.4		µg/Kg-dry	1	11/1/2017 10:43:28 PM
Surr: 2-Fluorobiphenyl	100	10 - 123		%Rec	1	11/1/2017 10:43:28 PM
Surr: Terphenyl-d14 (surr)	110	46.2 - 179		%Rec	1	11/1/2017 10:43:28 PM
Sample Moisture (Percent Moisture)				Batch ID: R39629		Analyst: CO
Percent Moisture	15.0	0.500		wt%	1	11/1/2017 1:39:30 PM

Analytical Report

Work Order: **1711018**
Date Reported: **11/3/2017**

Client: GeoEngineers
Collection Date: 11/1/2017 12:30:00 PM
Project: Block 21
Lab ID: 1711018-002
Matrix: Soil
Client Sample ID: **E20 S7-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18730		Analyst: SB
Mineral Spirits	40.3	20.6		mg/Kg-dry	1	11/2/2017 4:02:14 AM
Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	11/2/2017 4:02:14 AM
Heavy Oil	725	51.6		mg/Kg-dry	1	11/2/2017 4:02:14 AM
Surr: 2-Fluorobiphenyl	102	50 - 150		%Rec	1	11/2/2017 4:02:14 AM
Surr: o-Terphenyl	105	50 - 150		%Rec	1	11/2/2017 4:02:14 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18729		Analyst: BT
Naphthalene	956	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
2-Methylnaphthalene	1,330	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
1-Methylnaphthalene	747	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Acenaphthylene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Acenaphthene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Fluorene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Phenanthrene	168	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Anthracene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Fluoranthene	63.6	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Pyrene	119	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Benz(a)anthracene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Chrysene	75.4	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Benzo(b)fluoranthene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Benzo(k)fluoranthene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Benzo(a)pyrene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Indeno(1,2,3-cd)pyrene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Dibenz(a,h)anthracene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Benzo(g,h,i)perylene	ND	47.3		µg/Kg-dry	1	11/1/2017 11:05:24 PM
Surr: 2-Fluorobiphenyl	87.6	10 - 123		%Rec	1	11/1/2017 11:05:24 PM
Surr: Terphenyl-d14 (surr)	94.8	46.2 - 179		%Rec	1	11/1/2017 11:05:24 PM
Sample Moisture (Percent Moisture)				Batch ID: R39629		Analyst: CO
Percent Moisture	16.8	0.500		wt%	1	11/1/2017 1:39:30 PM

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18730**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/1/2017**	RunNo: **39635**
Client ID: **MBLKS**	Batch ID: **18730**		Analysis Date: **11/1/2017**	SeqNo: **762882**

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	18.1		20.00		90.6	50	150				
Surr: o-Terphenyl	20.1		20.00		101	50	150				

Sample ID **LCS-18730**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/1/2017**	RunNo: **39635**
Client ID: **LCSS**	Batch ID: **18730**		Analysis Date: **11/1/2017**	SeqNo: **762883**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	581	20.0	500.0	0	116	65	135				
Surr: 2-Fluorobiphenyl	20.5		20.00		103	50	150				
Surr: o-Terphenyl	22.3		20.00		111	50	150				

Sample ID **1710420-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/1/2017**	RunNo: **39635**
Client ID: **BATCH**	Batch ID: **18730**		Analysis Date: **11/1/2017**	SeqNo: **763231**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.8						0		30	
Heavy Oil	ND	52.1						0		30	
Surr: 2-Fluorobiphenyl	19.1		20.84		91.5	50	150		0		
Surr: o-Terphenyl	21.6		20.84		104	50	150		0		

Sample ID **1710420-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/1/2017**	RunNo: **39635**
Client ID: **BATCH**	Batch ID: **18730**		Analysis Date: **11/1/2017**	SeqNo: **763232**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	596	20.9	521.5	0	114	65	135				
Surr: 2-Fluorobiphenyl	22.0		20.86		105	50	150				
Surr: o-Terphenyl	24.7		20.86		119	50	150				

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1710420-001AMS**	SampType:	**MS**		Units:	**mg/Kg-dry**	Prep Date:	**11/1/2017**		RunNo:	**39635**	
Client ID:	**BATCH**	Batch ID:	**18730**				Analysis Date:	**11/1/2017**		SeqNo:	**763232**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sample ID	**1710420-001AMSD**	SampType:	**MSD**		Units:	**mg/Kg-dry**	Prep Date:	**11/1/2017**		RunNo:	**39635**	
Client ID:	**BATCH**	Batch ID:	**18730**				Analysis Date:	**11/1/2017**		SeqNo:	**763233**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Diesel (Fuel Oil)	612	20.8	519.6	0	118	65	135	596.3	2.57	30		
Surr: 2-Fluorobiphenyl	22.1		20.78		106	50	150		0			
Surr: o-Terphenyl	24.5		20.78		118	50	150		0			

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18729**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/1/2017**	RunNo: **39645**
Client ID: **MBLKS**	Batch ID: **18729**		Analysis Date: **11/1/2017**	SeqNo: **763607**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	327		500.0		65.4	10	123				
Surr: Terphenyl-d14 (surr)	600		500.0		120	46.2	179				

Sample ID **LCS-18729**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/1/2017**	RunNo: **39645**
Client ID: **LCSS**	Batch ID: **18729**		Analysis Date: **11/1/2017**	SeqNo: **763608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,040	40.0	1,000	0	104	46.4	125				
2-Methylnaphthalene	1,040	40.0	1,000	0	104	45.1	135				
1-Methylnaphthalene	1,030	40.0	1,000	0	103	46.2	133				
Acenaphthylene	1,060	40.0	1,000	0	106	32.8	136				
Acenaphthene	1,150	40.0	1,000	0	115	38.7	129				

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18729** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **LCSS** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763608**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,090	40.0	1,000	0	109	41.4	144				
Phenanthrene	1,080	40.0	1,000	0	108	43.9	133				
Anthracene	1,490	40.0	1,000	0	149	42.5	157				
Fluoranthene	1,210	40.0	1,000	0	121	45.9	137				
Pyrene	1,230	40.0	1,000	0	123	46.2	137				
Benz(a)anthracene	1,150	40.0	1,000	0	115	41.2	141				
Chrysene	1,380	40.0	1,000	0	138	46.9	138				
Benzo(b)fluoranthene	975	40.0	1,000	0	97.5	41	155				
Benzo(k)fluoranthene	1,480	40.0	1,000	0	148	41.8	153				
Benzo(a)pyrene	1,210	40.0	1,000	0	121	30.2	171				
Indeno(1,2,3-cd)pyrene	1,380	40.0	1,000	0	138	31.3	159				
Dibenz(a,h)anthracene	1,360	40.0	1,000	0	136	28	158				
Benzo(g,h,i)perylene	1,280	40.0	1,000	0	128	32.4	144				
Surr: 2-Fluorobiphenyl	473		500.0		94.7	10	123				
Surr: Terphenyl-d14 (surr)	554		500.0		111	46.2	179				

Sample ID **1711001-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **BATCH** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763609**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	24,000	47.1						21,330	11.7	30	E
2-Methylnaphthalene	66,100	47.1						59,720	10.2	30	E
1-Methylnaphthalene	43,200	47.1						39,230	9.61	30	E
Acenaphthylene	1,110	47.1						1,095	1.02	30	
Acenaphthene	5,680	47.1						3,941	36.2	30	RE
Fluorene	9,080	47.1						8,533	6.23	30	E
Phenanthrene	22,400	47.1						22,960	2.36	30	E
Anthracene	1,690	47.1						1,770	4.66	30	
Fluoranthene	636	47.1						583.5	8.69	30	
Pyrene	2,830	47.1						2,436	14.9	30	

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711001-002ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **BATCH** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763609**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	47.1						0		30	
Chrysene	207	47.1						148.0	33.4	30	R
Benzo(b)fluoranthene	ND	47.1						0		30	
Benzo(k)fluoranthene	ND	47.1						0		30	
Benzo(a)pyrene	ND	47.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	47.1						0		30	
Dibenz(a,h)anthracene	ND	47.1						0		30	
Benzo(g,h,i)perylene	ND	47.1						0		30	
Surr: 2-Fluorobiphenyl	688		589.1		117	10	123		0		
Surr: Terphenyl-d14 (surr)	633		589.1		108	46.2	179		0		

NOTES:
R - High RPD observed. The method is in control as indicated by the LCS.
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1711001-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **BATCH** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	28,600	47.0	1,176	21,330	622	42.9	138				SE
2-Methylnaphthalene	76,100	47.0	1,176	59,720	1,390	42.8	151				SE
1-Methylnaphthalene	49,800	47.0	1,176	39,230	896	41.6	148				SE
Acenaphthylene	2,390	47.0	1,176	1,095	110	32.6	160				
Acenaphthene	6,060	47.0	1,176	3,941	181	46.3	142				SE
Fluorene	10,300	47.0	1,176	8,533	153	43.4	153				E
Phenanthrene	26,000	47.0	1,176	22,960	262	45.5	140				SE
Anthracene	2,700	47.0	1,176	1,770	79.3	32.6	160				
Fluoranthene	2,400	47.0	1,176	583.5	154	44.6	161				
Pyrene	4,500	47.0	1,176	2,436	175	48.3	158				S
Benz(a)anthracene	1,170	47.0	1,176	25.11	97.0	34.9	139				
Chrysene	1,440	47.0	1,176	148.0	110	45.2	146				
Benzo(b)fluoranthene	1,090	47.0	1,176	0	92.5	42.2	168				

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711001-002AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **BATCH** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763610**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,320	47.0	1,176	0	112	34.8	147				
Benzo(a)pyrene	1,210	47.0	1,176	0	103	34.4	179				
Indeno(1,2,3-cd)pyrene	1,280	47.0	1,176	0	109	11.8	140				
Dibenz(a,h)anthracene	1,290	47.0	1,176	0	110	17.3	156				
Benzo(g,h,i)perylene	1,270	47.0	1,176	0	108	24.9	119				
Surr: 2-Fluorobiphenyl	785		588.0		133	10	123				S
Surr: Terphenyl-d14 (surr)	655		588.0		111	46.2	179				

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1711001-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **BATCH** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763611**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	21,800	43.7	1,094	21,330	39.3	42.9	138	28,650	27.3	30	SE
2-Methylnaphthalene	58,700	43.7	1,094	59,720	-94.9	42.8	151	76,090	25.8	30	SE
1-Methylnaphthalene	38,500	43.7	1,094	39,230	-62.1	41.6	148	49,760	25.4	30	SE
Acenaphthylene	1,980	43.7	1,094	1,095	80.7	32.6	160	2,389	18.8	30	
Acenaphthene	6,040	43.7	1,094	3,941	192	46.3	142	6,064	0.387	30	SE
Fluorene	8,790	43.7	1,094	8,533	23.7	43.4	153	10,330	16.1	30	SE
Phenanthrene	21,100	43.7	1,094	22,960	-174	45.5	140	26,050	21.2	30	SE
Anthracene	2,370	43.7	1,094	1,770	54.6	32.6	160	2,702	13.2	30	
Fluoranthene	2,320	43.7	1,094	583.5	159	44.6	161	2,396	3.04	30	
Pyrene	3,580	43.7	1,094	2,436	104	48.3	158	4,495	22.7	30	
Benz(a)anthracene	1,130	43.7	1,094	25.11	101	34.9	139	1,166	2.76	30	
Chrysene	1,300	43.7	1,094	148.0	105	45.2	146	1,440	10.6	30	
Benzo(b)fluoranthene	995	43.7	1,094	0	91.0	42.2	168	1,087	8.85	30	
Benzo(k)fluoranthene	1,270	43.7	1,094	0	116	34.8	147	1,315	3.57	30	
Benzo(a)pyrene	1,140	43.7	1,094	0	105	34.4	179	1,208	5.46	30	
Indeno(1,2,3-cd)pyrene	1,260	43.7	1,094	0	115	11.8	140	1,277	1.46	30	

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711001-002AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/1/2017** RunNo: **39645**
Client ID: **BATCH** Batch ID: **18729** Analysis Date: **11/1/2017** SeqNo: **763611**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dibenz(a,h)anthracene	1,230	43.7	1,094	0	112	17.3	156	1,289	5.05	30	
Benzo(g,h,i)perylene	1,200	43.7	1,094	0	110	24.9	119	1,274	5.57	30	
Surr: 2-Fluorobiphenyl	679		546.8		124	10	123		0		S
Surr: Terphenyl-d14 (surr)	611		546.8		112	46.2	179		0		

NOTES:
S - Analyte concentration was too high for accurate spike recovery(ies).
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1711018
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1710499-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/1/2017**		RunNo: **39629**	
Client ID: **BATCH**	Batch ID: **R39629**						Analysis Date: **11/1/2017**		SeqNo: **762718**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	5.40	0.500						5.860	8.17	20	

Sample ID **1711017-004ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/1/2017**		RunNo: **39629**	
Client ID: **BATCH**	Batch ID: **R39629**						Analysis Date: **11/1/2017**		SeqNo: **762734**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	11.7	0.500						11.73	0.323	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711018**
Logged by:	**Clare Griggs**	Date Received:	**11/1/2017 1:51:00 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 ☐
	Sample received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	19.4

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 11/1/17 Page: of:

Laboratory Project No (internal): 1711018

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous

Address:

Collected by: Callan Driscoll

City, State, Zip:

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1 UST2-E1952-18	1	1245	S					X		X											
2 ~~UST~~ HH-E2657-18		1230	S					X		X											
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x Callan Driscoll Date/Time 1351 11/1/17

Relinquished x Date/Time

Received x Casey Olney Date/Time 1351 11/1/17

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day ____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/1/17 | Page: | of:

Project Name: Block 21

Project No: see previous

Collected by: Callen Driscoll

Location: Seattle, WA

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Laboratory Project No (internal): 171018

Special Remarks: Sample ID changes per C.D. 2/26/18 CW

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~UST 2-E1952-18~~	1	1245	S						X	X								E1952-18
2	~~UST HH-E2057-18~~		1230	S						X	X								E2057-18
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x Callen Driscoll Date/Time 1351 11/1/17

Relinquished x Date/Time

Received x Casey Ohy Date/Time 1351 11/1/17

Received x Date/Time

Turn-around Time:

☐ Standard
☐ 3 Day
☐ 2 Day
☒ Next Day
Same Day ____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711027

November 03, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 5 sample(s) on 11/2/2017 for the analyses presented in the following report.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *11/03/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711027

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711027-001	TP21-9-1-3.0	11/02/2017 9:30 AM	11/02/2017 10:26 AM
1711027-002	TP21-9-2-3.0	11/02/2017 9:55 AM	11/02/2017 10:26 AM
1711027-003	TP21-9-3-3.0	11/02/2017 9:50 AM	11/02/2017 10:26 AM
1711027-004	TP21-9-4-3.0	11/02/2017 9:45 AM	11/02/2017 10:26 AM
1711027-005	TP21-9-B-5.0	11/02/2017 10:00 AM	11/02/2017 10:26 AM

Case Narrative

WO#: **1711027**
Date: **11/3/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711027**
Date Reported: **11/3/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 9:30:00 AM
Project: Block 21
Lab ID: 1711027-001
Matrix: Soil
Client Sample ID: **TP21-9-1-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
2-Methylnaphthalene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
1-Methylnaphthalene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Acenaphthylene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Acenaphthene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Fluorene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Phenanthrene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Anthracene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Fluoranthene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Pyrene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Benz(a)anthracene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Chrysene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Benzo(b)fluoranthene	ND	45.1	Q	µg/Kg-dry	1	11/2/2017 3:45:15 PM
Benzo(j,k)fluoranthene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Benzo(a)pyrene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Indeno(1,2,3-cd)pyrene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Dibenz(a,h)anthracene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Benzo(g,h,i)perylene	ND	45.1		µg/Kg-dry	1	11/2/2017 3:45:15 PM
Surr: 2-Fluorobiphenyl	31.6	10 - 123		%Rec	1	11/2/2017 3:45:15 PM
Surr: Terphenyl-d14 (surr)	111	46.2 - 179		%Rec	1	11/2/2017 3:45:15 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39656		Analyst: CO
Percent Moisture	15.1	0.500		wt%	1	11/2/2017 11:05:37 AM

Analytical Report

Work Order: **1711027**
Date Reported: **11/3/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 9:55:00 AM
Project: Block 21
Lab ID: 1711027-002
Matrix: Soil
Client Sample ID: **TP21-9-2-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
2-Methylnaphthalene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
1-Methylnaphthalene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Acenaphthylene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Acenaphthene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Fluorene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Phenanthrene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Anthracene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Fluoranthene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Pyrene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Benz(a)anthracene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Chrysene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Benzo(b)fluoranthene	ND	43.0	Q	µg/Kg-dry	1	11/2/2017 5:13:43 PM
Benzo(j,k)fluoranthene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Benzo(a)pyrene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Indeno(1,2,3-cd)pyrene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Dibenz(a,h)anthracene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Benzo(g,h,i)perylene	ND	43.0		µg/Kg-dry	1	11/2/2017 5:13:43 PM
Surr: 2-Fluorobiphenyl	42.5	10 - 123		%Rec	1	11/2/2017 5:13:43 PM
Surr: Terphenyl-d14 (surr)	90.0	46.2 - 179		%Rec	1	11/2/2017 5:13:43 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39656		Analyst: CO
Percent Moisture	15.3	0.500		wt%	1	11/2/2017 11:05:37 AM

Analytical Report

Work Order: **1711027**
Date Reported: **11/3/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 9:50:00 AM
Project: Block 21
Lab ID: 1711027-003
Matrix: Soil
Client Sample ID: **TP21-9-3-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
2-Methylnaphthalene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
1-Methylnaphthalene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Acenaphthylene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Acenaphthene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Fluorene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Phenanthrene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Anthracene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Fluoranthene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Pyrene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Benz(a)anthracene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Chrysene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Benzo(b)fluoranthene	ND	41.2	Q	µg/Kg-dry	1	11/2/2017 5:35:49 PM
Benzo(j,k)fluoranthene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Benzo(a)pyrene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Indeno(1,2,3-cd)pyrene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Dibenz(a,h)anthracene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Benzo(g,h,i)perylene	ND	41.2		µg/Kg-dry	1	11/2/2017 5:35:49 PM
Surr: 2-Fluorobiphenyl	52.8	10 - 123		%Rec	1	11/2/2017 5:35:49 PM
Surr: Terphenyl-d14 (surr)	93.8	46.2 - 179		%Rec	1	11/2/2017 5:35:49 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39656		Analyst: CO
Percent Moisture	10.2	0.500		wt%	1	11/2/2017 11:05:37 AM

Analytical Report

Work Order: **1711027**
Date Reported: **11/3/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 9:45:00 AM
Project: Block 21
Lab ID: 1711027-004
Matrix: Soil
Client Sample ID: **TP21-9-4-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
2-Methylnaphthalene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
1-Methylnaphthalene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Acenaphthylene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Acenaphthene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Fluorene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Phenanthrene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Anthracene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Fluoranthene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Pyrene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Benz(a)anthracene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Chrysene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Benzo(b)fluoranthene	ND	42.4	Q	µg/Kg-dry	1	11/2/2017 5:57:56 PM
Benzo(j,k)fluoranthene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Benzo(a)pyrene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Indeno(1,2,3-cd)pyrene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Dibenz(a,h)anthracene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Benzo(g,h,i)perylene	ND	42.4		µg/Kg-dry	1	11/2/2017 5:57:56 PM
Surr: 2-Fluorobiphenyl	66.6	10 - 123		%Rec	1	11/2/2017 5:57:56 PM
Surr: Terphenyl-d14 (surr)	93.8	46.2 - 179		%Rec	1	11/2/2017 5:57:56 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39656		Analyst: CO
Percent Moisture	9.93	0.500		wt%	1	11/2/2017 11:05:37 AM

Analytical Report

Work Order: **1711027**
Date Reported: **11/3/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 10:00:00 AM
Project: Block 21
Lab ID: 1711027-005
Matrix: Soil
Client Sample ID: **TP21-9-B-5.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
2-Methylnaphthalene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
1-Methylnaphthalene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Acenaphthylene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Acenaphthene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Fluorene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Phenanthrene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Anthracene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Fluoranthene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Pyrene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Benz(a)anthracene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Chrysene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Benzo(b)fluoranthene	ND	38.5	Q	µg/Kg-dry	1	11/2/2017 6:20:06 PM
Benzo(j,k)fluoranthene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Benzo(a)pyrene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Indeno(1,2,3-cd)pyrene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Dibenz(a,h)anthracene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Benzo(g,h,i)perylene	ND	38.5		µg/Kg-dry	1	11/2/2017 6:20:06 PM
Surr: 2-Fluorobiphenyl	42.4	10 - 123		%Rec	1	11/2/2017 6:20:06 PM
Surr: Terphenyl-d14 (surr)	87.0	46.2 - 179		%Rec	1	11/2/2017 6:20:06 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39656		Analyst: CO
Percent Moisture	9.53	0.500		wt%	1	11/2/2017 11:05:37 AM

Work Order: 1711027
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18751**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/2/2017**	RunNo: **39682**
Client ID: **MBLKS**	Batch ID: **18751**		Analysis Date: **11/2/2017**	SeqNo: **763796**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									Q
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	234		500.0		46.7	10	123				
Surr: Terphenyl-d14 (surr)	565		500.0		113	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18751**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/2/2017**	RunNo: **39682**
Client ID: **LCSS**	Batch ID: **18751**		Analysis Date: **11/2/2017**	SeqNo: **763797**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	998	40.0	1,000	0	99.8	46.4	125				
2-Methylnaphthalene	1,010	40.0	1,000	0	101	45.1	135				
1-Methylnaphthalene	1,020	40.0	1,000	0	102	46.2	133				
Acenaphthylene	1,030	40.0	1,000	0	103	32.8	136				

Work Order: 1711027
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18751** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **LCSS** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763797**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,120	40.0	1,000	0	112	38.7	129				
Fluorene	984	40.0	1,000	0	98.4	41.4	144				
Phenanthrene	972	40.0	1,000	0	97.2	43.9	133				
Anthracene	1,380	40.0	1,000	0	138	42.5	157				
Fluoranthene	1,110	40.0	1,000	0	111	45.9	137				
Pyrene	1,140	40.0	1,000	0	114	46.2	137				
Benz(a)anthracene	996	40.0	1,000	0	99.6	41.2	141				
Chrysene	1,370	40.0	1,000	0	137	46.9	138				
Benzo(b)fluoranthene	918	40.0	1,000	0	91.8	41	155				
Benzo(j,k)fluoranthene	1,370	40.0	1,000	0	137	41.8	153				
Benzo(a)pyrene	1,110	40.0	1,000	0	111	30.2	171				
Indeno(1,2,3-cd)pyrene	1,240	40.0	1,000	0	124	31.3	159				
Dibenz(a,h)anthracene	1,220	40.0	1,000	0	122	28	158				
Benzo(g,h,i)perylene	1,200	40.0	1,000	0	120	32.4	144				
Surr: 2-Fluorobiphenyl	335		500.0		67.0	10	123				
Surr: Terphenyl-d14 (surr)	510		500.0		102	46.2	179				

Sample ID **1711027-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **TP21-9-1-3.0** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	44.6						0		30	
2-Methylnaphthalene	ND	44.6						0		30	
1-Methylnaphthalene	ND	44.6						0		30	
Acenaphthylene	ND	44.6						0		30	
Acenaphthene	ND	44.6						0		30	
Fluorene	ND	44.6						0		30	
Phenanthrene	ND	44.6						0		30	
Anthracene	ND	44.6						0		30	
Fluoranthene	ND	44.6						0		30	

Work Order: 1711027
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711027-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **TP21-9-1-3.0** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	44.6						0		30	
Benz(a)anthracene	ND	44.6						0		30	
Chrysene	ND	44.6						0		30	
Benzo(b)fluoranthene	ND	44.6						0		30	Q
Benzo(j,k)fluoranthene	ND	44.6						0		30	
Benzo(a)pyrene	ND	44.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	44.6						0		30	
Dibenz(a,h)anthracene	ND	44.6						0		30	
Benzo(g,h,i)perylene	ND	44.6						0		30	
Surr: 2-Fluorobiphenyl	150		557.5		27.0	10	123		0		
Surr: Terphenyl-d14 (surr)	552		557.5		99.0	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1711027-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **TP21-9-1-3.0** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	865	44.5	1,112	0	77.8	42.9	138				
2-Methylnaphthalene	874	44.5	1,112	0	78.6	42.8	151				
1-Methylnaphthalene	885	44.5	1,112	0	79.6	41.6	148				
Acenaphthylene	884	44.5	1,112	0	79.5	32.6	160				
Acenaphthene	967	44.5	1,112	0	87.0	46.3	142				
Fluorene	871	44.5	1,112	0	78.3	43.4	153				
Phenanthrene	840	44.5	1,112	0	75.5	45.5	140				
Anthracene	1,220	44.5	1,112	0	109	32.6	160				
Fluoranthene	968	44.5	1,112	0	87.1	44.6	161				
Pyrene	1,000	44.5	1,112	0	90.1	48.3	158				
Benz(a)anthracene	891	44.5	1,112	0	80.2	34.9	139				
Chrysene	1,230	44.5	1,112	0	110	45.2	146				
Benzo(b)fluoranthene	784	44.5	1,112	0	70.5	42.2	168				

Work Order: 1711027
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711027-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **TP21-9-1-3.0** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(j,k)fluoranthene	1,260	44.5	1,112	0	114	34.8	147				
Benzo(a)pyrene	995	44.5	1,112	0	89.5	34.4	179				
Indeno(1,2,3-cd)pyrene	1,080	44.5	1,112	0	97.3	11.8	140				
Dibenz(a,h)anthracene	1,090	44.5	1,112	0	98.5	17.3	156				
Benzo(g,h,i)perylene	1,030	44.5	1,112	0	92.8	24.9	119				
Surr: 2-Fluorobiphenyl	358		555.9		64.5	10	123				
Surr: Terphenyl-d14 (surr)	468		555.9		84.2	46.2	179				

Sample ID **1711027-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **TP21-9-1-3.0** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763801**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,080	45.3	1,133	0	95.0	42.9	138	865.4	21.8	30	
2-Methylnaphthalene	1,100	45.3	1,133	0	96.8	42.8	151	873.7	22.7	30	
1-Methylnaphthalene	1,050	45.3	1,133	0	92.7	41.6	148	885.3	17.1	30	
Acenaphthylene	1,110	45.3	1,133	0	97.5	32.6	160	884.2	22.2	30	
Acenaphthene	1,210	45.3	1,133	0	107	46.3	142	967.4	22.3	30	
Fluorene	1,070	45.3	1,133	0	94.4	43.4	153	871.0	20.5	30	
Phenanthrene	1,090	45.3	1,133	0	96.3	45.5	140	839.9	26.1	30	
Anthracene	1,540	45.3	1,133	0	136	32.6	160	1,217	23.3	30	
Fluoranthene	1,230	45.3	1,133	0	109	44.6	161	968.2	24.1	30	
Pyrene	1,260	45.3	1,133	0	112	48.3	158	1,002	23.1	30	
Benz(a)anthracene	1,120	45.3	1,133	0	99.0	34.9	139	891.2	22.9	30	
Chrysene	1,500	45.3	1,133	0	133	45.2	146	1,227	20.2	30	
Benzo(b)fluoranthene	878	45.3	1,133	0	77.5	42.2	168	783.6	11.4	30	
Benzo(j,k)fluoranthene	1,510	45.3	1,133	0	133	34.8	147	1,264	17.6	30	
Benzo(a)pyrene	1,220	45.3	1,133	0	108	34.4	179	995.1	20.7	30	
Indeno(1,2,3-cd)pyrene	1,390	45.3	1,133	0	123	11.8	140	1,082	25.1	30	
Dibenz(a,h)anthracene	1,390	45.3	1,133	0	123	17.3	156	1,095	23.8	30	
Benzo(g,h,i)perylene	1,280	45.3	1,133	0	113	24.9	119	1,032	21.8	30	

Work Order: 1711027
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711027-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **TP21-9-1-3.0** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763801**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	469		566.6		82.8	10	123		0		
Surr: Terphenyl-d14 (surr)	580		566.6		102	46.2	179		0		

Work Order: 1711027
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711027-005ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/2/2017** RunNo: **39656**
Client ID: **TP21-9-B-5.0** Batch ID: **R39656** Analysis Date: **11/2/2017** SeqNo: **763269**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	10.9	0.500						9.528	13.4	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711027**
Logged by:	**Brianna Barnes**	Date Received:	**11/2/2017 10:26:00 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 ☐
		Received straight from field		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	14.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/2/17 Page: of: Laboratory Project No (internal): 1711027

Project Name: Block 21

Special Remarks: end of business or by 12 tomorrow

Client: GEI

Project No: See previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geiengineers.com, cdrizcoll@geiengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	TP21-9-1-3.0	11/2/17	0930	S							X							
2	TP21-9-2-3.0	"	0955	"							X							
3	TP21-9-3-3.0	"	0950	"							X							
4	TP21-9-4-3.0	"	0945	"							X							
5	TP21-9-B-5.0	"	1000	"							X							
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	11/2/17 1026	x	11/2/17 1026
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711033

November 06, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 11/2/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711033

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711033-001	E19S9-18	11/02/2017 12:35 PM	11/02/2017 1:24 PM
1711033-002	E24S5-18	11/02/2017 1:10 PM	11/02/2017 1:24 PM
1711033-003	E25S7-18	11/02/2017 12:20 PM	11/02/2017 1:24 PM

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

Case Narrative

WO#: **1711033**
Date: **11/6/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711033**
Date Reported: **11/6/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 12:35:00 PM
Project: Block 21
Lab ID: 1711033-001
Matrix: Soil
Client Sample ID: **E19S9-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18758		Analyst: SB
Diesel (Fuel Oil)	ND	23.0		mg/Kg-dry	1	11/2/2017 6:13:50 PM
Heavy Oil	ND	57.5		mg/Kg-dry	1	11/2/2017 6:13:50 PM
Surr: 2-Fluorobiphenyl	102	50 - 150		%Rec	1	11/2/2017 6:13:50 PM
Surr: o-Terphenyl	108	50 - 150		%Rec	1	11/2/2017 6:13:50 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
2-Methylnaphthalene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
1-Methylnaphthalene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Acenaphthylene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Acenaphthene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Fluorene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Phenanthrene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Anthracene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Fluoranthene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Pyrene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Benz(a)anthracene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Chrysene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Benzo(b)fluoranthene	ND	47.8	Q	µg/Kg-dry	1	11/2/2017 6:42:14 PM
Benzo(k)fluoranthene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Benzo(a)pyrene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Indeno(1,2,3-cd)pyrene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Dibenz(a,h)anthracene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Benzo(g,h,i)perylene	ND	47.8		µg/Kg-dry	1	11/2/2017 6:42:14 PM
Surr: 2-Fluorobiphenyl	69.8	10 - 123		%Rec	1	11/2/2017 6:42:14 PM
Surr: Terphenyl-d14 (surr)	85.5	46.2 - 179		%Rec	1	11/2/2017 6:42:14 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39663		Analyst: CO
Percent Moisture	24.5	0.500		wt%	1	11/2/2017 2:49:13 PM

Analytical Report

Work Order: **1711033**
Date Reported: **11/6/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 1:10:00 PM
Project: Block 21
Lab ID: 1711033-002
Matrix: Soil
Client Sample ID: **E24S5-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18758		Analyst: SB
Diesel (Fuel Oil)	ND	20.1		mg/Kg-dry	1	11/2/2017 8:12:14 PM
Heavy Oil	ND	50.2		mg/Kg-dry	1	11/2/2017 8:12:14 PM
Surr: 2-Fluorobiphenyl	102	50 - 150		%Rec	1	11/2/2017 8:12:14 PM
Surr: o-Terphenyl	108	50 - 150		%Rec	1	11/2/2017 8:12:14 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
2-Methylnaphthalene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
1-Methylnaphthalene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Acenaphthylene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Acenaphthene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Fluorene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Phenanthrene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Anthracene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Fluoranthene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Pyrene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Benz(a)anthracene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Chrysene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Benzo(b)fluoranthene	ND	47.7	Q	µg/Kg-dry	1	11/2/2017 7:04:21 PM
Benzo(k)fluoranthene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Benzo(a)pyrene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Indeno(1,2,3-cd)pyrene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Dibenz(a,h)anthracene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Benzo(g,h,i)perylene	ND	47.7		µg/Kg-dry	1	11/2/2017 7:04:21 PM
Surr: 2-Fluorobiphenyl	83.0	10 - 123		%Rec	1	11/2/2017 7:04:21 PM
Surr: Terphenyl-d14 (surr)	97.0	46.2 - 179		%Rec	1	11/2/2017 7:04:21 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39663		Analyst: CO
Percent Moisture	16.2	0.500		wt%	1	11/2/2017 2:49:13 PM

Analytical Report

Work Order: **1711033**
Date Reported: **11/6/2017**

Client: GeoEngineers
Collection Date: 11/2/2017 12:20:00 PM
Project: Block 21
Lab ID: 1711033-003
Matrix: Soil
Client Sample ID: **E25S7-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18758		Analyst: SB
Diesel (Fuel Oil)	ND	23.3		mg/Kg-dry	1	11/2/2017 8:41:41 PM
Heavy Oil	ND	58.3		mg/Kg-dry	1	11/2/2017 8:41:41 PM
Surr: 2-Fluorobiphenyl	114	50 - 150		%Rec	1	11/2/2017 8:41:41 PM
Surr: o-Terphenyl	121	50 - 150		%Rec	1	11/2/2017 8:41:41 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18751		Analyst: BT
Naphthalene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
2-Methylnaphthalene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
1-Methylnaphthalene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Acenaphthylene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Acenaphthene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Fluorene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Phenanthrene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Anthracene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Fluoranthene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Pyrene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Benz(a)anthracene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Chrysene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Benzo(b)fluoranthene	ND	44.5	Q	µg/Kg-dry	1	11/2/2017 7:27:43 PM
Benzo(k)fluoranthene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Benzo(a)pyrene	ND	44.5		µg/Kg-dry	1	11/2/2017 7:27:43 PM
Indeno(1,2,3-cd)pyrene	ND	44.5	I	µg/Kg-dry	1	11/2/2017 7:27:43 PM
Dibenz(a,h)anthracene	ND	44.5	I	µg/Kg-dry	1	11/2/2017 7:27:43 PM
Benzo(g,h,i)perylene	ND	44.5	I	µg/Kg-dry	1	11/2/2017 7:27:43 PM
Surr: 2-Fluorobiphenyl	82.3	10 - 123		%Rec	1	11/2/2017 7:27:43 PM
Surr: Terphenyl-d14 (surr)	93.9	46.2 - 179		%Rec	1	11/2/2017 7:27:43 PM

NOTES:

I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39663		Analyst: CO
Percent Moisture	19.5	0.500		wt%	1	11/2/2017 2:49:13 PM

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18758**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/2/2017**	RunNo: **39683**
Client ID: **MBLKS**	Batch ID: **18758**		Analysis Date: **11/2/2017**	SeqNo: **763809**

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	21.3		20.00		106	50	150				
Surr: o-Terphenyl	23.4		20.00		117	50	150				

Sample ID **LCS-18758**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/2/2017**	RunNo: **39683**
Client ID: **LCSS**	Batch ID: **18758**		Analysis Date: **11/2/2017**	SeqNo: **763810**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	601	20.0	500.0	0	120	65	135				
Surr: 2-Fluorobiphenyl	22.7		20.00		114	50	150				
Surr: o-Terphenyl	24.4		20.00		122	50	150				

Sample ID **1711033-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/2/2017**	RunNo: **39683**
Client ID: **E19S9-18**	Batch ID: **18758**		Analysis Date: **11/2/2017**	SeqNo: **763812**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	23.0						0		30	
Heavy Oil	ND	57.4						0		30	
Surr: 2-Fluorobiphenyl	23.1		22.97		100	50	150		0		
Surr: o-Terphenyl	24.6		22.97		107	50	150		0		

Sample ID **1711033-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/2/2017**	RunNo: **39683**
Client ID: **E19S9-18**	Batch ID: **18758**		Analysis Date: **11/2/2017**	SeqNo: **763813**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	705	24.7	617.5	0	114	65	135				
Surr: 2-Fluorobiphenyl	27.3		24.70		111	50	150				
Surr: o-Terphenyl	28.6		24.70		116	50	150				

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711033-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39683**
Client ID: **E19S9-18** Batch ID: **18758** Analysis Date: **11/2/2017** SeqNo: **763813**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1711033-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39683**
Client ID: **E19S9-18** Batch ID: **18758** Analysis Date: **11/2/2017** SeqNo: **763814**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	639	24.7	618.1	0	103	65	135	705.3	9.89	30	
Surr: 2-Fluorobiphenyl	23.5		24.72		95.2	50	150		0		
Surr: o-Terphenyl	24.8		24.72		100	50	150		0		

Sample ID **1711042-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39683**
Client ID: **BATCH** Batch ID: **18758** Analysis Date: **11/3/2017** SeqNo: **763826**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	145						0		30	
Heavy Oil	ND	362						0		30	
Surr: 2-Fluorobiphenyl	75.6		144.9		52.2	50	150		0		
Surr: o-Terphenyl	93.2		144.9		64.3	50	150		0		

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18751**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/2/2017**	RunNo: **39682**
Client ID: **MBLKS**	Batch ID: **18751**		Analysis Date: **11/2/2017**	SeqNo: **763796**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									Q
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	234		500.0		46.7	10	123				
Surr: Terphenyl-d14 (surr)	565		500.0		113	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18751**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/2/2017**	RunNo: **39682**
Client ID: **LCSS**	Batch ID: **18751**		Analysis Date: **11/2/2017**	SeqNo: **763797**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	998	40.0	1,000	0	99.8	46.4	125				
2-Methylnaphthalene	1,010	40.0	1,000	0	101	45.1	135				
1-Methylnaphthalene	1,020	40.0	1,000	0	102	46.2	133				
Acenaphthylene	1,030	40.0	1,000	0	103	32.8	136				

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18751** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **LCSS** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763797**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,120	40.0	1,000	0	112	38.7	129				
Fluorene	984	40.0	1,000	0	98.4	41.4	144				
Phenanthrene	972	40.0	1,000	0	97.2	43.9	133				
Anthracene	1,380	40.0	1,000	0	138	42.5	157				
Fluoranthene	1,110	40.0	1,000	0	111	45.9	137				
Pyrene	1,140	40.0	1,000	0	114	46.2	137				
Benz(a)anthracene	996	40.0	1,000	0	99.6	41.2	141				
Chrysene	1,370	40.0	1,000	0	137	46.9	138				
Benzo(b)fluoranthene	918	40.0	1,000	0	91.8	41	155				
Benzo(k)fluoranthene	1,370	40.0	1,000	0	137	41.8	153				
Benzo(a)pyrene	1,110	40.0	1,000	0	111	30.2	171				
Indeno(1,2,3-cd)pyrene	1,240	40.0	1,000	0	124	31.3	159				
Dibenz(a,h)anthracene	1,220	40.0	1,000	0	122	28	158				
Benzo(g,h,i)perylene	1,200	40.0	1,000	0	120	32.4	144				
Surr: 2-Fluorobiphenyl	335		500.0		67.0	10	123				
Surr: Terphenyl-d14 (surr)	510		500.0		102	46.2	179				

Sample ID **1711027-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **BATCH** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	44.6						0		30	
2-Methylnaphthalene	ND	44.6						0		30	
1-Methylnaphthalene	ND	44.6						0		30	
Acenaphthylene	ND	44.6						0		30	
Acenaphthene	ND	44.6						0		30	
Fluorene	ND	44.6						0		30	
Phenanthrene	ND	44.6						0		30	
Anthracene	ND	44.6						0		30	
Fluoranthene	ND	44.6						0		30	

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711027-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **BATCH** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	44.6						0		30	
Benz(a)anthracene	ND	44.6						0		30	
Chrysene	ND	44.6						0		30	
Benzo(b)fluoranthene	ND	44.6						0		30	Q
Benzo(k)fluoranthene	ND	44.6						0		30	
Benzo(a)pyrene	ND	44.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	44.6						0		30	
Dibenz(a,h)anthracene	ND	44.6						0		30	
Benzo(g,h,i)perylene	ND	44.6						0		30	
Surr: 2-Fluorobiphenyl	150		557.5		27.0	10	123		0		
Surr: Terphenyl-d14 (surr)	552		557.5		99.0	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1711027-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **BATCH** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	865	44.5	1,112	0	77.8	42.9	138				
2-Methylnaphthalene	874	44.5	1,112	0	78.6	42.8	151				
1-Methylnaphthalene	885	44.5	1,112	0	79.6	41.6	148				
Acenaphthylene	884	44.5	1,112	0	79.5	32.6	160				
Acenaphthene	967	44.5	1,112	0	87.0	46.3	142				
Fluorene	871	44.5	1,112	0	78.3	43.4	153				
Phenanthrene	840	44.5	1,112	0	75.5	45.5	140				
Anthracene	1,220	44.5	1,112	0	109	32.6	160				
Fluoranthene	968	44.5	1,112	0	87.1	44.6	161				
Pyrene	1,000	44.5	1,112	0	90.1	48.3	158				
Benz(a)anthracene	891	44.5	1,112	0	80.2	34.9	139				
Chrysene	1,230	44.5	1,112	0	110	45.2	146				
Benzo(b)fluoranthene	784	44.5	1,112	0	70.5	42.2	168				

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711027-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **BATCH** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763800**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,260	44.5	1,112	0	114	34.8	147				
Benzo(a)pyrene	995	44.5	1,112	0	89.5	34.4	179				
Indeno(1,2,3-cd)pyrene	1,080	44.5	1,112	0	97.3	11.8	140				
Dibenz(a,h)anthracene	1,090	44.5	1,112	0	98.5	17.3	156				
Benzo(g,h,i)perylene	1,030	44.5	1,112	0	92.8	24.9	119				
Surr: 2-Fluorobiphenyl	358		555.9		64.5	10	123				
Surr: Terphenyl-d14 (surr)	468		555.9		84.2	46.2	179				

Sample ID **1711027-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **BATCH** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763801**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,080	45.3	1,133	0	95.0	42.9	138	865.4	21.8	30	
2-Methylnaphthalene	1,100	45.3	1,133	0	96.8	42.8	151	873.7	22.7	30	
1-Methylnaphthalene	1,050	45.3	1,133	0	92.7	41.6	148	885.3	17.1	30	
Acenaphthylene	1,110	45.3	1,133	0	97.5	32.6	160	884.2	22.2	30	
Acenaphthene	1,210	45.3	1,133	0	107	46.3	142	967.4	22.3	30	
Fluorene	1,070	45.3	1,133	0	94.4	43.4	153	871.0	20.5	30	
Phenanthrene	1,090	45.3	1,133	0	96.3	45.5	140	839.9	26.1	30	
Anthracene	1,540	45.3	1,133	0	136	32.6	160	1,217	23.3	30	
Fluoranthene	1,230	45.3	1,133	0	109	44.6	161	968.2	24.1	30	
Pyrene	1,260	45.3	1,133	0	112	48.3	158	1,002	23.1	30	
Benz(a)anthracene	1,120	45.3	1,133	0	99.0	34.9	139	891.2	22.9	30	
Chrysene	1,500	45.3	1,133	0	133	45.2	146	1,227	20.2	30	
Benzo(b)fluoranthene	878	45.3	1,133	0	77.5	42.2	168	783.6	11.4	30	
Benzo(k)fluoranthene	1,510	45.3	1,133	0	133	34.8	147	1,264	17.6	30	
Benzo(a)pyrene	1,220	45.3	1,133	0	108	34.4	179	995.1	20.7	30	
Indeno(1,2,3-cd)pyrene	1,390	45.3	1,133	0	123	11.8	140	1,082	25.1	30	
Dibenz(a,h)anthracene	1,390	45.3	1,133	0	123	17.3	156	1,095	23.8	30	
Benzo(g,h,i)perylene	1,280	45.3	1,133	0	113	24.9	119	1,032	21.8	30	

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711027-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/2/2017** RunNo: **39682**
Client ID: **BATCH** Batch ID: **18751** Analysis Date: **11/2/2017** SeqNo: **763801**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	469		566.6		82.8	10	123		0		
Surr: Terphenyl-d14 (surr)	580		566.6		102	46.2	179		0		

Work Order: 1711033
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711034-006ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/2/2017** RunNo: **39663**
Client ID: **BATCH** Batch ID: **R39663** Analysis Date: **11/2/2017** SeqNo: **763454**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.8	0.500						10.92	16.0	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711033**
Logged by:	**Clare Griggs**	Date Received:	**11/2/2017 1:24:00 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 ☐
	Samples received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	15.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/2/17 | Page: | of:

Laboratory Project No (internal): 711033

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	UST 3-E1959-18	11/2/17	1255	S						X	X							
2	UST 2-E2455-18	11/2/17	1310	S						X	X							
3	UST 3-E2557-18	11/2/17	1220	S						X	X							
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	11/2/17 1321	x	11/2/17 1324
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/2/17 | Page: | of:

Laboratory Project No (internal): 1711033

Project Name: Block 21

Special Remarks: Sample ID changes per C.D. 1/24/18 cw

Client: GEI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Telephone:

Report To (PM): Chris Brown

Fax:

PM Email: cbrown@geiengineers.com; chriscal@geiengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~UST-~~E1959-18	11/2/17	1255	S						X	X								
2	~~UST-~~E2455-18	11/2/17	1320	S						X	X								
3	~~UST-~~E2557-18	11/2/17	1220	S						X	X								
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	11/2/17 1321		
Relinquished	Date/Time	Received	Date/Time
x		x	11/2/17 1324

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711068

November 06, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 11/3/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Gasoline by NWTPH-Gx
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020
Volatile Organic Compounds by EPA Method 8260C

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
Laboratory Director

CC:
Callan Driscoll

Date: *11/06/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711068

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711068-001	UST3- Below-21	11/03/2017 12:30 PM	11/03/2017 2:50 PM

Case Narrative

WO#: **1711068**
Date: **11/6/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711068**
Date Reported: **11/6/2017**

Client: GeoEngineers
Collection Date: 11/3/2017 12:30:00 PM
Project: Block 21
Lab ID: 1711068-001
Matrix: Soil
Client Sample ID: **UST3- Below-21**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18775		Analyst: SB
Diesel (Fuel Oil)	ND	23.8		mg/Kg-dry	1	11/6/2017 10:22:51 AM
Heavy Oil	ND	59.5		mg/Kg-dry	1	11/6/2017 10:22:51 AM
Surr: 2-Fluorobiphenyl	86.1	50 - 150		%Rec	1	11/6/2017 10:22:51 AM
Surr: o-Terphenyl	95.4	50 - 150		%Rec	1	11/6/2017 10:22:51 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18783		Analyst: BT
Naphthalene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
2-Methylnaphthalene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
1-Methylnaphthalene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Acenaphthylene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Acenaphthene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Fluorene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Phenanthrene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Anthracene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Fluoranthene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Pyrene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Benz(a)anthracene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Chrysene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Benzo(b)fluoranthene	ND	46.0	Q	µg/Kg-dry	1	11/6/2017 6:51:11 PM
Benzo(j,k)fluoranthene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Benzo(a)pyrene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Indeno(1,2,3-cd)pyrene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Dibenz(a,h)anthracene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Benzo(g,h,i)perylene	ND	46.0		µg/Kg-dry	1	11/6/2017 6:51:11 PM
Surr: 2-Fluorobiphenyl	55.1	10 - 123		%Rec	1	11/6/2017 6:51:11 PM
Surr: Terphenyl-d14 (surr)	96.8	46.2 - 179		%Rec	1	11/6/2017 6:51:11 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Gasoline by NWTPH-Gx				Batch ID: 18773		Analyst: MW
Gasoline	ND	5.85		mg/Kg-dry	1	11/5/2017 8:15:50 AM
Surr: 4-Bromofluorobenzene	106	65 - 135		%Rec	1	11/5/2017 8:15:50 AM
Surr: Toluene-d8	99.0	65 - 135		%Rec	1	11/5/2017 8:15:50 AM

Analytical Report

Work Order: **1711068**
Date Reported: **11/6/2017**

Client: GeoEngineers
Collection Date: 11/3/2017 12:30:00 PM
Project: Block 21
Lab ID: 1711068-001
Matrix: Soil
Client Sample ID: **UST3- Below-21**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 18773		Analyst: MW
Benzene	ND	0.0234		mg/Kg-dry	1	11/5/2017 8:15:50 AM
Toluene	ND	0.0234		mg/Kg-dry	1	11/5/2017 8:15:50 AM
Ethylbenzene	ND	0.0293		mg/Kg-dry	1	11/5/2017 8:15:50 AM
m,p-Xylene	ND	0.0585		mg/Kg-dry	1	11/5/2017 8:15:50 AM
o-Xylene	ND	0.0293		mg/Kg-dry	1	11/5/2017 8:15:50 AM
Surr: Dibromofluoromethane	93.6	56.5 - 129		%Rec	1	11/5/2017 8:15:50 AM
Surr: Toluene-d8	112	64.5 - 151		%Rec	1	11/5/2017 8:15:50 AM
Surr: 1-Bromo-4-fluorobenzene	104	43.2 - 143		%Rec	1	11/5/2017 8:15:50 AM
Total Metals by EPA Method 6020				Batch ID: 18782		Analyst: TN
Lead	3.54	0.187		mg/Kg-dry	1	11/6/2017 3:08:46 PM
Sample Moisture (Percent Moisture)				Batch ID: R39727		Analyst: CO
Percent Moisture	18.2	0.500		wt%	1	11/6/2017 10:51:13 AM

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18775**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/3/2017**	RunNo: **39728**
Client ID: **MBLKS**	Batch ID: **18775**		Analysis Date: **11/3/2017**	SeqNo: **764706**

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	20.3		20.00		102	50	150				
Surr: o-Terphenyl	21.2		20.00		106	50	150				

Sample ID **LCS-18775**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/3/2017**	RunNo: **39728**
Client ID: **LCSS**	Batch ID: **18775**		Analysis Date: **11/3/2017**	SeqNo: **764707**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	575	20.0	500.0	0	115	65	135				
Surr: 2-Fluorobiphenyl	19.0		20.00		95.0	50	150				
Surr: o-Terphenyl	20.8		20.00		104	50	150				

Sample ID **1711067-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/3/2017**	RunNo: **39728**
Client ID: **BATCH**	Batch ID: **18775**		Analysis Date: **11/3/2017**	SeqNo: **764709**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	29.4						0		30	
Heavy Oil	ND	73.5						0		30	
Surr: 2-Fluorobiphenyl	33.3		29.38		113	50	150		0		
Surr: o-Terphenyl	34.3		29.38		117	50	150		0		

Sample ID **1711067-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/3/2017**	RunNo: **39728**
Client ID: **BATCH**	Batch ID: **18775**		Analysis Date: **11/3/2017**	SeqNo: **764710**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,200	29.3	733.1	11.50	162	65	135				S
Surr: 2-Fluorobiphenyl	40.6		29.32		138	50	150				
Surr: o-Terphenyl	44.0		29.32		150	50	150				S

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1711067-001AMS**	SampType:	**MS**		Units:	**mg/Kg-dry**	Prep Date:	**11/3/2017**	RunNo:	**39728**	
Client ID:	**BATCH**	Batch ID:	**18775**				Analysis Date:	**11/3/2017**	SeqNo:	**764710**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID	**1711067-001AMSD**	SampType:	**MSD**		Units:	**mg/Kg-dry**	Prep Date:	**11/3/2017**	RunNo:	**39728**	
Client ID:	**BATCH**	Batch ID:	**18775**				Analysis Date:	**11/3/2017**	SeqNo:	**764711**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,520	29.2	730.9	11.50	206	65	135	1,199	23.7	30	S
Surr: 2-Fluorobiphenyl	22.3		29.24		76.2	50	150		0		
Surr: o-Terphenyl	29.2		29.24		100	50	150		0		

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **MB-18773**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/3/2017**	RunNo: **39722**
Client ID: **MBLKS**	Batch ID: **18773**		Analysis Date: **11/5/2017**	SeqNo: **764566**

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	1.12		1.250		89.7	65	135				

Sample ID **LCS-18773**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/3/2017**	RunNo: **39722**
Client ID: **LCSS**	Batch ID: **18773**		Analysis Date: **11/5/2017**	SeqNo: **764565**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	31.2	5.00	25.00	0	125	65	135				
Surr: Toluene-d8	1.25		1.250		99.7	65	135				
Surr: 4-Bromofluorobenzene	1.23		1.250		98.4	65	135				

Sample ID **1711026-005BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/3/2017**	RunNo: **39722**
Client ID: **BATCH**	Batch ID: **18773**		Analysis Date: **11/5/2017**	SeqNo: **764557**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	ND	4.31						0		30	
Surr: Toluene-d8	1.11		1.076		103	65	135		0		
Surr: 4-Bromofluorobenzene	0.934		1.076		86.8	65	135		0		

Sample ID **1711067-006BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/3/2017**	RunNo: **39722**
Client ID: **BATCH**	Batch ID: **18773**		Analysis Date: **11/5/2017**	SeqNo: **764561**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	455	5.57						336.4	30.0	30	E
Surr: Toluene-d8	1.37		1.392		98.1	65	135		0		
Surr: 4-Bromofluorobenzene	1.54		1.392		111	65	135		0		

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Gasoline by NWTPH-Gx

Sample ID **1711067-003BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/3/2017** RunNo: **39722**
Client ID: **BATCH** Batch ID: **18773** Analysis Date: **11/5/2017** SeqNo: **764558**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	20.8	4.29	21.43	0	97.0	65	135				
Surr: Toluene-d8	1.07		1.071		99.9	65	135				
Surr: 4-Bromofluorobenzene	1.06		1.071		99.0	65	135				

Sample ID **1711067-003BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/3/2017** RunNo: **39722**
Client ID: **BATCH** Batch ID: **18773** Analysis Date: **11/5/2017** SeqNo: **764559**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gasoline	19.2	4.29	21.43	0	89.8	65	135	20.78	7.68	30	
Surr: Toluene-d8	1.08		1.071		101	65	135		0		
Surr: 4-Bromofluorobenzene	1.04		1.071		96.9	65	135		0		

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18783**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/6/2017**	RunNo: **39746**
Client ID: **MBLKS**	Batch ID: **18783**		Analysis Date: **11/6/2017**	SeqNo: **765115**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									Q
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	352		500.0		70.3	10	123				
Surr: Terphenyl-d14 (surr)	579		500.0		116	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18783**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/6/2017**	RunNo: **39746**
Client ID: **LCSS**	Batch ID: **18783**		Analysis Date: **11/6/2017**	SeqNo: **765116**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,040	40.0	1,000	0	104	46.4	125				
2-Methylnaphthalene	1,050	40.0	1,000	0	105	45.1	135				
1-Methylnaphthalene	1,040	40.0	1,000	0	104	46.2	133				
Acenaphthylene	1,060	40.0	1,000	0	106	32.8	136				

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18783** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **LCSS** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765116**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,140	40.0	1,000	0	114	38.7	129				
Fluorene	1,030	40.0	1,000	0	103	41.4	144				
Phenanthrene	1,060	40.0	1,000	0	106	43.9	133				
Anthracene	1,500	40.0	1,000	0	150	42.5	157				
Fluoranthene	1,180	40.0	1,000	0	118	45.9	137				
Pyrene	1,220	40.0	1,000	0	122	46.2	137				
Benz(a)anthracene	1,050	40.0	1,000	0	105	41.2	141				
Chrysene	1,550	40.0	1,000	0	155	46.9	138				S
Benzo(b)fluoranthene	884	40.0	1,000	0	88.4	41	155				
Benzo(j,k)fluoranthene	1,600	40.0	1,000	0	160	41.8	153				S
Benzo(a)pyrene	1,200	40.0	1,000	0	120	30.2	171				
Indeno(1,2,3-cd)pyrene	1,350	40.0	1,000	0	135	31.3	159				
Dibenz(a,h)anthracene	1,180	40.0	1,000	0	118	28	158				
Benzo(g,h,i)perylene	1,250	40.0	1,000	0	125	32.4	144				
Surr: 2-Fluorobiphenyl	385		500.0		77.1	10	123				
Surr: Terphenyl-d14 (surr)	500		500.0		100	46.2	179				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711026-006ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/6/2017**		RunNo: **39727**	
Client ID: **BATCH**	Batch ID: **R39727**						Analysis Date: **11/6/2017**		SeqNo: **764682**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	3.90	0.500						3.652	6.64	20	

Sample ID **1711068-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/6/2017**		RunNo: **39727**	
Client ID: **UST3- Below-21**	Batch ID: **R39727**						Analysis Date: **11/6/2017**		SeqNo: **764700**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	18.1	0.500						18.20	0.674	20	

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID	**MB-18782**	SampType:	**MBLK**			Units:	**mg/Kg**	Prep Date:	**11/6/2017**		RunNo:	**39741**	
Client ID:	**MBLKS**	Batch ID:	**18782**					Analysis Date:	**11/6/2017**		SeqNo:	**764971**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		ND	0.155										

Sample ID	**LCS-18782**	SampType:	**LCS**			Units:	**mg/Kg**	Prep Date:	**11/6/2017**		RunNo:	**39741**	
Client ID:	**LCSS**	Batch ID:	**18782**					Analysis Date:	**11/6/2017**		SeqNo:	**764972**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		20.6	0.161	20.16	0	102	80	120					

Sample ID	**1711067-004ADUP**	SampType:	**DUP**			Units:	**mg/Kg-dry**	Prep Date:	**11/6/2017**		RunNo:	**39741**	
Client ID:	**BATCH**	Batch ID:	**18782**					Analysis Date:	**11/6/2017**		SeqNo:	**764974**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		7.62	0.170						7.988	4.72	20		

Sample ID	**1711067-004AMS**	SampType:	**MS**			Units:	**mg/Kg-dry**	Prep Date:	**11/6/2017**		RunNo:	**39741**	
Client ID:	**BATCH**	Batch ID:	**18782**					Analysis Date:	**11/6/2017**		SeqNo:	**764978**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		28.6	0.170	21.21	7.988	97.3	75	125					

Sample ID	**1711067-004AMSD**	SampType:	**MSD**			Units:	**mg/Kg-dry**	Prep Date:	**11/6/2017**		RunNo:	**39741**	
Client ID:	**BATCH**	Batch ID:	**18782**					Analysis Date:	**11/6/2017**		SeqNo:	**764979**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Lead		26.4	0.170	21.21	7.988	86.9	75	125	28.62	8.02	20		

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-18773** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/3/2017** RunNo: **39721**
Client ID: **LCSS** Batch ID: **18773** Analysis Date: **11/5/2017** SeqNo: **764549**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	1.07	0.0200	1.000	0	107	64.3	133				
Toluene	1.10	0.0200	1.000	0	110	67.3	138				
Ethylbenzene	1.29	0.0250	1.000	0	129	74	129				
m,p-Xylene	2.31	0.0500	2.000	0	116	70	124				
o-Xylene	1.15	0.0250	1.000	0	115	68.1	139				
Surr: Dibromofluoromethane	1.17		1.250		93.6	56.5	129				
Surr: Toluene-d8	1.19		1.250		95.2	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.31		1.250		105	43.2	143				

Sample ID **MB-18773** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/3/2017** RunNo: **39721**
Client ID: **MBLKS** Batch ID: **18773** Analysis Date: **11/5/2017** SeqNo: **764550**

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	0.0250									
m,p-Xylene	ND	0.0500									
o-Xylene	ND	0.0250									
Surr: Dibromofluoromethane	1.15		1.250		92.0	56.5	129				
Surr: Toluene-d8	1.24		1.250		98.9	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.13		1.250		90.0	43.2	143				

Sample ID **1711026-005BDUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/3/2017** RunNo: **39721**
Client ID: **BATCH** Batch ID: **18773** Analysis Date: **11/5/2017** SeqNo: **764536**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0172						0		30	
Toluene	ND	0.0172						0		30	
Ethylbenzene	ND	0.0215						0		30	
m,p-Xylene	ND	0.0431						0		30	

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1711026-005BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/3/2017**	RunNo: **39721**
Client ID: **BATCH**	Batch ID: **18773**		Analysis Date: **11/5/2017**	SeqNo: **764536**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene	ND	0.0215						0		30	
Surr: Dibromofluoromethane	0.909		1.076		84.5	56.5	129		0		
Surr: Toluene-d8	1.04		1.076		96.8	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	0.913		1.076		84.8	43.2	143		0		

Sample ID **1711067-006BDUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/3/2017**	RunNo: **39721**
Client ID: **BATCH**	Batch ID: **18773**		Analysis Date: **11/5/2017**	SeqNo: **764545**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	0.0223						0		30	
Toluene	ND	0.0223						0		30	
Ethylbenzene	ND	0.0278						0		30	
m,p-Xylene	ND	0.0557						0		30	
o-Xylene	ND	0.0278						0		30	
Surr: Dibromofluoromethane	1.10		1.392		79.3	56.5	129		0		
Surr: Toluene-d8	1.30		1.392		93.2	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.42		1.392		102	43.2	143		0		

Sample ID **1711026-007BMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/3/2017**	RunNo: **39721**
Client ID: **BATCH**	Batch ID: **18773**		Analysis Date: **11/5/2017**	SeqNo: **764539**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.903	0.0195	0.9772	0	92.4	63.5	133				
Toluene	0.890	0.0195	0.9772	0	91.0	63.4	132				
Ethylbenzene	0.914	0.0244	0.9772	0	93.5	54.5	134				
m,p-Xylene	1.72	0.0489	1.954	0	88.2	53.1	132				
o-Xylene	0.891	0.0244	0.9772	0	91.1	53.3	139				
Surr: Dibromofluoromethane	1.15		1.221		94.5	56.5	129				
Surr: Toluene-d8	1.21		1.221		99.0	64.5	151				
Surr: 1-Bromo-4-fluorobenzene	1.23		1.221		101	43.2	143				

Work Order: 1711068
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1711026-007BMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/3/2017** RunNo: **39721**
Client ID: **BATCH** Batch ID: **18773** Analysis Date: **11/5/2017** SeqNo: **764539**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1711026-007BMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/3/2017** RunNo: **39721**
Client ID: **BATCH** Batch ID: **18773** Analysis Date: **11/5/2017** SeqNo: **764540**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.853	0.0195	0.9772	0	87.3	63.5	133	0.9026	5.62	30	
Toluene	0.831	0.0195	0.9772	0	85.0	63.4	132	0.8896	6.85	30	
Ethylbenzene	0.834	0.0244	0.9772	0	85.4	54.5	134	0.9141	9.14	30	
m,p-Xylene	1.60	0.0489	1.954	0	81.9	53.1	132	1.724	7.42	30	
o-Xylene	0.832	0.0244	0.9772	0	85.1	53.3	139	0.8906	6.79	30	
Surr: Dibromofluoromethane	1.16		1.221		94.9	56.5	129		0		
Surr: Toluene-d8	1.20		1.221		98.5	64.5	151		0		
Surr: 1-Bromo-4-fluorobenzene	1.23		1.221		100	43.2	143		0		

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711068**
Logged by:	**Brianna Barnes**	Date Received:	**11/3/2017 2:50:00 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 ☐
		Received straight from field		
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 ☐
			MeOH VOA extracted for 001B	
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	17.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/3/17 Page: 1 of: 1

Project Name: Block 21

Project No: see previous report

Collected by: CMD

Location:

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com, cdriscoll@geoengineers.com

Laboratory Project No (internal): 17110688

Special Remarks:

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	UST3-Below-21	11/3/17	1230	S		X			X		X		X				
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

mst lead

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	11/3/17 1450	x Casey Olm	11/3/17 1450
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711085

November 07, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 11/6/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711085

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711085-001	E21S2-19	11/06/2017 10:00 AM	11/06/2017 2:40 PM
1711085-002	E28S4-20	11/06/2017 12:15 PM	11/06/2017 2:40 PM
1711085-003	E26S4-20	11/06/2017 1:00 PM	11/06/2017 2:40 PM
1711085-004	E26S3-20	11/06/2017 1:30 PM	11/06/2017 2:40 PM

Case Narrative

WO#: **1711085**
Date: **11/7/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711085**
Date Reported: **11/7/2017**

Client: GeoEngineers
Collection Date: 11/6/2017 10:00:00 AM
Project: Block 21
Lab ID: 1711085-001
Matrix: Soil
Client Sample ID: **E21S2-19**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18797		Analyst: SB
Diesel (Fuel Oil)	123	24.3		mg/Kg-dry	1	11/6/2017 6:16:25 PM
Heavy Oil	ND	60.7		mg/Kg-dry	1	11/6/2017 6:16:25 PM
Surr: 2-Fluorobiphenyl	99.9	50 - 150		%Rec	1	11/6/2017 6:16:25 PM
Surr: o-Terphenyl	101	50 - 150		%Rec	1	11/6/2017 6:16:25 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18783		Analyst: BT
Naphthalene	152	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
2-Methylnaphthalene	543	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
1-Methylnaphthalene	567	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Acenaphthylene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Acenaphthene	95.2	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Fluorene	144	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Phenanthrene	447	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Anthracene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Fluoranthene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Pyrene	49.5	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Benz(a)anthracene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Chrysene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Benzo(b)fluoranthene	ND	44.6	Q	µg/Kg-dry	1	11/6/2017 9:01:37 PM
Benzo(k)fluoranthene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Benzo(a)pyrene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Indeno(1,2,3-cd)pyrene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Dibenz(a,h)anthracene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Benzo(g,h,i)perylene	ND	44.6		µg/Kg-dry	1	11/6/2017 9:01:37 PM
Surr: 2-Fluorobiphenyl	87.1	10 - 123		%Rec	1	11/6/2017 9:01:37 PM
Surr: Terphenyl-d14 (surr)	87.9	46.2 - 179		%Rec	1	11/6/2017 9:01:37 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39738		Analyst: CO
Percent Moisture	19.5	0.500		wt%	1	11/6/2017 3:39:56 PM

Analytical Report

Work Order: **1711085**
Date Reported: **11/7/2017**

Client: GeoEngineers
Collection Date: 11/6/2017 12:15:00 PM
Project: Block 21
Lab ID: 1711085-002
Matrix: Soil
Client Sample ID: **E28S4-20**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18797		Analyst: SB
Diesel (Fuel Oil)	ND	21.4		mg/Kg-dry	1	11/6/2017 8:14:16 PM
Heavy Oil	ND	53.4		mg/Kg-dry	1	11/6/2017 8:14:16 PM
Surr: 2-Fluorobiphenyl	75.1	50 - 150		%Rec	1	11/6/2017 8:14:16 PM
Surr: o-Terphenyl	83.0	50 - 150		%Rec	1	11/6/2017 8:14:16 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18783		Analyst: BT
Naphthalene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
2-Methylnaphthalene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
1-Methylnaphthalene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Acenaphthylene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Acenaphthene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Fluorene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Phenanthrene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Anthracene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Fluoranthene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Pyrene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Benz(a)anthracene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Chrysene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Benzo(b)fluoranthene	ND	43.4	Q	µg/Kg-dry	1	11/6/2017 9:23:15 PM
Benzo(k)fluoranthene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Benzo(a)pyrene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Indeno(1,2,3-cd)pyrene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Dibenz(a,h)anthracene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Benzo(g,h,i)perylene	ND	43.4		µg/Kg-dry	1	11/6/2017 9:23:15 PM
Surr: 2-Fluorobiphenyl	81.0	10 - 123		%Rec	1	11/6/2017 9:23:15 PM
Surr: Terphenyl-d14 (surr)	83.3	46.2 - 179		%Rec	1	11/6/2017 9:23:15 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39738		Analyst: CO
Percent Moisture	16.9	0.500		wt%	1	11/6/2017 3:39:56 PM

Analytical Report

Work Order: **1711085**
Date Reported: **11/7/2017**

Client: GeoEngineers
Collection Date: 11/6/2017 1:00:00 PM
Project: Block 21
Lab ID: 1711085-003
Matrix: Soil
Client Sample ID: **E26S4-20**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18797		Analyst: SB
Diesel (Fuel Oil)	ND	23.3		mg/Kg-dry	1	11/6/2017 9:12:56 PM
Heavy Oil	ND	58.2		mg/Kg-dry	1	11/6/2017 9:12:56 PM
Surr: 2-Fluorobiphenyl	80.2	50 - 150		%Rec	1	11/6/2017 9:12:56 PM
Surr: o-Terphenyl	87.8	50 - 150		%Rec	1	11/6/2017 9:12:56 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18783		Analyst: BT
Naphthalene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
2-Methylnaphthalene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
1-Methylnaphthalene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Acenaphthylene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Acenaphthene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Fluorene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Phenanthrene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Anthracene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Fluoranthene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Pyrene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Benz(a)anthracene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Chrysene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Benzo(b)fluoranthene	ND	40.5	Q	µg/Kg-dry	1	11/6/2017 9:44:54 PM
Benzo(k)fluoranthene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Benzo(a)pyrene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Indeno(1,2,3-cd)pyrene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Dibenz(a,h)anthracene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Benzo(g,h,i)perylene	ND	40.5		µg/Kg-dry	1	11/6/2017 9:44:54 PM
Surr: 2-Fluorobiphenyl	94.2	10 - 123		%Rec	1	11/6/2017 9:44:54 PM
Surr: Terphenyl-d14 (surr)	92.6	46.2 - 179		%Rec	1	11/6/2017 9:44:54 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39738		Analyst: CO
Percent Moisture	15.7	0.500		wt%	1	11/6/2017 3:39:56 PM

Analytical Report

Work Order: **1711085**
Date Reported: **11/7/2017**

Client: GeoEngineers
Collection Date: 11/6/2017 1:30:00 PM
Project: Block 21
Lab ID: 1711085-004
Matrix: Soil
Client Sample ID: **E26S3-20**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18797		Analyst: SB
Diesel (Fuel Oil)	ND	25.0		mg/Kg-dry	1	11/6/2017 10:11:35 PM
Heavy Oil	ND	62.4		mg/Kg-dry	1	11/6/2017 10:11:35 PM
Surr: 2-Fluorobiphenyl	74.9	50 - 150		%Rec	1	11/6/2017 10:11:35 PM
Surr: o-Terphenyl	83.3	50 - 150		%Rec	1	11/6/2017 10:11:35 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18783		Analyst: BT
Naphthalene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
2-Methylnaphthalene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
1-Methylnaphthalene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Acenaphthylene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Acenaphthene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Fluorene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Phenanthrene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Anthracene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Fluoranthene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Pyrene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Benz(a)anthracene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Chrysene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Benzo(b)fluoranthene	ND	48.5	Q	µg/Kg-dry	1	11/6/2017 10:06:38 PM
Benzo(k)fluoranthene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Benzo(a)pyrene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Indeno(1,2,3-cd)pyrene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Dibenz(a,h)anthracene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Benzo(g,h,i)perylene	ND	48.5		µg/Kg-dry	1	11/6/2017 10:06:38 PM
Surr: 2-Fluorobiphenyl	83.2	10 - 123		%Rec	1	11/6/2017 10:06:38 PM
Surr: Terphenyl-d14 (surr)	78.5	46.2 - 179		%Rec	1	11/6/2017 10:06:38 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39738		Analyst: CO
Percent Moisture	21.6	0.500		wt%	1	11/6/2017 3:39:56 PM

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18797**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/6/2017**	RunNo: **39748**
Client ID: **MBLKS**	Batch ID: **18797**		Analysis Date: **11/6/2017**	SeqNo: **765132**

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	17.8		20.00		88.9	50	150				
Surr: o-Terphenyl	19.1		20.00		95.6	50	150				

Sample ID **LCS-18797**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/6/2017**	RunNo: **39748**
Client ID: **LCSS**	Batch ID: **18797**		Analysis Date: **11/6/2017**	SeqNo: **765133**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	568	20.0	500.0	0	114	65	135				
Surr: 2-Fluorobiphenyl	20.1		20.00		100	50	150				
Surr: o-Terphenyl	22.4		20.00		112	50	150				

Sample ID **1711085-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/6/2017**	RunNo: **39748**
Client ID: **E21S2-19**	Batch ID: **18797**		Analysis Date: **11/6/2017**	SeqNo: **765135**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	168	24.1						122.9	30.8	30	R
Heavy Oil	ND	60.4						0		30	
Surr: 2-Fluorobiphenyl	21.9		24.14		90.8	50	150		0		
Surr: o-Terphenyl	22.0		24.14		91.2	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1711085-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/6/2017**	RunNo: **39748**
Client ID: **E21S2-19**	Batch ID: **18797**		Analysis Date: **11/6/2017**	SeqNo: **765136**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,290	21.0	525.9	122.9	223	65	135				S
Surr: 2-Fluorobiphenyl	22.1		21.04		105	50	150				

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711085-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39748**
Client ID: **E21S2-19** Batch ID: **18797** Analysis Date: **11/6/2017** SeqNo: **765136**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	23.2		21.04		110	50	150				

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Sample ID **1711085-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39748**
Client ID: **E21S2-19** Batch ID: **18797** Analysis Date: **11/6/2017** SeqNo: **765137**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	1,670	22.3	557.0	122.9	278	65	135	1,293	25.4	30	S
Surr: 2-Fluorobiphenyl	24.0		22.28		108	50	150		0		
Surr: o-Terphenyl	26.1		22.28		117	50	150		0		

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18783**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/6/2017**	RunNo: **39746**
Client ID: **MBLKS**	Batch ID: **18783**		Analysis Date: **11/6/2017**	SeqNo: **765115**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									Q
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	352		500.0		70.3	10	123				
Surr: Terphenyl-d14 (surr)	579		500.0		116	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18783**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/6/2017**	RunNo: **39746**
Client ID: **LCSS**	Batch ID: **18783**		Analysis Date: **11/6/2017**	SeqNo: **765116**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,040	40.0	1,000	0	104	46.4	125				
2-Methylnaphthalene	1,050	40.0	1,000	0	105	45.1	135				
1-Methylnaphthalene	1,040	40.0	1,000	0	104	46.2	133				
Acenaphthylene	1,060	40.0	1,000	0	106	32.8	136				

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18783** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **LCSS** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765116**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,140	40.0	1,000	0	114	38.7	129				
Fluorene	1,030	40.0	1,000	0	103	41.4	144				
Phenanthrene	1,060	40.0	1,000	0	106	43.9	133				
Anthracene	1,500	40.0	1,000	0	150	42.5	157				
Fluoranthene	1,180	40.0	1,000	0	118	45.9	137				
Pyrene	1,220	40.0	1,000	0	122	46.2	137				
Benz(a)anthracene	1,050	40.0	1,000	0	105	41.2	141				
Chrysene	1,550	40.0	1,000	0	155	46.9	138				S
Benzo(b)fluoranthene	884	40.0	1,000	0	88.4	41	155				
Benzo(k)fluoranthene	1,600	40.0	1,000	0	160	41.8	153				S
Benzo(a)pyrene	1,200	40.0	1,000	0	120	30.2	171				
Indeno(1,2,3-cd)pyrene	1,350	40.0	1,000	0	135	31.3	159				
Dibenz(a,h)anthracene	1,180	40.0	1,000	0	118	28	158				
Benzo(g,h,i)perylene	1,250	40.0	1,000	0	125	32.4	144				
Surr: 2-Fluorobiphenyl	385		500.0		77.1	10	123				
Surr: Terphenyl-d14 (surr)	500		500.0		100	46.2	179				

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Sample ID **1711067-004ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **BATCH** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765349**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	39.9						0		30	
2-Methylnaphthalene	ND	39.9						0		30	
1-Methylnaphthalene	ND	39.9						0		30	
Acenaphthylene	ND	39.9						0		30	
Acenaphthene	ND	39.9						0		30	
Fluorene	ND	39.9						0		30	
Phenanthrene	ND	39.9						0		30	
Anthracene	ND	39.9						0		30	

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711067-004ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **BATCH** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765349**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoranthene	ND	39.9						0		30	
Pyrene	57.0	39.9						38.56	38.5	30	
Benz(a)anthracene	ND	39.9						0		30	
Chrysene	ND	39.9						0		30	
Benzo(b)fluoranthene	ND	39.9						0		30	Q
Benzo(k)fluoranthene	ND	39.9						0		30	
Benzo(a)pyrene	ND	39.9						0		30	
Indeno(1,2,3-cd)pyrene	ND	39.9						0		30	
Dibenz(a,h)anthracene	ND	39.9						0		30	
Benzo(g,h,i)perylene	ND	39.9						0		30	
Surr: 2-Fluorobiphenyl	394		499.2		78.9	10	123		0		
Surr: Terphenyl-d14 (surr)	493		499.2		98.7	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1711067-004AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **BATCH** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765350**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	995	40.2	1,004	0	99.1	42.9	138				
2-Methylnaphthalene	1,030	40.2	1,004	0	102	42.8	151				
1-Methylnaphthalene	1,020	40.2	1,004	0	101	41.6	148				
Acenaphthylene	1,050	40.2	1,004	0	105	32.6	160				
Acenaphthene	1,150	40.2	1,004	0	115	46.3	142				
Fluorene	1,020	40.2	1,004	3.317	101	43.4	153				
Phenanthrene	1,100	40.2	1,004	0	109	45.5	140				
Anthracene	1,240	40.2	1,004	0	123	32.6	160				
Fluoranthene	1,220	40.2	1,004	0	122	44.6	161				
Pyrene	1,220	40.2	1,004	38.56	117	48.3	158				
Benz(a)anthracene	1,020	40.2	1,004	0	102	34.9	139				
Chrysene	1,300	40.2	1,004	0	130	45.2	146				

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711067-004AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **BATCH** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765350**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	1,070	40.2	1,004	0	106	42.2	168				
Benzo(k)fluoranthene	1,130	40.2	1,004	0	112	34.8	147				
Benzo(a)pyrene	1,130	40.2	1,004	0	112	34.4	179				
Indeno(1,2,3-cd)pyrene	847	40.2	1,004	7.562	83.6	11.8	140				
Dibenz(a,h)anthracene	860	40.2	1,004	10.19	84.7	17.3	156				
Benzo(g,h,i)perylene	753	40.2	1,004	29.98	72.0	24.9	119				
Surr: 2-Fluorobiphenyl	422		502.1		84.1	10	123				
Surr: Terphenyl-d14 (surr)	489		502.1		97.5	46.2	179				

Sample ID **1711067-004AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **BATCH** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765351**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,080	39.7	992.8	0	109	42.9	138	995.2	7.93	30	
2-Methylnaphthalene	1,070	39.7	992.8	0	107	42.8	151	1,027	3.67	30	
1-Methylnaphthalene	1,090	39.7	992.8	0	110	41.6	148	1,015	7.43	30	
Acenaphthylene	1,130	39.7	992.8	0	114	32.6	160	1,053	6.97	30	
Acenaphthene	1,230	39.7	992.8	0	124	46.3	142	1,153	6.11	30	
Fluorene	1,110	39.7	992.8	3.317	111	43.4	153	1,020	8.09	30	
Phenanthrene	1,220	39.7	992.8	0	123	45.5	140	1,097	10.4	30	
Anthracene	1,330	39.7	992.8	0	134	32.6	160	1,237	7.60	30	
Fluoranthene	1,310	39.7	992.8	0	132	44.6	161	1,223	6.76	30	
Pyrene	1,340	39.7	992.8	38.56	131	48.3	158	1,217	9.61	30	
Benz(a)anthracene	1,110	39.7	992.8	0	112	34.9	139	1,022	8.64	30	
Chrysene	1,360	39.7	992.8	0	137	45.2	146	1,305	4.46	30	
Benzo(b)fluoranthene	1,180	39.7	992.8	0	119	42.2	168	1,068	10.3	30	
Benzo(k)fluoranthene	1,310	39.7	992.8	0	132	34.8	147	1,128	15.0	30	
Benzo(a)pyrene	1,170	39.7	992.8	0	118	34.4	179	1,128	3.93	30	
Indeno(1,2,3-cd)pyrene	917	39.7	992.8	7.562	91.6	11.8	140	847.0	7.90	30	
Dibenz(a,h)anthracene	939	39.7	992.8	10.19	93.5	17.3	156	860.4	8.69	30	

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711067-004AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/6/2017** RunNo: **39746**
Client ID: **BATCH** Batch ID: **18783** Analysis Date: **11/6/2017** SeqNo: **765351**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	808	39.7	992.8	29.98	78.4	24.9	119	752.8	7.11	30	
Surr: 2-Fluorobiphenyl	475		496.4		95.7	10	123		0		
Surr: Terphenyl-d14 (surr)	507		496.4		102	46.2	179		0		

Work Order: 1711085
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711077-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/6/2017**		RunNo: **39738**	
Client ID: **BATCH**	Batch ID: **R39738**						Analysis Date: **11/6/2017**		SeqNo: **764938**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	18.6	0.500						18.96	1.74	20	

Sample ID **1711085-004ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/6/2017**		RunNo: **39738**	
Client ID: **E26S3-20**	Batch ID: **R39738**						Analysis Date: **11/6/2017**		SeqNo: **764951**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	21.3	0.500						21.57	1.43	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711085**
Logged by:	**Brianna Barnes**	Date Received:	**11/6/2017 2:40:00 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 ☐
		No cooler present		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	13.4

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 11/6/17 Page: 1 of: 1

Laboratory Project No (internal): 1711085

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~Blank~~																	
2	US72-E2152-19	11/6/17	1000	S						X		X						
3	US72-E2854-20	"	1215	"						X		X						
4	US72-E2654-20	"	1300	"						X		X						
5	US72-E2653-20	"	1330	"						X		X						
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/6/17, 1440	x [signature]	11/6/17 1440
Relinquished	Date/Time	Received	Date/Time
x		x	

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 11/6/17 Page: 1 of: 1

Laboratory Project No (internal): 1711085

Project Name: Block 21

Special Remarks: Sample ID changes per C.D. 1/24/18 cw

Client: GEI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~Blank~~																	
2	~~US72~~-S2152-19	11/6/17	1000	S						X	X							
3	~~US-2~~-S2854-20	"	1215	"						X	X							
4	~~US72~~-S2654-20	"	1300	"						X	X							
5	~~US72~~-S2653-20	"	1330	"						X	X							
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day ____ (specify)

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/6/17; 1440	[signature] Casey O'Neel	11/6/17 1440
Relinquished x	Date/Time	Received x	Date/Time

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711096

November 08, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 11/7/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711096

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711096-001	E23S12-19	11/07/2017 9:45 AM	11/07/2017 11:20 AM
1711096-002	E28S2-20	11/07/2017 9:00 AM	11/07/2017 11:20 AM
1711096-003	E21S11-18	11/07/2017 10:30 AM	11/07/2017 11:20 AM
1711096-004	SC-E3N20	11/07/2017 8:45 AM	11/07/2017 11:20 AM

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

Case Narrative

WO#: **1711096**
Date: **11/8/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711096**
Date Reported: **11/8/2017**

Client: GeoEngineers
Collection Date: 11/7/2017 9:45:00 AM
Project: Block 21
Lab ID: 1711096-001
Matrix: Soil
Client Sample ID: **E23S12-19**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18806		Analyst: SB
Diesel (Fuel Oil)	ND	24.7		mg/Kg-dry	1	11/7/2017 7:11:14 PM
Heavy Oil	ND	61.7		mg/Kg-dry	1	11/7/2017 7:11:14 PM
Surr: 2-Fluorobiphenyl	129	50 - 150		%Rec	1	11/7/2017 7:11:14 PM
Surr: o-Terphenyl	134	50 - 150		%Rec	1	11/7/2017 7:11:14 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18805		Analyst: SG
Naphthalene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
2-Methylnaphthalene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
1-Methylnaphthalene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Acenaphthylene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Acenaphthene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Fluorene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Phenanthrene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Anthracene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Fluoranthene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Pyrene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Benz(a)anthracene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Chrysene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Benzo(b)fluoranthene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Benzo(k)fluoranthene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Benzo(a)pyrene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Indeno(1,2,3-cd)pyrene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Dibenz(a,h)anthracene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Benzo(g,h,i)perylene	ND	46.2		µg/Kg-dry	1	11/8/2017 2:05:19 AM
Surr: 2-Fluorobiphenyl	52.4	10 - 123		%Rec	1	11/8/2017 2:05:19 AM
Surr: Terphenyl-d14 (surr)	85.2	46.2 - 179		%Rec	1	11/8/2017 2:05:19 AM
Sample Moisture (Percent Moisture)				Batch ID: R39755		Analyst: CG
Percent Moisture	20.1	0.500		wt%	1	11/7/2017 12:45:35 PM

Analytical Report

Work Order: **1711096**
Date Reported: **11/8/2017**

Client: GeoEngineers
Collection Date: 11/7/2017 9:00:00 AM
Project: Block 21
Lab ID: 1711096-002
Matrix: Soil
Client Sample ID: **E28S2-20**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18806		Analyst: SB
Diesel (Fuel Oil)	ND	21.7		mg/Kg-dry	1	11/7/2017 7:40:44 PM
Heavy Oil	ND	54.2		mg/Kg-dry	1	11/7/2017 7:40:44 PM
Surr: 2-Fluorobiphenyl	85.5	50 - 150		%Rec	1	11/7/2017 7:40:44 PM
Surr: o-Terphenyl	96.1	50 - 150		%Rec	1	11/7/2017 7:40:44 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18805		Analyst: SG
Naphthalene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
2-Methylnaphthalene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
1-Methylnaphthalene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Acenaphthylene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Acenaphthene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Fluorene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Phenanthrene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Anthracene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Fluoranthene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Pyrene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Benz(a)anthracene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Chrysene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Benzo(b)fluoranthene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Benzo(k)fluoranthene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Benzo(a)pyrene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Indeno(1,2,3-cd)pyrene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Dibenz(a,h)anthracene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Benzo(g,h,i)perylene	ND	44.5		µg/Kg-dry	1	11/8/2017 3:32:24 AM
Surr: 2-Fluorobiphenyl	83.2	10 - 123		%Rec	1	11/8/2017 3:32:24 AM
Surr: Terphenyl-d14 (surr)	84.6	46.2 - 179		%Rec	1	11/8/2017 3:32:24 AM
Sample Moisture (Percent Moisture)				Batch ID: R39755		Analyst: CG
Percent Moisture	12.0	0.500		wt%	1	11/7/2017 12:45:35 PM

Analytical Report

Work Order: **1711096**
Date Reported: **11/8/2017**

Client: GeoEngineers
Collection Date: 11/7/2017 10:30:00 AM
Project: Block 21
Lab ID: 1711096-003
Matrix: Soil
Client Sample ID: **E21S11-18**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18806		Analyst: SB
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	11/7/2017 5:13:06 PM
Heavy Oil	ND	51.8		mg/Kg-dry	1	11/7/2017 5:13:06 PM
Surr: 2-Fluorobiphenyl	88.1	50 - 150		%Rec	1	11/7/2017 5:13:06 PM
Surr: o-Terphenyl	96.3	50 - 150		%Rec	1	11/7/2017 5:13:06 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18805		Analyst: SG
Naphthalene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
2-Methylnaphthalene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
1-Methylnaphthalene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Acenaphthylene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Acenaphthene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Fluorene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Phenanthrene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Anthracene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Fluoranthene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Pyrene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Benz(a)anthracene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Chrysene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Benzo(b)fluoranthene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Benzo(k)fluoranthene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Benzo(a)pyrene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Indeno(1,2,3-cd)pyrene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Dibenz(a,h)anthracene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Benzo(g,h,i)perylene	ND	40.1		µg/Kg-dry	1	11/8/2017 3:54:12 AM
Surr: 2-Fluorobiphenyl	86.5	10 - 123		%Rec	1	11/8/2017 3:54:12 AM
Surr: Terphenyl-d14 (surr)	90.8	46.2 - 179		%Rec	1	11/8/2017 3:54:12 AM
Sample Moisture (Percent Moisture)				Batch ID: R39755		Analyst: CG
Percent Moisture	9.50	0.500		wt%	1	11/7/2017 12:45:35 PM

Analytical Report

Work Order: **1711096**
Date Reported: **11/8/2017**

Client: GeoEngineers
Collection Date: 11/7/2017 8:45:00 AM
Project: Block 21
Lab ID: 1711096-004
Matrix: Soil
Client Sample ID: **SC-E3N20**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18806		Analyst: SB
Diesel (Fuel Oil)	ND	22.3		mg/Kg-dry	1	11/7/2017 3:14:08 PM
Heavy Oil	252	55.8		mg/Kg-dry	1	11/7/2017 3:14:08 PM
Surr: 2-Fluorobiphenyl	85.4	50 - 150		%Rec	1	11/7/2017 3:14:08 PM
Surr: o-Terphenyl	96.7	50 - 150		%Rec	1	11/7/2017 3:14:08 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18805		Analyst: SG
Naphthalene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
2-Methylnaphthalene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
1-Methylnaphthalene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Acenaphthylene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Acenaphthene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Fluorene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Phenanthrene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Anthracene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Fluoranthene	75.4	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Pyrene	75.1	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Benz(a)anthracene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Chrysene	62.8	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Benzo(b)fluoranthene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Benzo(k)fluoranthene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Benzo(a)pyrene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Indeno(1,2,3-cd)pyrene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Dibenz(a,h)anthracene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Benzo(g,h,i)perylene	ND	45.1		µg/Kg-dry	1	11/8/2017 4:15:59 AM
Surr: 2-Fluorobiphenyl	75.8	10 - 123		%Rec	1	11/8/2017 4:15:59 AM
Surr: Terphenyl-d14 (surr)	92.8	46.2 - 179		%Rec	1	11/8/2017 4:15:59 AM
Sample Moisture (Percent Moisture)				Batch ID: R39755		Analyst: CG
Percent Moisture	18.4	0.500		wt%	1	11/7/2017 12:45:35 PM

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18806**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/7/2017**	RunNo: **39790**
Client ID: **MBLKS**	Batch ID: **18806**		Analysis Date: **11/7/2017**	SeqNo: **765810**

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	17.7		20.00		88.3	50	150				
Surr: o-Terphenyl	19.8		20.00		99.0	50	150				

Sample ID **LCS-18806**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/7/2017**	RunNo: **39790**
Client ID: **LCSS**	Batch ID: **18806**		Analysis Date: **11/7/2017**	SeqNo: **765811**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	502	20.0	500.0	0	100	65	135				
Surr: 2-Fluorobiphenyl	19.4		20.00		96.8	50	150				
Surr: o-Terphenyl	20.3		20.00		101	50	150				

Sample ID **1711096-003ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/7/2017**	RunNo: **39790**
Client ID: **E21S11-18**	Batch ID: **18806**		Analysis Date: **11/7/2017**	SeqNo: **765816**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.8						0		30	
Heavy Oil	ND	54.6						0		30	
Surr: 2-Fluorobiphenyl	20.6		21.84		94.2	50	150		0		
Surr: o-Terphenyl	22.7		21.84		104	50	150		0		

Sample ID **1711096-003AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/7/2017**	RunNo: **39790**
Client ID: **E21S11-18**	Batch ID: **18806**		Analysis Date: **11/7/2017**	SeqNo: **765817**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	578	19.9	498.2	0	116	65	135				
Surr: 2-Fluorobiphenyl	24.1		19.93		121	50	150				
Surr: o-Terphenyl	25.4		19.93		127	50	150				

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711096-003AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/7/2017**			RunNo: **39790**		
Client ID: **E21S11-18**	Batch ID: **18806**					Analysis Date: **11/7/2017**			SeqNo: **765817**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1711096-003AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/7/2017**			RunNo: **39790**		
Client ID: **E21S11-18**	Batch ID: **18806**					Analysis Date: **11/7/2017**			SeqNo: **765818**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	562	20.0	499.6	0	112	65	135	578.3	2.93	30	
Surr: 2-Fluorobiphenyl	20.0		19.98		100	50	150		0		
Surr: o-Terphenyl	22.0		19.98		110	50	150		0		

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18805**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/7/2017**	RunNo: **39792**
Client ID: **MBLKS**	Batch ID: **18805**		Analysis Date: **11/8/2017**	SeqNo: **765844**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	479		500.0		95.8	10	123				
Surr: Terphenyl-d14 (surr)	506		500.0		101	46.2	179				

Sample ID **LCS-18805**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/7/2017**	RunNo: **39792**
Client ID: **LCSS**	Batch ID: **18805**		Analysis Date: **11/8/2017**	SeqNo: **765845**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,150	40.0	1,000	0	115	46.4	125				
2-Methylnaphthalene	1,160	40.0	1,000	0	116	45.1	135				
1-Methylnaphthalene	1,150	40.0	1,000	0	115	46.2	133				
Acenaphthylene	1,140	40.0	1,000	0	114	32.8	136				
Acenaphthene	1,230	40.0	1,000	0	123	38.7	129				

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18805** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/7/2017** RunNo: **39792**
Client ID: **LCSS** Batch ID: **18805** Analysis Date: **11/8/2017** SeqNo: **765845**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,120	40.0	1,000	0	112	41.4	144				
Phenanthrene	1,200	40.0	1,000	0	120	43.9	133				
Anthracene	1,270	40.0	1,000	0	127	42.5	157				
Fluoranthene	1,300	40.0	1,000	0	130	45.9	137				
Pyrene	1,350	40.0	1,000	0	135	46.2	137				
Benz(a)anthracene	1,130	40.0	1,000	0	113	41.2	141				
Chrysene	1,610	40.0	1,000	0	161	43	165				
Benzo(b)fluoranthene	999	40.0	1,000	0	99.9	41	155				
Benzo(k)fluoranthene	1,600	40.0	1,000	0	160	40.2	161				
Benzo(a)pyrene	1,240	40.0	1,000	0	124	30.2	171				
Indeno(1,2,3-cd)pyrene	1,460	40.0	1,000	0	146	31.3	159				
Dibenz(a,h)anthracene	1,430	40.0	1,000	0	143	28	158				
Benzo(g,h,i)perylene	1,350	40.0	1,000	0	135	32.4	144				
Surr: 2-Fluorobiphenyl	553		500.0		111	10	123				
Surr: Terphenyl-d14 (surr)	513		500.0		103	46.2	179				

Sample ID **1711096-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/7/2017** RunNo: **39792**
Client ID: **E23S12-19** Batch ID: **18805** Analysis Date: **11/8/2017** SeqNo: **765847**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	46.5						0		30	
2-Methylnaphthalene	ND	46.5						0		30	
1-Methylnaphthalene	ND	46.5						0		30	
Acenaphthylene	ND	46.5						0		30	
Acenaphthene	ND	46.5						0		30	
Fluorene	ND	46.5						0		30	
Phenanthrene	ND	46.5						0		30	
Anthracene	ND	46.5						0		30	
Fluoranthene	ND	46.5						0		30	
Pyrene	ND	46.5						0		30	

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711096-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/7/2017** RunNo: **39792**
Client ID: **E23S12-19** Batch ID: **18805** Analysis Date: **11/8/2017** SeqNo: **765847**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	46.5						0		30	
Chrysene	ND	46.5						0		30	
Benzo(b)fluoranthene	ND	46.5						0		30	
Benzo(k)fluoranthene	ND	46.5						0		30	
Benzo(a)pyrene	ND	46.5						0		30	
Indeno(1,2,3-cd)pyrene	ND	46.5						0		30	
Dibenz(a,h)anthracene	ND	46.5						0		30	
Benzo(g,h,i)perylene	ND	46.5						0		30	
Surr: 2-Fluorobiphenyl	415		581.5		71.4	10	123		0		
Surr: Terphenyl-d14 (surr)	450		581.5		77.4	46.2	179		0		

Sample ID **1711096-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/7/2017** RunNo: **39792**
Client ID: **E23S12-19** Batch ID: **18805** Analysis Date: **11/8/2017** SeqNo: **765848**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,090	45.2	1,131	0	96.1	42.9	138				
2-Methylnaphthalene	1,070	45.2	1,131	0	94.6	42.8	151				
1-Methylnaphthalene	997	45.2	1,131	0	88.2	41.6	148				
Acenaphthylene	1,080	45.2	1,131	0	96.0	32.6	160				
Acenaphthene	1,160	45.2	1,131	0	103	46.3	142				
Fluorene	1,050	45.2	1,131	0	93.2	43.4	153				
Phenanthrene	1,130	45.2	1,131	0	100	45.5	140				
Anthracene	1,360	45.2	1,131	0	120	32.6	160				
Fluoranthene	1,270	45.2	1,131	0	112	44.6	161				
Pyrene	1,310	45.2	1,131	0	116	48.3	158				
Benz(a)anthracene	1,030	45.2	1,131	0	91.2	34.9	139				
Chrysene	1,580	45.2	1,131	0	140	45.2	146				
Benzo(b)fluoranthene	894	45.2	1,131	0	79.0	42.2	168				
Benzo(k)fluoranthene	1,520	45.2	1,131	0	134	34.8	147				
Benzo(a)pyrene	1,170	45.2	1,131	0	103	34.4	179				

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711096-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/7/2017** RunNo: **39792**
Client ID: **E23S12-19** Batch ID: **18805** Analysis Date: **11/8/2017** SeqNo: **765848**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,390	45.2	1,131	0	123	11.8	140				
Dibenz(a,h)anthracene	1,390	45.2	1,131	0	123	17.3	156				
Benzo(g,h,i)perylene	1,300	45.2	1,131	0	115	24.9	119				
Surr: 2-Fluorobiphenyl	488		565.3		86.4	10	123				
Surr: Terphenyl-d14 (surr)	487		565.3		86.2	46.2	179				

Sample ID **1711096-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/7/2017** RunNo: **39792**
Client ID: **E23S12-19** Batch ID: **18805** Analysis Date: **11/8/2017** SeqNo: **765849**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	976	42.4	1,060	0	92.1	42.9	138	1,086	10.6	30	
2-Methylnaphthalene	987	42.4	1,060	0	93.1	42.8	151	1,069	8.03	30	
1-Methylnaphthalene	995	42.4	1,060	0	93.9	41.6	148	997.3	0.283	30	
Acenaphthylene	956	42.4	1,060	0	90.2	32.6	160	1,085	12.7	30	
Acenaphthene	1,030	42.4	1,060	0	97.3	46.3	142	1,165	12.2	30	
Fluorene	915	42.4	1,060	0	86.3	43.4	153	1,054	14.2	30	
Phenanthrene	994	42.4	1,060	0	93.8	45.5	140	1,131	12.9	30	
Anthracene	1,410	42.4	1,060	0	133	32.6	160	1,361	3.63	30	
Fluoranthene	1,110	42.4	1,060	0	105	44.6	161	1,267	13.0	30	
Pyrene	1,160	42.4	1,060	0	109	48.3	158	1,311	12.5	30	
Benz(a)anthracene	940	42.4	1,060	0	88.7	34.9	139	1,031	9.23	30	
Chrysene	1,420	42.4	1,060	0	134	45.2	146	1,579	10.7	30	
Benzo(b)fluoranthene	871	42.4	1,060	0	82.2	42.2	168	893.6	2.57	30	
Benzo(k)fluoranthene	1,410	42.4	1,060	0	133	34.8	147	1,515	7.34	30	
Benzo(a)pyrene	1,060	42.4	1,060	0	99.6	34.4	179	1,170	10.2	30	
Indeno(1,2,3-cd)pyrene	1,220	42.4	1,060	0	115	11.8	140	1,393	13.3	30	
Dibenz(a,h)anthracene	1,220	42.4	1,060	0	115	17.3	156	1,386	12.8	30	
Benzo(g,h,i)perylene	1,130	42.4	1,060	0	107	24.9	119	1,300	13.7	30	
Surr: 2-Fluorobiphenyl	434		529.8		81.9	10	123		0		
Surr: Terphenyl-d14 (surr)	414		529.8		78.2	46.2	179		0		

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711096-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/7/2017** RunNo: **39792**
Client ID: **E23S12-19** Batch ID: **18805** Analysis Date: **11/8/2017** SeqNo: **765849**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1711096
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711096-003ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/7/2017** RunNo: **39755**
Client ID: **E21S11-18** Batch ID: **R39755** Analysis Date: **11/7/2017** SeqNo: **765200**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	8.89	0.500						9.503	6.64	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711096**
Logged by:	**Brianna Barnes**	Date Received:	**11/7/2017 11:20:00 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 ☐
		Received straight from field		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	13.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/7/17 | Page: | of:

Laboratory Project No (internal): 1711096

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous report

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cchriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	E23512-19	11/7/17	945							X		X									
2	E2852-20		900							X		X									
3	E2/S11-18		1030							X		X									
4	SS-north wall		845							X		X									ASAP
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/7/17 1120	x [signature]	11/7/17 1120
Relinquished x	Date/Time	Received x	Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/7/17 Page: of: Laboratory Project No (internal): 1711096

Project Name: Block 21

Special Remarks: Sample ID change per C.D. 1/29/18 cw

Project No: see previous report

Client: GEI

Collected by: CMD

Address:

Location: Seattle

City, State, Zip:

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Telephone:

Report To (PM): Chris Brown

Fax:

PM Email: cbrown@geiengineers.com; cchriscoll@geiengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E23512-19	11/7/17	945							X		X						
2	E23852-20		900							X		X						
3	E21511-18		1030							X		X						
4	~~SS-north wall~~		845							X		X						ASAP SC-E3N20
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 11/7/17 1120

Relinquished x Date/Time

Received x [signature] Date/Time 11/7/17 1120

Received x Date/Time

Turn-around Time:

☐ Standard
☐ 3 Day
☐ 2 Day
☒ Next Day
Same Day ____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711128

November 09, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 11/8/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *11/09/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711128

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711128-001	E18S2-20	11/08/2017 7:45 AM	11/08/2017 10:05 AM
1711128-002	E23S2-29	11/08/2017 9:15 AM	11/08/2017 10:05 AM
1711128-003	E18S4-20	11/08/2017 8:30 AM	11/08/2017 10:05 AM
1711128-004	E23S2-22	11/08/2017 8:45 AM	11/08/2017 10:05 AM

Case Narrative

WO#: **1711128**
Date: **11/9/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711128**
Date Reported: **11/9/2017**

Client: GeoEngineers
Collection Date: 11/8/2017 7:45:00 AM
Project: Block 21
Lab ID: 1711128-001
Matrix: Soil
Client Sample ID: **E18S2-20**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18815		Analyst: SB
Diesel (Fuel Oil)	ND	21.1		mg/Kg-dry	1	11/8/2017 11:25:30 PM
Heavy Oil	ND	52.7		mg/Kg-dry	1	11/8/2017 11:25:30 PM
Surr: 2-Fluorobiphenyl	86.0	50 - 150		%Rec	1	11/8/2017 11:25:30 PM
Surr: o-Terphenyl	95.7	50 - 150		%Rec	1	11/8/2017 11:25:30 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18820		Analyst: BT
Naphthalene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
2-Methylnaphthalene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
1-Methylnaphthalene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Acenaphthylene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Acenaphthene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Fluorene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Phenanthrene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Anthracene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Fluoranthene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Pyrene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Benz(a)anthracene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Chrysene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Benzo(b)fluoranthene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Benzo(j,k)fluoranthene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Benzo(a)pyrene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Indeno(1,2,3-cd)pyrene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Dibenz(a,h)anthracene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Benzo(g,h,i)perylene	ND	43.8		µg/Kg-dry	1	11/8/2017 2:56:21 PM
Surr: 2-Fluorobiphenyl	77.4	10 - 123		%Rec	1	11/8/2017 2:56:21 PM
Surr: Terphenyl-d14 (surr)	72.8	46.2 - 179		%Rec	1	11/8/2017 2:56:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R39800		Analyst: CG
Percent Moisture	11.8	0.500		wt%	1	11/8/2017 1:17:22 PM

Analytical Report

Work Order: **1711128**
Date Reported: **11/9/2017**

Client: GeoEngineers
Collection Date: 11/8/2017 9:15:00 AM
Project: Block 21
Lab ID: 1711128-002
Matrix: Soil
Client Sample ID: **E23S2-29**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18815		Analyst: SB
Diesel (Fuel Oil)	ND	24.9		mg/Kg-dry	1	11/9/2017 12:24:30 AM
Heavy Oil	ND	62.2		mg/Kg-dry	1	11/9/2017 12:24:30 AM
Surr: 2-Fluorobiphenyl	89.2	50 - 150		%Rec	1	11/9/2017 12:24:30 AM
Surr: o-Terphenyl	101	50 - 150		%Rec	1	11/9/2017 12:24:30 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18820		Analyst: BT
Naphthalene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
2-Methylnaphthalene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
1-Methylnaphthalene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Acenaphthylene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Acenaphthene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Fluorene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Phenanthrene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Anthracene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Fluoranthene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Pyrene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Benz(a)anthracene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Chrysene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Benzo(b)fluoranthene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Benzo(j,k)fluoranthene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Benzo(a)pyrene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Indeno(1,2,3-cd)pyrene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Dibenz(a,h)anthracene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Benzo(g,h,i)perylene	ND	47.0		µg/Kg-dry	1	11/8/2017 4:25:04 PM
Surr: 2-Fluorobiphenyl	76.4	10 - 123		%Rec	1	11/8/2017 4:25:04 PM
Surr: Terphenyl-d14 (surr)	67.8	46.2 - 179		%Rec	1	11/8/2017 4:25:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R39800		Analyst: CG
Percent Moisture	23.1	0.500		wt%	1	11/8/2017 1:17:22 PM

Analytical Report

Work Order: **1711128**
Date Reported: **11/9/2017**

Client: GeoEngineers
Collection Date: 11/8/2017 8:30:00 AM
Project: Block 21
Lab ID: 1711128-003
Matrix: Soil
Client Sample ID: **E18S4-20**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18815		Analyst: SB
Diesel (Fuel Oil)	ND	19.3		mg/Kg-dry	1	11/9/2017 1:23:37 AM
Heavy Oil	ND	48.3		mg/Kg-dry	1	11/9/2017 1:23:37 AM
Surr: 2-Fluorobiphenyl	81.9	50 - 150		%Rec	1	11/9/2017 1:23:37 AM
Surr: o-Terphenyl	91.4	50 - 150		%Rec	1	11/9/2017 1:23:37 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18820		Analyst: BT
Naphthalene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
2-Methylnaphthalene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
1-Methylnaphthalene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Acenaphthylene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Acenaphthene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Fluorene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Phenanthrene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Anthracene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Fluoranthene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Pyrene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Benz(a)anthracene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Chrysene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Benzo(b)fluoranthene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Benzo(j,k)fluoranthene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Benzo(a)pyrene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Indeno(1,2,3-cd)pyrene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Dibenz(a,h)anthracene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Benzo(g,h,i)perylene	ND	40.0		µg/Kg-dry	1	11/8/2017 4:47:09 PM
Surr: 2-Fluorobiphenyl	75.6	10 - 123		%Rec	1	11/8/2017 4:47:09 PM
Surr: Terphenyl-d14 (surr)	66.9	46.2 - 179		%Rec	1	11/8/2017 4:47:09 PM
Sample Moisture (Percent Moisture)				Batch ID: R39800		Analyst: CG
Percent Moisture	11.3	0.500		wt%	1	11/8/2017 1:17:22 PM

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18815**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/8/2017**	RunNo: **39815**
Client ID: **MBLKS**	Batch ID: **18815**		Analysis Date: **11/8/2017**	SeqNo: **766433**

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	17.3		20.00		86.6	50	150				
Surr: o-Terphenyl	19.0		20.00		95.2	50	150				

Sample ID **LCS-18815**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/8/2017**	RunNo: **39815**
Client ID: **LCSS**	Batch ID: **18815**		Analysis Date: **11/8/2017**	SeqNo: **766434**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	503	20.0	500.0	0	101	65	135				
Surr: 2-Fluorobiphenyl	18.8		20.00		93.8	50	150				
Surr: o-Terphenyl	21.1		20.00		105	50	150				

Sample ID **1711093-007ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/8/2017**	RunNo: **39815**
Client ID: **BATCH**	Batch ID: **18815**		Analysis Date: **11/8/2017**	SeqNo: **766436**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.2						0		30	
Heavy Oil	ND	50.6						0		30	
Surr: 2-Fluorobiphenyl	17.8		20.24		88.0	50	150		0		
Surr: o-Terphenyl	20.4		20.24		101	50	150		0		

Sample ID **1711093-007AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/8/2017**	RunNo: **39815**
Client ID: **BATCH**	Batch ID: **18815**		Analysis Date: **11/8/2017**	SeqNo: **766437**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	491	20.1	502.8	0	97.7	65	135				
Surr: 2-Fluorobiphenyl	19.6		20.11		97.7	50	150				
Surr: o-Terphenyl	21.4		20.11		106	50	150				

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711093-007AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39815**
Client ID: **BATCH** Batch ID: **18815** Analysis Date: **11/8/2017** SeqNo: **766437**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1711093-007AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39815**
Client ID: **BATCH** Batch ID: **18815** Analysis Date: **11/8/2017** SeqNo: **766438**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	470	20.0	500.2	0	94.0	65	135	491.5	4.45	30	
Surr: 2-Fluorobiphenyl	17.7		20.01		88.3	50	150		0		
Surr: o-Terphenyl	19.5		20.01		97.7	50	150		0		

Sample ID **1711100-004ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39815**
Client ID: **BATCH** Batch ID: **18815** Analysis Date: **11/8/2017** SeqNo: **766450**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	19.4						0		30	
Heavy Oil	ND	48.4						0		30	
Surr: 2-Fluorobiphenyl	16.8		19.38		86.6	50	150		0		
Surr: o-Terphenyl	19.5		19.38		101	50	150		0		

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18820**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/8/2017**	RunNo: **39813**
Client ID: **MBLKS**	Batch ID: **18820**		Analysis Date: **11/8/2017**	SeqNo: **766403**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	529		500.0		106	10	123				
Surr: Terphenyl-d14 (surr)	496		500.0		99.2	46.2	179				

Sample ID **LCS-18820**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/8/2017**	RunNo: **39813**
Client ID: **LCSS**	Batch ID: **18820**		Analysis Date: **11/8/2017**	SeqNo: **766404**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	927	40.0	1,000	0	92.7	46.4	125				
2-Methylnaphthalene	896	40.0	1,000	0	89.6	45.1	135				
1-Methylnaphthalene	938	40.0	1,000	0	93.8	46.2	133				
Acenaphthylene	924	40.0	1,000	0	92.4	32.8	136				
Acenaphthene	998	40.0	1,000	0	99.8	38.7	129				

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18820** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/8/2017** RunNo: **39813**
Client ID: **LCSS** Batch ID: **18820** Analysis Date: **11/8/2017** SeqNo: **766404**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	877	40.0	1,000	0	87.7	41.4	144				
Phenanthrene	955	40.0	1,000	0	95.5	43.9	133				
Anthracene	1,270	40.0	1,000	0	127	42.5	157				
Fluoranthene	1,040	40.0	1,000	0	104	45.9	137				
Pyrene	1,080	40.0	1,000	0	108	46.2	137				
Benz(a)anthracene	914	40.0	1,000	0	91.4	41.2	141				
Chrysene	1,340	40.0	1,000	0	134	43	165				
Benzo(b)fluoranthene	800	40.0	1,000	0	80.0	41	155				
Benzo(j,k)fluoranthene	1,380	40.0	1,000	0	138	40.2	161				
Benzo(a)pyrene	1,030	40.0	1,000	0	103	30.2	171				
Indeno(1,2,3-cd)pyrene	1,170	40.0	1,000	0	117	31.3	159				
Dibenz(a,h)anthracene	1,170	40.0	1,000	0	117	28	158				
Benzo(g,h,i)perylene	1,080	40.0	1,000	0	108	32.4	144				
Surr: 2-Fluorobiphenyl	507		500.0		101	10	123				
Surr: Terphenyl-d14 (surr)	488		500.0		97.7	46.2	179				

Sample ID **1711128-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39813**
Client ID: **E18S2-20** Batch ID: **18820** Analysis Date: **11/8/2017** SeqNo: **766406**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	45.0						0		30	
2-Methylnaphthalene	ND	45.0						0		30	
1-Methylnaphthalene	ND	45.0						0		30	
Acenaphthylene	ND	45.0						0		30	
Acenaphthene	ND	45.0						0		30	
Fluorene	ND	45.0						0		30	
Phenanthrene	ND	45.0						0		30	
Anthracene	ND	45.0						0		30	
Fluoranthene	ND	45.0						0		30	
Pyrene	ND	45.0						0		30	

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711128-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39813**
Client ID: **E18S2-20** Batch ID: **18820** Analysis Date: **11/8/2017** SeqNo: **766406**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	45.0						0		30	
Chrysene	ND	45.0						0		30	
Benzo(b)fluoranthene	ND	45.0						0		30	
Benzo(j,k)fluoranthene	ND	45.0						0		30	
Benzo(a)pyrene	ND	45.0						0		30	
Indeno(1,2,3-cd)pyrene	ND	45.0						0		30	
Dibenz(a,h)anthracene	ND	45.0						0		30	
Benzo(g,h,i)perylene	ND	45.0						0		30	
Surr: 2-Fluorobiphenyl	386		562.1		68.7	10	123		0		
Surr: Terphenyl-d14 (surr)	354		562.1		62.9	46.2	179		0		

Sample ID **1711128-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39813**
Client ID: **E18S2-20** Batch ID: **18820** Analysis Date: **11/8/2017** SeqNo: **766407**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	836	43.1	1,077	0	77.7	42.9	138				
2-Methylnaphthalene	769	43.1	1,077	0	71.4	42.8	151				
1-Methylnaphthalene	847	43.1	1,077	0	78.6	41.6	148				
Acenaphthylene	829	43.1	1,077	0	76.9	32.6	160				
Acenaphthene	903	43.1	1,077	0	83.9	46.3	142				
Fluorene	780	43.1	1,077	0	72.4	43.4	153				
Phenanthrene	851	43.1	1,077	0	79.0	45.5	140				
Anthracene	1,160	43.1	1,077	0	108	32.6	160				
Fluoranthene	949	43.1	1,077	0	88.1	44.6	161				
Pyrene	948	43.1	1,077	0	88.0	48.3	158				
Benz(a)anthracene	793	43.1	1,077	0	73.6	34.9	139				
Chrysene	1,230	43.1	1,077	0	114	45.2	146				
Benzo(b)fluoranthene	634	43.1	1,077	0	58.9	42.2	168				
Benzo(j,k)fluoranthene	1,240	43.1	1,077	0	115	34.8	147				
Benzo(a)pyrene	904	43.1	1,077	0	84.0	34.4	179				

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711128-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39813**
Client ID: **E18S2-20** Batch ID: **18820** Analysis Date: **11/8/2017** SeqNo: **766407**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	967	43.1	1,077	0	89.8	11.8	140				
Dibenz(a,h)anthracene	1,010	43.1	1,077	0	93.9	17.3	156				
Benzo(g,h,i)perylene	916	43.1	1,077	0	85.1	24.9	119				
Surr: 2-Fluorobiphenyl	420		538.6		78.0	10	123				
Surr: Terphenyl-d14 (surr)	408		538.6		75.8	46.2	179				

Sample ID **1711128-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/8/2017** RunNo: **39813**
Client ID: **E18S2-20** Batch ID: **18820** Analysis Date: **11/8/2017** SeqNo: **766408**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	777	41.0	1,026	0	75.8	42.9	138	836.4	7.32	30	
2-Methylnaphthalene	724	41.0	1,026	0	70.6	42.8	151	769.4	6.11	30	
1-Methylnaphthalene	806	41.0	1,026	0	78.6	41.6	148	846.9	4.94	30	
Acenaphthylene	761	41.0	1,026	0	74.2	32.6	160	828.7	8.48	30	
Acenaphthene	837	41.0	1,026	0	81.6	46.3	142	903.3	7.64	30	
Fluorene	724	41.0	1,026	0	70.6	43.4	153	779.7	7.37	30	
Phenanthrene	792	41.0	1,026	0	77.2	45.5	140	851.0	7.23	30	
Anthracene	1,080	41.0	1,026	0	105	32.6	160	1,162	7.17	30	
Fluoranthene	875	41.0	1,026	0	85.3	44.6	161	949.5	8.21	30	
Pyrene	901	41.0	1,026	0	87.9	48.3	158	947.8	5.02	30	
Benz(a)anthracene	757	41.0	1,026	0	73.8	34.9	139	793.2	4.64	30	
Chrysene	1,150	41.0	1,026	0	112	45.2	146	1,233	6.91	30	
Benzo(b)fluoranthene	612	41.0	1,026	0	59.7	42.2	168	634.2	3.58	30	
Benzo(j,k)fluoranthene	1,210	41.0	1,026	0	118	34.8	147	1,240	2.52	30	
Benzo(a)pyrene	858	41.0	1,026	0	83.7	34.4	179	904.5	5.25	30	
Indeno(1,2,3-cd)pyrene	981	41.0	1,026	0	95.7	11.8	140	967.4	1.42	30	
Dibenz(a,h)anthracene	959	41.0	1,026	0	93.5	17.3	156	1,011	5.33	30	
Benzo(g,h,i)perylene	889	41.0	1,026	0	86.7	24.9	119	916.1	3.02	30	
Surr: 2-Fluorobiphenyl	383		512.8		74.8	10	123		0		
Surr: Terphenyl-d14 (surr)	370		512.8		72.1	46.2	179		0		

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711128-001AMSD**	SampType: **MSD**			Units: **µg/Kg-dry**		Prep Date: **11/8/2017**			RunNo: **39813**		
Client ID: **E18S2-20**	Batch ID: **18820**					Analysis Date: **11/8/2017**			SeqNo: **766408**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1711128
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711128-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/8/2017** RunNo: **39800**
Client ID: **E18S2-20** Batch ID: **R39800** Analysis Date: **11/8/2017** SeqNo: **766005**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	12.1	0.500						11.84	2.45	20	

Sample ID **1711100-005ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/8/2017** RunNo: **39800**
Client ID: **BATCH** Batch ID: **R39800** Analysis Date: **11/8/2017** SeqNo: **766022**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.9	0.500						17.25	2.07	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711128**
Logged by:	**Brianna Barnes**	Date Received:	**11/8/2017 10:05:00 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 ☐
		Received straight from field		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	17.4

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 11/8/17 Page: 1 of: 1
Project Name: Block 21
Project No: see previous
Collected by: CMD
Location: Seattle
Report To (PM): Chris Brown
PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Laboratory Project No (internal): 1711290
Special Remarks:

Client: GEI
Address:
City, State, Zip:
Telephone:
Fax:

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E1852-20	11/8/17	745	S						X		X							
2	E2352-29	11/8/17	915	1						X		X							
3	E1854-20	1	830	1						X		X							
4	E2352-22	1	845	1						X		X							on hold
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	11/8/17 1005	x	11/8/17 1005
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711167

November 10, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 7 sample(s) on 11/9/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *11/10/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711167

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711167-001	TP21-6-1-4.0	11/09/2017 5:00 PM	11/09/2017 6:08 PM
1711167-002	TP21-6-2-4.0	11/09/2017 4:45 PM	11/09/2017 6:08 PM
1711167-003	TP21-6-3-4.0	11/09/2017 4:50 PM	11/09/2017 6:08 PM
1711167-004	TP21-6-4-4.0	11/09/2017 4:55 PM	11/09/2017 6:08 PM
1711167-005	TP21-6-B-6.0	11/09/2017 4:40 PM	11/09/2017 6:08 PM
1711167-006	E2N14-3.0	11/09/2017 5:15 PM	11/09/2017 6:08 PM
1711167-007	E5N17-3.0	11/09/2017 5:20 PM	11/09/2017 6:08 PM

Case Narrative

WO#: **1711167**
Date: **11/10/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711167**

Date Reported: **11/10/2017**

Client: GeoEngineers **Collection Date:** 11/9/2017 5:00:00 PM

Project: Block 21

Lab ID: 1711167-001 **Matrix:** Soil

Client Sample ID: TP21-6-1-4.0

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
2-Methylnaphthalene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
1-Methylnaphthalene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Acenaphthylene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Acenaphthene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Fluorene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Phenanthrene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Anthracene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Fluoranthene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Pyrene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Benz(a)anthracene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Chrysene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Benzo(b)fluoranthene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Benzo(j,k)fluoranthene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Benzo(a)pyrene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Indeno(1,2,3-cd)pyrene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Dibenz(a,h)anthracene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Benzo(g,h,i)perylene	ND	40.9		µg/Kg-dry	1	11/10/2017 4:51:39 PM
Surr: 2-Fluorobiphenyl	68.2	10 - 123		%Rec	1	11/10/2017 4:51:39 PM
Surr: Terphenyl-d14 (surr)	90.3	46.2 - 179		%Rec	1	11/10/2017 4:51:39 PM
Sample Moisture (Percent Moisture)				Batch ID: R39843		Analyst: CO
Percent Moisture	6.54	0.500		wt%	1	11/10/2017 8:10:56 AM

Analytical Report

Work Order: **1711167**

Date Reported: **11/10/2017**

Client: GeoEngineers **Collection Date:** 11/9/2017 4:45:00 PM

Project: Block 21

Lab ID: 1711167-002 **Matrix:** Soil

Client Sample ID: TP21-6-2-4.0

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
2-Methylnaphthalene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
1-Methylnaphthalene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Acenaphthylene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Acenaphthene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Fluorene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Phenanthrene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Anthracene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Fluoranthene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Pyrene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Benz(a)anthracene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Chrysene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Benzo(b)fluoranthene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Benzo(j,k)fluoranthene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Benzo(a)pyrene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Indeno(1,2,3-cd)pyrene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Dibenz(a,h)anthracene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Benzo(g,h,i)perylene	ND	41.0		µg/Kg-dry	1	11/10/2017 3:22:44 PM
Surr: 2-Fluorobiphenyl	33.5	10 - 123		%Rec	1	11/10/2017 3:22:44 PM
Surr: Terphenyl-d14 (surr)	36.8	46.2 - 179	S	%Rec	1	11/10/2017 3:22:44 PM

NOTES:

S - Outlying surrogate recovery(ies) observed. All other laboratory and field samples recovered within range.

Sample Moisture (Percent Moisture)				Batch ID: R39843		Analyst: CO
Percent Moisture	6.89	0.500		wt%	1	11/10/2017 8:10:56 AM

Analytical Report

Work Order: **1711167**

Date Reported: **11/10/2017**

Client: GeoEngineers **Collection Date:** 11/9/2017 4:50:00 PM

Project: Block 21

Lab ID: 1711167-003 **Matrix:** Soil

Client Sample ID: TP21-6-3-4.0

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
2-Methylnaphthalene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
1-Methylnaphthalene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Acenaphthylene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Acenaphthene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Fluorene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Phenanthrene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Anthracene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Fluoranthene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Pyrene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Benz(a)anthracene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Chrysene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Benzo(b)fluoranthene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Benzo(j,k)fluoranthene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Benzo(a)pyrene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Indeno(1,2,3-cd)pyrene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Dibenz(a,h)anthracene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Benzo(g,h,i)perylene	ND	42.5		µg/Kg-dry	1	11/10/2017 3:44:56 PM
Surr: 2-Fluorobiphenyl	88.2	10 - 123		%Rec	1	11/10/2017 3:44:56 PM
Surr: Terphenyl-d14 (surr)	100	46.2 - 179		%Rec	1	11/10/2017 3:44:56 PM
Sample Moisture (Percent Moisture)				Batch ID: R39843		Analyst: CO
Percent Moisture	10.6	0.500		wt%	1	11/10/2017 8:10:56 AM

Analytical Report

Work Order: **1711167**

Date Reported: **11/10/2017**

Client: GeoEngineers **Collection Date:** 11/9/2017 4:55:00 PM

Project: Block 21

Lab ID: 1711167-004 **Matrix:** Soil

Client Sample ID: TP21-6-4-4.0

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
2-Methylnaphthalene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
1-Methylnaphthalene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Acenaphthylene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Acenaphthene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Fluorene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Phenanthrene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Anthracene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Fluoranthene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Pyrene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Benz(a)anthracene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Chrysene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Benzo(b)fluoranthene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Benzo(j,k)fluoranthene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Benzo(a)pyrene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Indeno(1,2,3-cd)pyrene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Dibenz(a,h)anthracene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Benzo(g,h,i)perylene	ND	39.7		µg/Kg-dry	1	11/10/2017 4:07:09 PM
Surr: 2-Fluorobiphenyl	86.5	10 - 123		%Rec	1	11/10/2017 4:07:09 PM
Surr: Terphenyl-d14 (surr)	90.5	46.2 - 179		%Rec	1	11/10/2017 4:07:09 PM
Sample Moisture (Percent Moisture)				Batch ID: R39843		Analyst: CO
Percent Moisture	8.34	0.500		wt%	1	11/10/2017 8:10:56 AM

Analytical Report

Work Order: **1711167**

Date Reported: **11/10/2017**

Client: GeoEngineers **Collection Date:** 11/9/2017 4:40:00 PM

Project: Block 21

Lab ID: 1711167-005 **Matrix:** Soil

Client Sample ID: TP21-6-B-6.0

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
2-Methylnaphthalene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
1-Methylnaphthalene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Acenaphthylene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Acenaphthene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Fluorene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Phenanthrene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Anthracene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Fluoranthene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Pyrene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Benz(a)anthracene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Chrysene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Benzo(b)fluoranthene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Benzo(j,k)fluoranthene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Benzo(a)pyrene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Indeno(1,2,3-cd)pyrene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Dibenz(a,h)anthracene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Benzo(g,h,i)perylene	ND	38.9		µg/Kg-dry	1	11/10/2017 4:29:27 PM
Surr: 2-Fluorobiphenyl	83.8	10 - 123		%Rec	1	11/10/2017 4:29:27 PM
Surr: Terphenyl-d14 (surr)	88.3	46.2 - 179		%Rec	1	11/10/2017 4:29:27 PM
Sample Moisture (Percent Moisture)				Batch ID: R39843		Analyst: CO
Percent Moisture	3.03	0.500		wt%	1	11/10/2017 8:10:56 AM

Analytical Report

Work Order: **1711167**

Date Reported: **11/10/2017**

Client: GeoEngineers
Collection Date: 11/9/2017 5:15:00 PM
Project: Block 21
Lab ID: 1711167-006
Matrix: Soil
Client Sample ID: **E2N14-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18855		Analyst: SB
Diesel (Fuel Oil)	ND	22.1		mg/Kg-dry	1	11/10/2017 11:11:13 AM
Heavy Oil	ND	55.1		mg/Kg-dry	1	11/10/2017 11:11:13 AM
Surr: 2-Fluorobiphenyl	87.1	50 - 150		%Rec	1	11/10/2017 11:11:13 AM
Surr: o-Terphenyl	105	50 - 150		%Rec	1	11/10/2017 11:11:13 AM
Sample Moisture (Percent Moisture)				Batch ID: R39843		Analyst: CO
Percent Moisture	11.0	0.500		wt%	1	11/10/2017 8:10:56 AM

Analytical Report

Work Order: **1711167**
Date Reported: **11/10/2017**

Client: GeoEngineers
Collection Date: 11/9/2017 5:20:00 PM
Project: Block 21
Lab ID: 1711167-007
Matrix: Soil
Client Sample ID: **E5N17-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18855		Analyst: SB
Diesel (Fuel Oil)	ND	21.3		mg/Kg-dry	1	11/10/2017 11:41:00 AM
Heavy Oil	ND	53.2		mg/Kg-dry	1	11/10/2017 11:41:00 AM
Surr: 2-Fluorobiphenyl	87.9	50 - 150		%Rec	1	11/10/2017 11:41:00 AM
Surr: o-Terphenyl	103	50 - 150		%Rec	1	11/10/2017 11:41:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R39843		Analyst: CO
Percent Moisture	11.1	0.500		wt%	1	11/10/2017 8:10:56 AM

Work Order: 1711167
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18855**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **MBLKS**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767182**

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	16.8		20.00		84.2	50	150				
Surr: o-Terphenyl	20.5		20.00		103	50	150				

Sample ID **LCS-18855**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **LCSS**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767183**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	525	20.0	500.0	0	105	65	135				
Surr: 2-Fluorobiphenyl	19.7		20.00		98.7	50	150				
Surr: o-Terphenyl	22.7		20.00		113	50	150				

Sample ID **1711167-006ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **E2N14-3.0**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767186**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.7						0		30	
Heavy Oil	ND	51.9						0		30	
Surr: 2-Fluorobiphenyl	18.3		20.75		88.2	50	150		0		
Surr: o-Terphenyl	21.9		20.75		105	50	150		0		

Sample ID **1711167-006AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **E2N14-3.0**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767187**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	539	21.0	524.5	0	103	65	135				
Surr: 2-Fluorobiphenyl	20.7		20.98		98.8	50	150				
Surr: o-Terphenyl	23.6		20.98		113	50	150				

Work Order: 1711167
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1711167-006AMS**	SampType:	**MS**	Units:	**mg/Kg-dry**	Prep Date:	**11/10/2017**	RunNo:	**39853**
Client ID:	**E2N14-3.0**	Batch ID:	**18855**			Analysis Date:	**11/10/2017**	SeqNo:	**767187**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**1711167-006AMSD**	SampType:	**MSD**	Units:	**mg/Kg-dry**	Prep Date:	**11/10/2017**	RunNo:	**39853**
Client ID:	**E2N14-3.0**	Batch ID:	**18855**			Analysis Date:	**11/10/2017**	SeqNo:	**767188**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	589	22.1	553.5	0	106	65	135	539.5	8.81	30	
Surr: 2-Fluorobiphenyl	23.1		22.14		104	50	150		0		
Surr: o-Terphenyl	26.3		22.14		119	50	150		0		

Work Order: 1711167
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18851**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/10/2017**	RunNo: **39861**
Client ID: **MBLKS**	Batch ID: **18851**		Analysis Date: **11/10/2017**	SeqNo: **767428**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	439		500.0		87.9	10	123				
Surr: Terphenyl-d14 (surr)	513		500.0		103	46.2	179				

Sample ID **LCS-18851**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/10/2017**	RunNo: **39861**
Client ID: **LCSS**	Batch ID: **18851**		Analysis Date: **11/10/2017**	SeqNo: **767429**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,080	40.0	1,000	0	108	46.4	125				
2-Methylnaphthalene	1,100	40.0	1,000	0	110	45.1	135				
1-Methylnaphthalene	1,020	40.0	1,000	0	102	46.2	133				
Acenaphthylene	1,080	40.0	1,000	0	108	32.8	136				
Acenaphthene	1,150	40.0	1,000	0	115	38.7	129				

Work Order: 1711167
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18851** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **LCSS** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767429**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,050	40.0	1,000	0	105	41.4	144				
Phenanthrene	1,080	40.0	1,000	0	108	43.9	133				
Anthracene	1,300	40.0	1,000	0	130	42.5	157				
Fluoranthene	1,210	40.0	1,000	0	121	45.9	137				
Pyrene	1,250	40.0	1,000	0	125	46.2	137				
Benz(a)anthracene	1,100	40.0	1,000	0	110	41.2	141				
Chrysene	1,500	40.0	1,000	0	150	43	165				
Benzo(b)fluoranthene	1,000	40.0	1,000	0	100	41	155				
Benzo(j,k)fluoranthene	1,510	40.0	1,000	0	151	40.2	161				
Benzo(a)pyrene	1,200	40.0	1,000	0	120	30.2	171				
Indeno(1,2,3-cd)pyrene	1,330	40.0	1,000	0	133	31.3	159				
Dibenz(a,h)anthracene	1,320	40.0	1,000	0	132	28	158				
Benzo(g,h,i)perylene	1,220	40.0	1,000	0	122	32.4	144				
Surr: 2-Fluorobiphenyl	463		500.0		92.7	10	123				
Surr: Terphenyl-d14 (surr)	548		500.0		110	46.2	179				

Work Order: 1711167
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711164-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/10/2017**		RunNo: **39843**	
Client ID: **BATCH**	Batch ID: **R39843**						Analysis Date: **11/10/2017**		SeqNo: **766975**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	10.4	0.500						12.66	20.0	20	

Sample ID **1711167-007ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/10/2017**		RunNo: **39843**	
Client ID: **E5N17-3.0**	Batch ID: **R39843**						Analysis Date: **11/10/2017**		SeqNo: **766995**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	11.2	0.500						11.10	0.456	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711167**
Logged by:	**Clare Griggs**	Date Received:	**11/9/2017 6:08:00 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 ☐
	Samples received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 11/9/17 Page: of: Laboratory Project No (internal): 1711167

Project Name: Block 21

Special Remarks: Verbal ASAP

Client: GE

Project No:

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cdriscoll@geoengineers.com; cbrown@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	TP21-6-1-4.0	11/9/17	1700								X							ASAP
2	TP21-6-2-4.0	"	1645								X							"
3	TP21-6-3-4.0	"	1650								X							"
4	TP21-6-4-4.0	"	1655								X							"
5	TP21-6-B-6.0	"	1640								X							"
6	E2N14-3.0		1715						X									
7	E5N17-30		1720						X									
8																		
9																		
10																		

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/9/17 1808	x [signature]	11/9/17 1808
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711172

November 13, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 11/10/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *11/13/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711172

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711172-001	E6N19-2.0	11/10/2017 9:05 AM	11/10/2017 10:51 AM
1711172-002	E4N15-2.0	11/10/2017 9:20 AM	11/10/2017 10:51 AM
1711172-003	E3N23-2.0	11/10/2017 9:10 AM	11/10/2017 10:51 AM

Case Narrative

WO#: **1711172**
Date: **11/13/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711172**
Date Reported: **11/13/2017**

Client: GeoEngineers
Collection Date: 11/10/2017 9:05:00 AM
Project: Block 21
Lab ID: 1711172-001
Matrix: Soil
Client Sample ID: **E6N19-2.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18855		Analyst: SB
Diesel (Fuel Oil)	ND	27.8		mg/Kg-dry	1	11/11/2017 4:42:55 PM
Heavy Oil	ND	69.5		mg/Kg-dry	1	11/11/2017 4:42:55 PM
Surr: 2-Fluorobiphenyl	113	50 - 150		%Rec	1	11/11/2017 4:42:55 PM
Surr: o-Terphenyl	118	50 - 150		%Rec	1	11/11/2017 4:42:55 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
2-Methylnaphthalene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
1-Methylnaphthalene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Acenaphthylene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Acenaphthene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Fluorene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Phenanthrene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Anthracene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Fluoranthene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Pyrene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Benz(a)anthracene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Chrysene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Benzo(b)fluoranthene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Benzo(j,k)fluoranthene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Benzo(a)pyrene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Indeno(1,2,3-cd)pyrene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Dibenz(a,h)anthracene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Benzo(g,h,i)perylene	ND	51.5		µg/Kg-dry	1	11/10/2017 6:20:10 PM
Surr: 2-Fluorobiphenyl	62.8	10 - 123		%Rec	1	11/10/2017 6:20:10 PM
Surr: Terphenyl-d14 (surr)	90.9	46.2 - 179		%Rec	1	11/10/2017 6:20:10 PM
Sample Moisture (Percent Moisture)				Batch ID: R39850		Analyst: CO
Percent Moisture	31.4	0.500		wt%	1	11/10/2017 11:36:05 AM

Analytical Report

Work Order: **1711172**
Date Reported: **11/13/2017**

Client: GeoEngineers
Collection Date: 11/10/2017 9:20:00 AM
Project: Block 21
Lab ID: 1711172-002
Matrix: Soil
Client Sample ID: **E4N15-2.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18855		Analyst: SB
Diesel (Fuel Oil)	ND	20.3		mg/Kg-dry	1	11/11/2017 5:12:19 PM
Heavy Oil	ND	50.7		mg/Kg-dry	1	11/11/2017 5:12:19 PM
Surr: 2-Fluorobiphenyl	109	50 - 150		%Rec	1	11/11/2017 5:12:19 PM
Surr: o-Terphenyl	116	50 - 150		%Rec	1	11/11/2017 5:12:19 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
2-Methylnaphthalene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
1-Methylnaphthalene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Acenaphthylene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Acenaphthene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Fluorene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Phenanthrene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Anthracene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Fluoranthene	62.5	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Pyrene	65.8	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Benz(a)anthracene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Chrysene	47.4	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Benzo(b)fluoranthene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Benzo(j,k)fluoranthene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Benzo(a)pyrene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Indeno(1,2,3-cd)pyrene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Dibenz(a,h)anthracene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Benzo(g,h,i)perylene	ND	44.2		µg/Kg-dry	1	11/10/2017 6:42:21 PM
Surr: 2-Fluorobiphenyl	35.8	10 - 123		%Rec	1	11/10/2017 6:42:21 PM
Surr: Terphenyl-d14 (surr)	107	46.2 - 179		%Rec	1	11/10/2017 6:42:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R39850		Analyst: CO
Percent Moisture	11.3	0.500		wt%	1	11/10/2017 11:36:05 AM

Analytical Report

Work Order: **1711172**

Date Reported: **11/13/2017**

Client: GeoEngineers **Collection Date:** 11/10/2017 9:10:00 AM

Project: Block 21

Lab ID: 1711172-003 **Matrix:** Soil

Client Sample ID: **E3N23-2.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18855		Analyst: SB
Diesel (Fuel Oil)	ND	26.6		mg/Kg-dry	1	11/11/2017 5:41:46 PM
Heavy Oil	ND	66.6		mg/Kg-dry	1	11/11/2017 5:41:46 PM
Surr: 2-Fluorobiphenyl	108	50 - 150		%Rec	1	11/11/2017 5:41:46 PM
Surr: o-Terphenyl	116	50 - 150		%Rec	1	11/11/2017 5:41:46 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18851		Analyst: BT
Naphthalene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
2-Methylnaphthalene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
1-Methylnaphthalene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Acenaphthylene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Acenaphthene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Fluorene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Phenanthrene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Anthracene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Fluoranthene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Pyrene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Benz(a)anthracene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Chrysene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Benzo(b)fluoranthene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Benzo(j,k)fluoranthene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Benzo(a)pyrene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Indeno(1,2,3-cd)pyrene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Dibenz(a,h)anthracene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Benzo(g,h,i)perylene	ND	49.6		µg/Kg-dry	1	11/10/2017 7:04:20 PM
Surr: 2-Fluorobiphenyl	78.6	10 - 123		%Rec	1	11/10/2017 7:04:20 PM
Surr: Terphenyl-d14 (surr)	93.3	46.2 - 179		%Rec	1	11/10/2017 7:04:20 PM
Sample Moisture (Percent Moisture)				Batch ID: R39850		Analyst: CO
Percent Moisture	27.3	0.500		wt%	1	11/10/2017 11:36:05 AM

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18855**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **MBLKS**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767182**

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	16.8		20.00		84.2	50	150				
Surr: o-Terphenyl	20.5		20.00		103	50	150				

Sample ID **LCS-18855**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **LCSS**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767183**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	525	20.0	500.0	0	105	65	135				
Surr: 2-Fluorobiphenyl	19.7		20.00		98.7	50	150				
Surr: o-Terphenyl	22.7		20.00		113	50	150				

Sample ID **1711167-006ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **BATCH**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767186**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.7						0		30	
Heavy Oil	ND	51.9						0		30	
Surr: 2-Fluorobiphenyl	18.3		20.75		88.2	50	150		0		
Surr: o-Terphenyl	21.9		20.75		105	50	150		0		

Sample ID **1711167-006AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/10/2017**	RunNo: **39853**
Client ID: **BATCH**	Batch ID: **18855**		Analysis Date: **11/10/2017**	SeqNo: **767187**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	539	21.0	524.5	0	103	65	135				
Surr: 2-Fluorobiphenyl	20.7		20.98		98.8	50	150				
Surr: o-Terphenyl	23.6		20.98		113	50	150				

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1711167-006AMS**	SampType:	**MS**	Units:	**mg/Kg-dry**	Prep Date:	**11/10/2017**	RunNo:	**39853**
Client ID:	**BATCH**	Batch ID:	**18855**			Analysis Date:	**11/10/2017**	SeqNo:	**767187**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**1711167-006AMSD**	SampType:	**MSD**	Units:	**mg/Kg-dry**	Prep Date:	**11/10/2017**	RunNo:	**39853**
Client ID:	**BATCH**	Batch ID:	**18855**			Analysis Date:	**11/10/2017**	SeqNo:	**767188**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	589	22.1	553.5	0	106	65	135	539.5	8.81	30	
Surr: 2-Fluorobiphenyl	23.1		22.14		104	50	150		0		
Surr: o-Terphenyl	26.3		22.14		119	50	150		0		

Sample ID	**1711162-030ADUP**	SampType:	**DUP**	Units:	**mg/Kg**	Prep Date:	**11/10/2017**	RunNo:	**39853**
Client ID:	**BATCH**	Batch ID:	**18855**			Analysis Date:	**11/11/2017**	SeqNo:	**767489**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.7						0		30	
Heavy Oil	ND	46.7						0		30	
Surr: 2-Fluorobiphenyl	18.8		18.67		101	50	150		0		
Surr: o-Terphenyl	21.3		18.67		114	50	150		0		

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18851**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/10/2017**	RunNo: **39861**
Client ID: **MBLKS**	Batch ID: **18851**		Analysis Date: **11/10/2017**	SeqNo: **767428**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	439		500.0		87.9	10	123				
Surr: Terphenyl-d14 (surr)	513		500.0		103	46.2	179				

Sample ID **LCS-18851**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/10/2017**	RunNo: **39861**
Client ID: **LCSS**	Batch ID: **18851**		Analysis Date: **11/10/2017**	SeqNo: **767429**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,080	40.0	1,000	0	108	46.4	125				
2-Methylnaphthalene	1,100	40.0	1,000	0	110	45.1	135				
1-Methylnaphthalene	1,020	40.0	1,000	0	102	46.2	133				
Acenaphthylene	1,080	40.0	1,000	0	108	32.8	136				
Acenaphthene	1,150	40.0	1,000	0	115	38.7	129				

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18851** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **LCSS** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767429**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,050	40.0	1,000	0	105	41.4	144				
Phenanthrene	1,080	40.0	1,000	0	108	43.9	133				
Anthracene	1,300	40.0	1,000	0	130	42.5	157				
Fluoranthene	1,210	40.0	1,000	0	121	45.9	137				
Pyrene	1,250	40.0	1,000	0	125	46.2	137				
Benz(a)anthracene	1,100	40.0	1,000	0	110	41.2	141				
Chrysene	1,500	40.0	1,000	0	150	43	165				
Benzo(b)fluoranthene	1,000	40.0	1,000	0	100	41	155				
Benzo(j,k)fluoranthene	1,510	40.0	1,000	0	151	40.2	161				
Benzo(a)pyrene	1,200	40.0	1,000	0	120	30.2	171				
Indeno(1,2,3-cd)pyrene	1,330	40.0	1,000	0	133	31.3	159				
Dibenz(a,h)anthracene	1,320	40.0	1,000	0	132	28	158				
Benzo(g,h,i)perylene	1,220	40.0	1,000	0	122	32.4	144				
Surr: 2-Fluorobiphenyl	463		500.0		92.7	10	123				
Surr: Terphenyl-d14 (surr)	548		500.0		110	46.2	179				

Sample ID **1711167-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **BATCH** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767624**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.9						0		30	
2-Methylnaphthalene	ND	40.9						0		30	
1-Methylnaphthalene	ND	40.9						0		30	
Acenaphthylene	ND	40.9						0		30	
Acenaphthene	ND	40.9						0		30	
Fluorene	ND	40.9						0		30	
Phenanthrene	ND	40.9						0		30	
Anthracene	ND	40.9						0		30	
Fluoranthene	ND	40.9						0		30	
Pyrene	ND	40.9						0		30	

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711167-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **BATCH** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767624**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.9						0		30	
Chrysene	ND	40.9						0		30	
Benzo(b)fluoranthene	ND	40.9						0		30	
Benzo(j,k)fluoranthene	ND	40.9						0		30	
Benzo(a)pyrene	ND	40.9						0		30	
Indeno(1,2,3-cd)pyrene	ND	40.9						0		30	
Dibenz(a,h)anthracene	ND	40.9						0		30	
Benzo(g,h,i)perylene	ND	40.9						0		30	
Surr: 2-Fluorobiphenyl	312		510.9		61.0	10	123		0		
Surr: Terphenyl-d14 (surr)	455		510.9		89.0	46.2	179		0		

Sample ID **1711167-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **BATCH** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767625**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	832	40.4	1,010	0	82.3	42.9	138				
2-Methylnaphthalene	796	40.4	1,010	0	78.8	42.8	151				
1-Methylnaphthalene	825	40.4	1,010	0	81.7	41.6	148				
Acenaphthylene	816	40.4	1,010	0	80.8	32.6	160				
Acenaphthene	895	40.4	1,010	0	88.6	46.3	142				
Fluorene	783	40.4	1,010	0	77.5	43.4	153				
Phenanthrene	861	40.4	1,010	0	85.3	45.5	140				
Anthracene	1,130	40.4	1,010	0	112	32.6	160				
Fluoranthene	934	40.4	1,010	0	92.4	44.6	161				
Pyrene	969	40.4	1,010	0	96.0	48.3	158				
Benz(a)anthracene	789	40.4	1,010	0	78.1	34.9	139				
Chrysene	1,250	40.4	1,010	0	123	45.2	146				
Benzo(b)fluoranthene	703	40.4	1,010	0	69.6	42.2	168				
Benzo(j,k)fluoranthene	1,230	40.4	1,010	0	122	34.8	147				
Benzo(a)pyrene	908	40.4	1,010	0	89.9	34.4	179				

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711167-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **BATCH** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767625**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	983	40.4	1,010	0	97.3	11.8	140				
Dibenz(a,h)anthracene	1,030	40.4	1,010	0	102	17.3	156				
Benzo(g,h,i)perylene	946	40.4	1,010	0	93.7	24.9	119				
Surr: 2-Fluorobiphenyl	370		505.2		73.3	10	123				
Surr: Terphenyl-d14 (surr)	430		505.2		85.1	46.2	179				

Sample ID **1711167-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **BATCH** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767626**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	835	40.0	999.0	0	83.6	42.9	138	831.8	0.435	30	
2-Methylnaphthalene	802	40.0	999.0	0	80.2	42.8	151	795.9	0.720	30	
1-Methylnaphthalene	866	40.0	999.0	0	86.7	41.6	148	825.0	4.82	30	
Acenaphthylene	837	40.0	999.0	0	83.8	32.6	160	816.3	2.56	30	
Acenaphthene	917	40.0	999.0	0	91.7	46.3	142	895.0	2.37	30	
Fluorene	807	40.0	999.0	0	80.8	43.4	153	782.6	3.04	30	
Phenanthrene	895	40.0	999.0	0	89.6	45.5	140	861.5	3.81	30	
Anthracene	1,180	40.0	999.0	0	118	32.6	160	1,132	4.20	30	
Fluoranthene	984	40.0	999.0	0	98.5	44.6	161	933.9	5.24	30	
Pyrene	1,020	40.0	999.0	0	102	48.3	158	969.5	5.02	30	
Benz(a)anthracene	862	40.0	999.0	0	86.3	34.9	139	789.1	8.88	30	
Chrysene	1,270	40.0	999.0	0	128	45.2	146	1,245	2.32	30	
Benzo(b)fluoranthene	719	40.0	999.0	0	71.9	42.2	168	703.1	2.18	30	
Benzo(j,k)fluoranthene	1,340	40.0	999.0	0	134	34.8	147	1,228	8.52	30	
Benzo(a)pyrene	968	40.0	999.0	0	96.9	34.4	179	908.2	6.42	30	
Indeno(1,2,3-cd)pyrene	1,080	40.0	999.0	0	108	11.8	140	983.0	9.66	30	
Dibenz(a,h)anthracene	1,060	40.0	999.0	0	106	17.3	156	1,031	2.91	30	
Benzo(g,h,i)perylene	965	40.0	999.0	0	96.6	24.9	119	946.3	1.92	30	
Surr: 2-Fluorobiphenyl	670		499.5		134	10	123		0		S
Surr: Terphenyl-d14 (surr)	765		499.5		153	46.2	179		0		

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711167-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/10/2017** RunNo: **39861**
Client ID: **BATCH** Batch ID: **18851** Analysis Date: **11/10/2017** SeqNo: **767626**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1711172
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711132-018ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/10/2017**		RunNo: **39850**	
Client ID: **BATCH**	Batch ID: **R39850**						Analysis Date: **11/10/2017**		SeqNo: **767095**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	27.8	0.500						22.86	19.5	20	

Sample ID **1711159-004ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/10/2017**		RunNo: **39850**	
Client ID: **BATCH**	Batch ID: **R39850**						Analysis Date: **11/10/2017**		SeqNo: **767115**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	33.6	0.500						34.57	2.87	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711172**
Logged by:	**Clare Griggs**	Date Received:	**11/10/2017 10:51:00 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 ☐
	Samples received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/10/17 Page: 1 of: 1

Project Name: Block 21

Project No: see previous

Collected by: CMD

Location: Seattle

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Laboratory Project No (internal): 171172

Special Remarks:

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E6N19-2.0	11/10/17	905	S						X	X								
2	E4N15-2.0	11/10/17	920							X	X								
3	E3N23-2.0	11/10/17	910							X	X								
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/10/17 1051	x [signature]	11/10/17 1051
Relinquished x	Date/Time	Received x	Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711193

November 14, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 11/13/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *11/14/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711193

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711193-001	N14-elevator-15	11/13/2017 8:50 AM	11/13/2017 9:52 AM
1711193-002	N14-elevator-1-13	11/13/2017 9:15 AM	11/13/2017 9:52 AM
1711193-003	N14-elevator-3-13	11/13/2017 9:25 AM	11/13/2017 9:52 AM
1711193-004	N14-elevator-4-13	11/13/2017 9:20 AM	11/13/2017 9:52 AM

Case Narrative

WO#: **1711193**
Date: **11/14/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711193**
Date Reported: **11/14/2017**

CLIENT: GeoEngineers
Project: Block 21

Lab ID: 1711193-001 **Collection Date:** 11/13/2017 8:50:00 AM
Client Sample ID: **N14-elevator-15** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18873		Analyst: SB
Diesel (Fuel Oil)	ND	21.2		mg/Kg-dry	1	11/13/2017 7:25:21 PM
Heavy Oil	3,850	530	D	mg/Kg-dry	10	11/14/2017 8:13:01 AM
Surr: 2-Fluorobiphenyl	97.9	50 - 150		%Rec	1	11/13/2017 7:25:21 PM
Surr: o-Terphenyl	112	50 - 150		%Rec	1	11/13/2017 7:25:21 PM
Sample Moisture (Percent Moisture)				Batch ID: R39881		Analyst: CO
Percent Moisture	10.7	0.500		wt%	1	11/13/2017 2:41:25 PM

Lab ID: 1711193-002 **Collection Date:** 11/13/2017 9:15:00 AM
Client Sample ID: **N14-elevator-1-13** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18873		Analyst: SB
Diesel (Fuel Oil)	ND	17.5		mg/Kg-dry	1	11/13/2017 9:53:30 PM
Heavy Oil	ND	43.7		mg/Kg-dry	1	11/13/2017 9:53:30 PM
Surr: 2-Fluorobiphenyl	94.8	50 - 150		%Rec	1	11/13/2017 9:53:30 PM
Surr: o-Terphenyl	113	50 - 150		%Rec	1	11/13/2017 9:53:30 PM
Sample Moisture (Percent Moisture)				Batch ID: R39881		Analyst: CO
Percent Moisture	3.17	0.500		wt%	1	11/13/2017 2:41:25 PM

CLIENT: GeoEngineers
Project: Block 21

Lab ID: 1711193-003 **Collection Date:** 11/13/2017 9:25:00 AM
Client Sample ID: **N14-elevator-3-13** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18873		Analyst: SB
Diesel (Fuel Oil)	ND	20.0		mg/Kg-dry	1	11/13/2017 10:23:00 PM
Heavy Oil	ND	50.1		mg/Kg-dry	1	11/13/2017 10:23:00 PM
Surr: 2-Fluorobiphenyl	85.0	50 - 150		%Rec	1	11/13/2017 10:23:00 PM
Surr: o-Terphenyl	108	50 - 150		%Rec	1	11/13/2017 10:23:00 PM
Sample Moisture (Percent Moisture)				Batch ID: R39881		Analyst: CO
Percent Moisture	4.23	0.500		wt%	1	11/13/2017 2:41:25 PM

Lab ID: 1711193-004 **Collection Date:** 11/13/2017 9:20:00 AM
Client Sample ID: **N14-elevator-4-13** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18873		Analyst: SB
Diesel (Fuel Oil)	ND	19.4		mg/Kg-dry	1	11/13/2017 10:52:36 PM
Heavy Oil	ND	48.5		mg/Kg-dry	1	11/13/2017 10:52:36 PM
Surr: 2-Fluorobiphenyl	83.2	50 - 150		%Rec	1	11/13/2017 10:52:36 PM
Surr: o-Terphenyl	104	50 - 150		%Rec	1	11/13/2017 10:52:36 PM
Sample Moisture (Percent Moisture)				Batch ID: R39881		Analyst: CO
Percent Moisture	9.02	0.500		wt%	1	11/13/2017 2:41:25 PM

Work Order: 1711193
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18873**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **MBLKS**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768060**

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	19.0		20.00		94.8	50	150				
Surr: o-Terphenyl	21.4		20.00		107	50	150				

Sample ID **LCS-18873**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **LCSS**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768061**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	511	20.0	500.0	0	102	65	135				
Surr: 2-Fluorobiphenyl	19.8		20.00		99.2	50	150				
Surr: o-Terphenyl	22.3		20.00		112	50	150				

Sample ID **1711193-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **N14-elevator-15**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.2						0		30	
Heavy Oil	3,180	55.5						3,254	2.36	30	E
Surr: 2-Fluorobiphenyl	22.5		22.20		101	50	150		0		
Surr: o-Terphenyl	25.5		22.20		115	50	150		0		

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1711193-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **N14-elevator-15**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768064**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	649	20.4	511.0	0	127	65	135				
Surr: 2-Fluorobiphenyl	21.5		20.44		105	50	150				

Work Order: 1711193
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711193-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **N14-elevator-15**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768064**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	25.4		20.44		124	50	150				

Sample ID **1711193-001AMSD**	SampType: **MSD**	Units: **mg/Kg-dry**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **N14-elevator-15**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	536	20.3	506.8	0	106	65	135	648.6	19.0	30	
Surr: 2-Fluorobiphenyl	21.5		20.27		106	50	150		0		
Surr: o-Terphenyl	25.5		20.27		126	50	150		0		

Sample ID **1711184-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **BATCH**	Batch ID: **18873**		Analysis Date: **11/14/2017**	SeqNo: **768077**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.2						0		30	
Heavy Oil	ND	55.5						0		30	
Surr: 2-Fluorobiphenyl	21.8		22.22		98.2	50	150		0		
Surr: o-Terphenyl	24.8		22.22		111	50	150		0		

Work Order: 1711193
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID	**1711199-001ADUP**	SampType: **DUP**		Units: **wt%**		Prep Date: **11/13/2017**		RunNo: **39881**			
Client ID:	**BATCH**	Batch ID: **R39881**				Analysis Date: **11/13/2017**		SeqNo: **767812**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.5	0.500						14.05	15.9	20	

Sample ID	**1711159-033ADUP**	SampType: **DUP**		Units: **wt%**		Prep Date: **11/13/2017**		RunNo: **39881**			
Client ID:	**BATCH**	Batch ID: **R39881**				Analysis Date: **11/13/2017**		SeqNo: **767832**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	48.8	0.500						52.87	8.09	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711193**
Logged by:	**Brianna Barnes**	Date Received:	**11/13/2017 9:52:00 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 ☐
		Received straight from field				
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:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	14.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/13/17 Page: of:

Laboratory Project No (internal): 1711193

Project Name: Block 21

Special Remarks:

Project No: See previous

Client: GGL

Collected by: CMD

Address:

Location: Seattle, WA

City, State, Zip:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Telephone:

PM Email: cbrown@geoengineers.com; driscoll@geoengineers.com

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	N14-elevator-15	11/13/17	850	S						X												
2	N14 elevator-1-13	"	915	"						X												
3	N14-elevator-3-13	"	905	"						X												
4	N14-elevator-4-13	"	920	"						X												
5																						
6																						
7																						
8																						
9																						
10																						

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/13/17 952	x [signature]	11/13/17 952
Relinquished x	Date/Time	Received x	Date/Time

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711198

November 20, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 11/13/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/26/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711198

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711198-001	E14-elevator-2-13	11/13/2017 10:30 AM	11/13/2017 12:06 PM
1711198-002	E2N19-3.0	11/13/2017 10:40 AM	11/13/2017 12:06 PM

Case Narrative

WO#: **1711198**
Date: **11/20/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711198**
Date Reported: **11/20/2017**

CLIENT: GeoEngineers
Project: Block 21

Lab ID: 1711198-001 **Collection Date:** 11/13/2017 10:30:00 AM
Client Sample ID: **E14-elevator-2-13** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18873		Analyst: SB
Diesel (Fuel Oil)	ND	19.9		mg/Kg-dry	1	11/13/2017 11:22:04 PM
Heavy Oil	ND	49.7		mg/Kg-dry	1	11/13/2017 11:22:04 PM
Surr: 2-Fluorobiphenyl	83.6	50 - 150		%Rec	1	11/13/2017 11:22:04 PM
Surr: o-Terphenyl	106	50 - 150		%Rec	1	11/13/2017 11:22:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R39881		Analyst: CO
Percent Moisture	4.34	0.500		wt%	1	11/13/2017 2:41:25 PM

Analytical Report

Work Order: **1711198**
Date Reported: **11/20/2017**

CLIENT: GeoEngineers
Project: Block 21

Lab ID: 1711198-002 **Collection Date:** 11/13/2017 10:40:00 AM
Client Sample ID: **E2N19-3.0** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18936		Analyst: SB
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	11/17/2017 2:40:42 PM
Heavy Oil	ND	51.7		mg/Kg-dry	1	11/17/2017 2:40:42 PM
Surr: 2-Fluorobiphenyl	77.6	50 - 150		%Rec	1	11/17/2017 2:40:42 PM
Surr: o-Terphenyl	80.5	50 - 150		%Rec	1	11/17/2017 2:40:42 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18939		Analyst: BT
Naphthalene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
2-Methylnaphthalene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
1-Methylnaphthalene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Acenaphthylene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Acenaphthene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Fluorene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Phenanthrene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Anthracene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Fluoranthene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Pyrene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Benz(a)anthracene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Chrysene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Benzo(b)fluoranthene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Benzo(k)fluoranthene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Benzo(a)pyrene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Indeno(1,2,3-cd)pyrene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Dibenz(a,h)anthracene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Benzo(g,h,i)perylene	ND	47.0		µg/Kg-dry	1	11/17/2017 4:15:28 PM
Surr: 2-Fluorobiphenyl	33.4	10 - 123		%Rec	1	11/17/2017 4:15:28 PM
Surr: Terphenyl-d14 (surr)	69.9	46.2 - 179		%Rec	1	11/17/2017 4:15:28 PM
Sample Moisture (Percent Moisture)				Batch ID: R39980		Analyst: CO
Percent Moisture	16.7	0.500		wt%	1	11/17/2017 10:48:18 AM

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18936** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/17/2017** RunNo: **39995**
Client ID: **MBLKS** Batch ID: **18936** Analysis Date: **11/17/2017** SeqNo: **770233**

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	17.5		20.00		87.3	50	150				
Surr: o-Terphenyl	18.4		20.00		91.9	50	150				

Sample ID **LCS-18936** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/17/2017** RunNo: **39995**
Client ID: **LCSS** Batch ID: **18936** Analysis Date: **11/17/2017** SeqNo: **770234**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	475	20.0	500.0	0	95.0	65	135				
Surr: 2-Fluorobiphenyl	19.0		20.00		94.8	50	150				
Surr: o-Terphenyl	20.1		20.00		101	50	150				

Sample ID **1711252-003ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/17/2017** RunNo: **39995**
Client ID: **BATCH** Batch ID: **18936** Analysis Date: **11/17/2017** SeqNo: **770237**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.2						0		30	
Heavy Oil	ND	50.5						0		30	
Surr: 2-Fluorobiphenyl	17.6		20.20		87.3	50	150		0		
Surr: o-Terphenyl	18.5		20.20		91.4	50	150		0		

Sample ID **1711252-003AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/17/2017** RunNo: **39995**
Client ID: **BATCH** Batch ID: **18936** Analysis Date: **11/17/2017** SeqNo: **770238**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	504	20.3	507.4	0	99.3	65	135				
Surr: 2-Fluorobiphenyl	16.1		20.29		79.4	50	150				
Surr: o-Terphenyl	17.2		20.29		84.7	50	150				

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711252-003AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/17/2017**			RunNo: **39995**		
Client ID: **BATCH**	Batch ID: **18936**					Analysis Date: **11/17/2017**			SeqNo: **770238**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1711252-003AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/17/2017**			RunNo: **39995**		
Client ID: **BATCH**	Batch ID: **18936**					Analysis Date: **11/17/2017**			SeqNo: **770239**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	473	20.4	508.8	0	93.0	65	135	503.9	6.35	30	
Surr: 2-Fluorobiphenyl	17.8		20.35		87.7	50	150		0		
Surr: o-Terphenyl	18.9		20.35		93.0	50	150		0		

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18873**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **MBLKS**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768060**

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	19.0		20.00		94.8	50	150				
Surr: o-Terphenyl	21.4		20.00		107	50	150				

Sample ID **LCS-18873**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **LCSS**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768061**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	511	20.0	500.0	0	102	65	135				
Surr: 2-Fluorobiphenyl	19.8		20.00		99.2	50	150				
Surr: o-Terphenyl	22.3		20.00		112	50	150				

Sample ID **1711193-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **BATCH**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768063**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.2						0		30	
Heavy Oil	3,180	55.5						3,254	2.36	30	E
Surr: 2-Fluorobiphenyl	22.5		22.20		101	50	150		0		
Surr: o-Terphenyl	25.5		22.20		115	50	150		0		

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1711193-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/13/2017**	RunNo: **39893**
Client ID: **BATCH**	Batch ID: **18873**		Analysis Date: **11/13/2017**	SeqNo: **768064**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	649	20.4	511.0	0	127	65	135				
Surr: 2-Fluorobiphenyl	21.5		20.44		105	50	150				

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711193-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/13/2017**		RunNo: **39893**		
Client ID: **BATCH**	Batch ID: **18873**					Analysis Date: **11/13/2017**		SeqNo: **768064**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	25.4		20.44		124	50	150				

Sample ID **1711193-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/13/2017**		RunNo: **39893**		
Client ID: **BATCH**	Batch ID: **18873**					Analysis Date: **11/13/2017**		SeqNo: **768065**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	536	20.3	506.8	0	106	65	135	648.6	19.0	30	
Surr: 2-Fluorobiphenyl	21.5		20.27		106	50	150		0		
Surr: o-Terphenyl	25.5		20.27		126	50	150		0		

Sample ID **1711184-001ADUP**	SampType: **DUP**			Units: **mg/Kg-dry**		Prep Date: **11/13/2017**		RunNo: **39893**		
Client ID: **BATCH**	Batch ID: **18873**					Analysis Date: **11/14/2017**		SeqNo: **768077**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.2						0		30	
Heavy Oil	ND	55.5						0		30	
Surr: 2-Fluorobiphenyl	21.8		22.22		98.2	50	150		0		
Surr: o-Terphenyl	24.8		22.22		111	50	150		0		

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18939**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/17/2017**	RunNo: **40006**
Client ID: **MBLKS**	Batch ID: **18939**		Analysis Date: **11/17/2017**	SeqNo: **770329**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	350		500.0		70.1	10	123				
Surr: Terphenyl-d14 (surr)	453		500.0		90.6	46.2	179				

Sample ID **LCS-18939**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/17/2017**	RunNo: **40006**
Client ID: **LCSS**	Batch ID: **18939**		Analysis Date: **11/17/2017**	SeqNo: **770330**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,120	40.0	1,000	0	112	46.4	125				
2-Methylnaphthalene	1,130	40.0	1,000	0	113	45.1	135				
1-Methylnaphthalene	1,110	40.0	1,000	0	111	46.2	133				
Acenaphthylene	1,180	40.0	1,000	0	118	32.8	136				
Acenaphthene	1,250	40.0	1,000	0	125	38.7	129				

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18939** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **LCSS** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770330**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,170	40.0	1,000	0	117	41.4	144				
Phenanthrene	1,240	40.0	1,000	0	124	43.9	133				
Anthracene	1,300	40.0	1,000	0	130	42.5	157				
Fluoranthene	1,280	40.0	1,000	0	128	45.9	137				
Pyrene	1,280	40.0	1,000	0	128	46.2	137				
Benz(a)anthracene	1,250	40.0	1,000	0	125	41.2	141				
Chrysene	1,490	40.0	1,000	0	149	43	165				
Benzo(b)fluoranthene	1,270	40.0	1,000	0	127	41	155				
Benzo(k)fluoranthene	1,520	40.0	1,000	0	152	40.2	161				
Benzo(a)pyrene	1,400	40.0	1,000	0	140	30.2	171				
Indeno(1,2,3-cd)pyrene	1,180	40.0	1,000	0	118	31.3	159				
Dibenz(a,h)anthracene	1,150	40.0	1,000	0	115	28	158				
Benzo(g,h,i)perylene	1,180	40.0	1,000	0	118	32.4	144				
Surr: 2-Fluorobiphenyl	395		500.0		79.0	10	123				
Surr: Terphenyl-d14 (surr)	434		500.0		86.7	46.2	179				

Sample ID **1711282-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **BATCH** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770332**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	38.0						0		30	
2-Methylnaphthalene	ND	38.0						0		30	
1-Methylnaphthalene	ND	38.0						0		30	
Acenaphthylene	ND	38.0						0		30	
Acenaphthene	ND	38.0						0		30	
Fluorene	ND	38.0						0		30	
Phenanthrene	ND	38.0						0		30	
Anthracene	ND	38.0						0		30	
Fluoranthene	ND	38.0						0		30	
Pyrene	ND	38.0						0		30	

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711282-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **BATCH** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770332**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	38.0						0		30	
Chrysene	ND	38.0						0		30	
Benzo(b)fluoranthene	ND	38.0						0		30	
Benzo(k)fluoranthene	ND	38.0						0		30	
Benzo(a)pyrene	ND	38.0						0		30	
Indeno(1,2,3-cd)pyrene	ND	38.0						0		30	
Dibenz(a,h)anthracene	ND	38.0						0		30	
Benzo(g,h,i)perylene	ND	38.0						0		30	
Surr: 2-Fluorobiphenyl	101		475.1		21.3	10	123		0		
Surr: Terphenyl-d14 (surr)	356		475.1		74.8	46.2	179		0		

Sample ID **1711282-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **BATCH** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770333**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,020	36.4	911.2	0	112	42.9	138				
2-Methylnaphthalene	1,040	36.4	911.2	0	114	42.8	151				
1-Methylnaphthalene	1,020	36.4	911.2	0	112	41.6	148				
Acenaphthylene	1,090	36.4	911.2	0	120	32.6	160				
Acenaphthene	1,150	36.4	911.2	0	126	46.3	142				
Fluorene	1,080	36.4	911.2	0	118	43.4	153				
Phenanthrene	1,170	36.4	911.2	0	128	45.5	140				
Anthracene	1,180	36.4	911.2	0	130	32.6	160				
Fluoranthene	1,180	36.4	911.2	0	129	44.6	161				
Pyrene	1,190	36.4	911.2	0	130	48.3	158				
Benz(a)anthracene	1,150	36.4	911.2	0	126	34.9	139				
Chrysene	1,400	36.4	911.2	0	153	45.2	146				S
Benzo(b)fluoranthene	1,170	36.4	911.2	0	129	42.2	168				
Benzo(k)fluoranthene	1,420	36.4	911.2	0	155	34.8	147				S
Benzo(a)pyrene	1,300	36.4	911.2	0	143	34.4	179				

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711282-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **BATCH** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770333**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	1,090	36.4	911.2	0	120	11.8	140				
Dibenz(a,h)anthracene	1,060	36.4	911.2	0	116	17.3	156				
Benzo(g,h,i)perylene	1,090	36.4	911.2	0	119	24.9	119				S
Surr: 2-Fluorobiphenyl	285		455.6		62.5	10	123				
Surr: Terphenyl-d14 (surr)	400		455.6		87.8	46.2	179				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID **1711282-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **BATCH** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,030	39.4	985.9	0	105	42.9	138	1,017	1.57	30	
2-Methylnaphthalene	1,030	39.4	985.9	0	104	42.8	151	1,038	0.927	30	
1-Methylnaphthalene	1,020	39.4	985.9	0	103	41.6	148	1,017	0.0264	30	
Acenaphthylene	1,070	39.4	985.9	0	109	32.6	160	1,091	1.97	30	
Acenaphthene	1,140	39.4	985.9	0	116	46.3	142	1,152	0.756	30	
Fluorene	1,070	39.4	985.9	0	109	43.4	153	1,079	0.472	30	
Phenanthrene	1,140	39.4	985.9	0	116	45.5	140	1,169	2.13	30	
Anthracene	1,190	39.4	985.9	0	120	32.6	160	1,185	0.215	30	
Fluoranthene	1,170	39.4	985.9	0	118	44.6	161	1,177	0.843	30	
Pyrene	1,180	39.4	985.9	0	120	48.3	158	1,186	0.116	30	
Benz(a)anthracene	1,160	39.4	985.9	0	117	34.9	139	1,153	0.338	30	
Chrysene	1,380	39.4	985.9	0	140	45.2	146	1,397	1.29	30	
Benzo(b)fluoranthene	1,160	39.4	985.9	0	117	42.2	168	1,173	1.38	30	
Benzo(k)fluoranthene	1,400	39.4	985.9	0	142	34.8	147	1,417	1.47	30	
Benzo(a)pyrene	1,290	39.4	985.9	0	131	34.4	179	1,300	0.393	30	
Indeno(1,2,3-cd)pyrene	1,090	39.4	985.9	0	111	11.8	140	1,091	0.0597	30	
Dibenz(a,h)anthracene	1,060	39.4	985.9	0	108	17.3	156	1,060	0.367	30	
Benzo(g,h,i)perylene	1,080	39.4	985.9	0	110	24.9	119	1,086	0.207	30	
Surr: 2-Fluorobiphenyl	293		492.9		59.5	10	123		0		

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711282-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **BATCH** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Terphenyl-d14 (surr)	374		492.9		75.9	46.2	179		0		

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711282-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/17/2017** RunNo: **39980**
Client ID: **BATCH** Batch ID: **R39980** Analysis Date: **11/17/2017** SeqNo: **770017**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	4.77	0.500						4.491	5.94	20	

Work Order: 1711198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711199-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/13/2017**		RunNo: **39881**	
Client ID: **BATCH**	Batch ID: **R39881**						Analysis Date: **11/13/2017**		SeqNo: **767812**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.5	0.500						14.05	15.9	20	

Sample ID **1711159-033ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/13/2017**		RunNo: **39881**	
Client ID: **BATCH**	Batch ID: **R39881**						Analysis Date: **11/13/2017**		SeqNo: **767832**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	48.8	0.500						52.87	8.09	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711198**
Logged by:	**Brianna Barnes**	Date Received:	**11/13/2017 12:06:00 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 ☐
		Received straight from field				
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	15.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/3/17 Page: 1 of: 1

Laboratory Project No (internal): 1711198

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	E14-Elevator-2-13	11/3/17	1030							X												
2	E1952-2.0	11/3/17	1040																			hold
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	11/3/17 1206	x	11/3/17 1206
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/13/17 Page: 1 of: 1

Laboratory Project No (internal): 1711198

Project Name: Block 21

Special Remarks:

Project No: see previous

Collected by: CMD

Location: Seattle, WA

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Client: GE

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E14-Elevator-2-13	11/13/17	1030							X									
2	E19S2-2.0	11/13/17	1040							X	X								~~total~~ Run per CD 11/17/17 cg Next Day
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x — Date/Time 11/13/17 1206

Relinquished x — Date/Time

Received — Date/Time 11/13/17 1206

Received x — Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day ____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/13/17 Page: 1 of: 1

Project Name: Block 21

Project No: See previous

Collected by: CMD

Location: Seattle, WA

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Laboratory Project No (internal): 1711193

Special Remarks: Sample ID change per C.D. 2/20/18 cw

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 524)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E14-Elevator-2-13	11/13/17	1030							X									
2	~~E19SD2.0~~	11/13/17	1040							(X)	(X)								total Run per CD 11/17/17 cg Next Day
3	E2N19-3.0																		
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day (specify)

Relinquished	Date/Time 11/13/17 1206	Received	Date/Time 11/13/17 1206
Relinquished x	Date/Time	Received x	Date/Time

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711205

November 15, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 11/14/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *11/15/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711205

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711205-001	E1N15-3.0	11/14/2017 7:30 AM	11/14/2017 8:15 AM

Case Narrative

WO#: **1711205**
Date: **11/15/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711205**
Date Reported: **11/15/2017**

Client: GeoEngineers
Collection Date: 11/14/2017 7:30:00 AM
Project: Block 21
Lab ID: 1711205-001
Matrix: Soil
Client Sample ID: **E1N15-3.0**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18880		Analyst: SB
Diesel (Fuel Oil)	ND	18.6		mg/Kg-dry	1	11/14/2017 8:38:19 PM
Heavy Oil	ND	46.5		mg/Kg-dry	1	11/14/2017 8:38:19 PM
Surr: 2-Fluorobiphenyl	98.4	50 - 150		%Rec	1	11/14/2017 8:38:19 PM
Surr: o-Terphenyl	108	50 - 150		%Rec	1	11/14/2017 8:38:19 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18881		Analyst: BT
Naphthalene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
2-Methylnaphthalene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
1-Methylnaphthalene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Acenaphthylene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Acenaphthene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Fluorene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Phenanthrene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Anthracene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Fluoranthene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Pyrene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Benz(a)anthracene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Chrysene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Benzo(b)fluoranthene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Benzo(j,k)fluoranthene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Benzo(a)pyrene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Indeno(1,2,3-cd)pyrene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Dibenz(a,h)anthracene	ND	39.6		µg/Kg-dry	1	11/15/2017 5:18:57 AM
Benzo(g,h,i)perylene	ND	39.6	Q	µg/Kg-dry	1	11/15/2017 5:18:57 AM
Surr: 2-Fluorobiphenyl	66.0	10 - 123		%Rec	1	11/15/2017 5:18:57 AM
Surr: Terphenyl-d14 (surr)	97.8	46.2 - 179		%Rec	1	11/15/2017 5:18:57 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R39903		Analyst: CO
Percent Moisture	6.48	0.500		wt%	1	11/14/2017 2:09:47 PM

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18880**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/14/2017**	RunNo: **39912**
Client ID: **MBLKS**	Batch ID: **18880**		Analysis Date: **11/14/2017**	SeqNo: **768447**

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	20.0		20.00		99.8	50	150				
Surr: o-Terphenyl	21.4		20.00		107	50	150				

Sample ID **LCS-18880**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/14/2017**	RunNo: **39912**
Client ID: **LCSS**	Batch ID: **18880**		Analysis Date: **11/14/2017**	SeqNo: **768448**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	502	20.0	500.0	0	100	65	135				
Surr: 2-Fluorobiphenyl	21.4		20.00		107	50	150				
Surr: o-Terphenyl	23.7		20.00		119	50	150				

Sample ID **1711204-008ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/14/2017**	RunNo: **39912**
Client ID: **BATCH**	Batch ID: **18880**		Analysis Date: **11/14/2017**	SeqNo: **768450**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.9						0		30	
Heavy Oil	ND	54.7						0		30	
Surr: 2-Fluorobiphenyl	23.4		21.90		107	50	150		0		
Surr: o-Terphenyl	25.8		21.90		118	50	150		0		

Sample ID **1711204-008AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/14/2017**	RunNo: **39912**
Client ID: **BATCH**	Batch ID: **18880**		Analysis Date: **11/14/2017**	SeqNo: **768451**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	649	22.4	558.9	0	116	65	135				
Surr: 2-Fluorobiphenyl	23.7		22.36		106	50	150				
Surr: o-Terphenyl	26.5		22.36		119	50	150				

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711204-008AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **11/14/2017**			RunNo: **39912**		
Client ID: **BATCH**	Batch ID: **18880**					Analysis Date: **11/14/2017**			SeqNo: **768451**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1711204-008AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **11/14/2017**			RunNo: **39912**		
Client ID: **BATCH**	Batch ID: **18880**					Analysis Date: **11/14/2017**			SeqNo: **768452**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	645	23.6	591.2	0	109	65	135	649.4	0.710	30	
Surr: 2-Fluorobiphenyl	27.1		23.65		114	50	150		0		
Surr: o-Terphenyl	29.9		23.65		126	50	150		0		

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18881**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/14/2017**	RunNo: **39931**
Client ID: **MBLKS**	Batch ID: **18881**		Analysis Date: **11/15/2017**	SeqNo: **768838**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(j,k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									Q
Surr: 2-Fluorobiphenyl	386		500.0		77.3	10	123				
Surr: Terphenyl-d14 (surr)	505		500.0		101	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-18881**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/14/2017**	RunNo: **39931**
Client ID: **LCSS**	Batch ID: **18881**		Analysis Date: **11/15/2017**	SeqNo: **768839**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	945	40.0	1,000	0	94.5	46.4	125				
2-Methylnaphthalene	957	40.0	1,000	0	95.7	45.1	135				
1-Methylnaphthalene	964	40.0	1,000	0	96.4	46.2	133				
Acenaphthylene	991	40.0	1,000	0	99.1	32.8	136				

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-18881** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/14/2017** RunNo: **39931**
Client ID: **LCSS** Batch ID: **18881** Analysis Date: **11/15/2017** SeqNo: **768839**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	1,050	40.0	1,000	0	105	38.7	129				
Fluorene	967	40.0	1,000	0	96.7	41.4	144				
Phenanthrene	1,050	40.0	1,000	0	105	43.9	133				
Anthracene	1,080	40.0	1,000	0	108	42.5	157				
Fluoranthene	1,060	40.0	1,000	0	106	45.9	137				
Pyrene	1,070	40.0	1,000	0	107	46.2	137				
Benz(a)anthracene	1,050	40.0	1,000	0	105	41.2	141				
Chrysene	1,150	40.0	1,000	0	115	43	165				
Benzo(b)fluoranthene	1,100	40.0	1,000	0	110	41	155				
Benzo(j,k)fluoranthene	1,040	40.0	1,000	0	104	40.2	161				
Benzo(a)pyrene	1,050	40.0	1,000	0	105	30.2	171				
Indeno(1,2,3-cd)pyrene	1,040	40.0	1,000	0	104	31.3	159				
Dibenz(a,h)anthracene	1,040	40.0	1,000	0	104	28	158				
Benzo(g,h,i)perylene	967	40.0	1,000	0	96.7	32.4	144				
Surr: 2-Fluorobiphenyl	439		500.0		87.8	10	123				
Surr: Terphenyl-d14 (surr)	534		500.0		107	46.2	179				

Sample ID **1711205-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/14/2017** RunNo: **39931**
Client ID: **E1N15-3.0** Batch ID: **18881** Analysis Date: **11/15/2017** SeqNo: **768841**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	36.9						0		30	
2-Methylnaphthalene	ND	36.9						0		30	
1-Methylnaphthalene	ND	36.9						0		30	
Acenaphthylene	ND	36.9						0		30	
Acenaphthene	ND	36.9						0		30	
Fluorene	ND	36.9						0		30	
Phenanthrene	ND	36.9						0		30	
Anthracene	ND	36.9						0		30	
Fluoranthene	ND	36.9						0		30	

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711205-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/14/2017** RunNo: **39931**
Client ID: **E1N15-3.0** Batch ID: **18881** Analysis Date: **11/15/2017** SeqNo: **768841**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	36.9						0		30	
Benz(a)anthracene	ND	36.9						0		30	
Chrysene	ND	36.9						0		30	
Benzo(b)fluoranthene	ND	36.9						0		30	
Benzo(j,k)fluoranthene	ND	36.9						0		30	
Benzo(a)pyrene	ND	36.9						0		30	
Indeno(1,2,3-cd)pyrene	ND	36.9						0		30	
Dibenz(a,h)anthracene	ND	36.9						0		30	
Benzo(g,h,i)perylene	ND	36.9						0		30	Q
Surr: 2-Fluorobiphenyl	210		460.9		45.6	10	123		0		
Surr: Terphenyl-d14 (surr)	405		460.9		88.0	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1711205-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/14/2017** RunNo: **39931**
Client ID: **E1N15-3.0** Batch ID: **18881** Analysis Date: **11/15/2017** SeqNo: **768842**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	934	39.5	986.5	0	94.6	42.9	138				
2-Methylnaphthalene	932	39.5	986.5	0	94.5	42.8	151				
1-Methylnaphthalene	911	39.5	986.5	0	92.4	41.6	148				
Acenaphthylene	975	39.5	986.5	0	98.8	32.6	160				
Acenaphthene	1,020	39.5	986.5	0	103	46.3	142				
Fluorene	964	39.5	986.5	0	97.7	43.4	153				
Phenanthrene	1,050	39.5	986.5	0	107	45.5	140				
Anthracene	1,080	39.5	986.5	0	109	32.6	160				
Fluoranthene	1,050	39.5	986.5	0	106	44.6	161				
Pyrene	1,060	39.5	986.5	0	107	48.3	158				
Benz(a)anthracene	1,050	39.5	986.5	0	107	34.9	139				
Chrysene	1,150	39.5	986.5	0	117	45.2	146				
Benzo(b)fluoranthene	975	39.5	986.5	0	98.9	42.2	168				

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711205-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/14/2017** RunNo: **39931**
Client ID: **E1N15-3.0** Batch ID: **18881** Analysis Date: **11/15/2017** SeqNo: **768842**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(j,k)fluoranthene	1,170	39.5	986.5	0	118	34.8	147				
Benzo(a)pyrene	1,060	39.5	986.5	0	108	34.4	179				
Indeno(1,2,3-cd)pyrene	1,100	39.5	986.5	0	111	11.8	140				
Dibenz(a,h)anthracene	1,090	39.5	986.5	0	111	17.3	156				
Benzo(g,h,i)perylene	1,000	39.5	986.5	0	101	24.9	119				
Surr: 2-Fluorobiphenyl	447		493.2		90.6	10	123				
Surr: Terphenyl-d14 (surr)	509		493.2		103	46.2	179				

Sample ID **1711205-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/14/2017** RunNo: **39931**
Client ID: **E1N15-3.0** Batch ID: **18881** Analysis Date: **11/15/2017** SeqNo: **768843**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	801	36.2	905.4	0	88.5	42.9	138	933.7	15.3	30	
2-Methylnaphthalene	816	36.2	905.4	0	90.1	42.8	151	932.2	13.3	30	
1-Methylnaphthalene	825	36.2	905.4	0	91.1	41.6	148	911.5	10.0	30	
Acenaphthylene	852	36.2	905.4	0	94.1	32.6	160	974.9	13.4	30	
Acenaphthene	899	36.2	905.4	0	99.2	46.3	142	1,020	12.6	30	
Fluorene	842	36.2	905.4	0	93.0	43.4	153	964.1	13.5	30	
Phenanthrene	902	36.2	905.4	0	99.6	45.5	140	1,054	15.6	30	
Anthracene	946	36.2	905.4	0	104	32.6	160	1,078	13.0	30	
Fluoranthene	926	36.2	905.4	0	102	44.6	161	1,046	12.1	30	
Pyrene	936	36.2	905.4	0	103	48.3	158	1,060	12.4	30	
Benz(a)anthracene	923	36.2	905.4	0	102	34.9	139	1,053	13.1	30	
Chrysene	1,000	36.2	905.4	0	111	45.2	146	1,153	13.8	30	
Benzo(b)fluoranthene	909	36.2	905.4	0	100	42.2	168	975.3	7.00	30	
Benzo(j,k)fluoranthene	918	36.2	905.4	0	101	34.8	147	1,167	23.9	30	
Benzo(a)pyrene	883	36.2	905.4	0	97.5	34.4	179	1,062	18.4	30	
Indeno(1,2,3-cd)pyrene	800	36.2	905.4	0	88.4	11.8	140	1,097	31.3	30	R
Dibenz(a,h)anthracene	805	36.2	905.4	0	88.9	17.3	156	1,092	30.3	30	R
Benzo(g,h,i)perylene	700	36.2	905.4	0	77.4	24.9	119	1,001	35.3	30	R

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711205-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/14/2017** RunNo: **39931**
Client ID: **E1N15-3.0** Batch ID: **18881** Analysis Date: **11/15/2017** SeqNo: **768843**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	350		452.7		77.4	10	123		0		
Surr: Terphenyl-d14 (surr)	451		452.7		99.5	46.2	179		0		

NOTES:
R - High RPD observed, spike recoveries are within range.

Work Order: 1711205
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711162-003ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/14/2017**		RunNo: **39903**	
Client ID: **BATCH**	Batch ID: **R39903**						Analysis Date: **11/14/2017**		SeqNo: **768249**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	40.5	0.500						40.85	0.758	20	

Sample ID **1711192-002ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **11/14/2017**		RunNo: **39903**	
Client ID: **BATCH**	Batch ID: **R39903**						Analysis Date: **11/14/2017**		SeqNo: **768393**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	22.8	0.500						0	0	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711205**
Logged by:	**Clare Griggs**	Date Received:	**11/14/2017 8:15:00 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 ☐
	Sample received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	14.5

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 11/14/17 Page: 1 of: 1

Laboratory Project No (internal): 711205

Project Name: Block 21

Special Remarks:

Client: GZI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com, cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	EIN15-3.0	11/14/17	730	S					X		X										
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	11/14/17 815	x	11/14/17 815
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1711282

November 17, 2017

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 11/16/2017 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *11/17/2017*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1711282

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1711282-001	N14-Elevator-25	11/16/2017 2:30 PM	11/16/2017 4:25 PM

Case Narrative

WO#: **1711282**
Date: **11/17/2017**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1711282**
Date Reported: **11/17/2017**

Client: GeoEngineers
Collection Date: 11/16/2017 2:30:00 PM
Project: Block 21
Lab ID: 1711282-001
Matrix: Soil
Client Sample ID: **N14-Elevator-25**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 18936		Analyst: SB
Diesel (Fuel Oil)	ND	18.6		mg/Kg-dry	1	11/17/2017 11:42:16 AM
Heavy Oil	ND	46.4		mg/Kg-dry	1	11/17/2017 11:42:16 AM
Surr: 2-Fluorobiphenyl	77.3	50 - 150		%Rec	1	11/17/2017 11:42:16 AM
Surr: o-Terphenyl	81.7	50 - 150		%Rec	1	11/17/2017 11:42:16 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 18939		Analyst: BT
Benz(a)anthracene	ND	39.4		µg/Kg-dry	1	11/17/2017 2:46:59 PM
Chrysene	ND	39.4		µg/Kg-dry	1	11/17/2017 2:46:59 PM
Benzo(b)fluoranthene	ND	39.4		µg/Kg-dry	1	11/17/2017 2:46:59 PM
Benzo(k)fluoranthene	ND	39.4		µg/Kg-dry	1	11/17/2017 2:46:59 PM
Benzo(a)pyrene	ND	39.4		µg/Kg-dry	1	11/17/2017 2:46:59 PM
Indeno(1,2,3-cd)pyrene	ND	39.4		µg/Kg-dry	1	11/17/2017 2:46:59 PM
Dibenz(a,h)anthracene	ND	39.4		µg/Kg-dry	1	11/17/2017 2:46:59 PM
Surr: 2-Fluorobiphenyl	25.1	10 - 123		%Rec	1	11/17/2017 2:46:59 PM
Surr: Terphenyl-d14 (surr)	81.4	46.2 - 179		%Rec	1	11/17/2017 2:46:59 PM
Sample Moisture (Percent Moisture)				Batch ID: R39980		Analyst: CO
Percent Moisture	4.49	0.500		wt%	1	11/17/2017 10:48:18 AM

Work Order: 1711282
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-18936**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **11/17/2017**	RunNo: **39995**
Client ID: **MBLKS**	Batch ID: **18936**		Analysis Date: **11/17/2017**	SeqNo: **770233**

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	17.5		20.00		87.3	50	150				
Surr: o-Terphenyl	18.4		20.00		91.9	50	150				

Sample ID **LCS-18936**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **11/17/2017**	RunNo: **39995**
Client ID: **LCSS**	Batch ID: **18936**		Analysis Date: **11/17/2017**	SeqNo: **770234**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	475	20.0	500.0	0	95.0	65	135				
Surr: 2-Fluorobiphenyl	19.0		20.00		94.8	50	150				
Surr: o-Terphenyl	20.1		20.00		101	50	150				

Sample ID **1711252-003ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **11/17/2017**	RunNo: **39995**
Client ID: **BATCH**	Batch ID: **18936**		Analysis Date: **11/17/2017**	SeqNo: **770237**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.2						0		30	
Heavy Oil	ND	50.5						0		30	
Surr: 2-Fluorobiphenyl	17.6		20.20		87.3	50	150		0		
Surr: o-Terphenyl	18.5		20.20		91.4	50	150		0		

Sample ID **1711252-003AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **11/17/2017**	RunNo: **39995**
Client ID: **BATCH**	Batch ID: **18936**		Analysis Date: **11/17/2017**	SeqNo: **770238**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	504	20.3	507.4	0	99.3	65	135				
Surr: 2-Fluorobiphenyl	16.1		20.29		79.4	50	150				
Surr: o-Terphenyl	17.2		20.29		84.7	50	150				

Work Order: 1711282
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1711252-003AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/17/2017** RunNo: **39995**
Client ID: **BATCH** Batch ID: **18936** Analysis Date: **11/17/2017** SeqNo: **770238**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1711252-003AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/17/2017** RunNo: **39995**
Client ID: **BATCH** Batch ID: **18936** Analysis Date: **11/17/2017** SeqNo: **770239**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	473	20.4	508.8	0	93.0	65	135	503.9	6.35	30	
Surr: 2-Fluorobiphenyl	17.8		20.35		87.7	50	150		0		
Surr: o-Terphenyl	18.9		20.35		93.0	50	150		0		

Work Order: 1711282
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-18939**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **11/17/2017**	RunNo: **40006**
Client ID: **MBLKS**	Batch ID: **18939**		Analysis Date: **11/17/2017**	SeqNo: **770329**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Surr: 2-Fluorobiphenyl	350		500.0		70.1	10	123				
Surr: Terphenyl-d14 (surr)	453		500.0		90.6	46.2	179				

Sample ID **LCS-18939**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **11/17/2017**	RunNo: **40006**
Client ID: **LCSS**	Batch ID: **18939**		Analysis Date: **11/17/2017**	SeqNo: **770330**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,250	40.0	1,000	0	125	41.2	141				
Chrysene	1,490	40.0	1,000	0	149	43	165				
Benzo(b)fluoranthene	1,270	40.0	1,000	0	127	41	155				
Benzo(k)fluoranthene	1,520	40.0	1,000	0	152	40.2	161				
Benzo(a)pyrene	1,400	40.0	1,000	0	140	30.2	171				
Indeno(1,2,3-cd)pyrene	1,180	40.0	1,000	0	118	31.3	159				
Dibenz(a,h)anthracene	1,150	40.0	1,000	0	115	28	158				
Surr: 2-Fluorobiphenyl	395		500.0		79.0	10	123				
Surr: Terphenyl-d14 (surr)	434		500.0		86.7	46.2	179				

Sample ID **1711282-001ADUP**	SampType: **DUP**	Units: **µg/Kg-dry**	Prep Date: **11/17/2017**	RunNo: **40006**
Client ID: **N14-Elevator-25**	Batch ID: **18939**		Analysis Date: **11/17/2017**	SeqNo: **770332**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	38.0						0		30	
Chrysene	ND	38.0						0		30	

Work Order: 1711282
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711282-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **N14-Elevator-25** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770332**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	ND	38.0						0		30	
Benzo(k)fluoranthene	ND	38.0						0		30	
Benzo(a)pyrene	ND	38.0						0		30	
Indeno(1,2,3-cd)pyrene	ND	38.0						0		30	
Dibenz(a,h)anthracene	ND	38.0						0		30	
Surr: 2-Fluorobiphenyl	101		475.1		21.3	10	123		0		
Surr: Terphenyl-d14 (surr)	356		475.1		74.8	46.2	179		0		

Sample ID **1711282-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **N14-Elevator-25** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770333**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,150	36.4	911.2	0	126	34.9	139				
Chrysene	1,400	36.4	911.2	0	153	45.2	146				S
Benzo(b)fluoranthene	1,170	36.4	911.2	0	129	42.2	168				
Benzo(k)fluoranthene	1,420	36.4	911.2	0	155	34.8	147				S
Benzo(a)pyrene	1,300	36.4	911.2	0	143	34.4	179				
Indeno(1,2,3-cd)pyrene	1,090	36.4	911.2	0	120	11.8	140				
Dibenz(a,h)anthracene	1,060	36.4	911.2	0	116	17.3	156				
Surr: 2-Fluorobiphenyl	285		455.6		62.5	10	123				
Surr: Terphenyl-d14 (surr)	400		455.6		87.8	46.2	179				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID **1711282-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **N14-Elevator-25** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	1,160	39.4	985.9	0	117	34.9	139	1,153	0.338	30	
Chrysene	1,380	39.4	985.9	0	140	45.2	146	1,397	1.29	30	
Benzo(b)fluoranthene	1,160	39.4	985.9	0	117	42.2	168	1,173	1.38	30	

Work Order: 1711282
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1711282-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/17/2017** RunNo: **40006**
Client ID: **N14-Elevator-25** Batch ID: **18939** Analysis Date: **11/17/2017** SeqNo: **770334**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	1,400	39.4	985.9	0	142	34.8	147	1,417	1.47	30	
Benzo(a)pyrene	1,290	39.4	985.9	0	131	34.4	179	1,300	0.393	30	
Indeno(1,2,3-cd)pyrene	1,090	39.4	985.9	0	111	11.8	140	1,091	0.0597	30	
Dibenz(a,h)anthracene	1,060	39.4	985.9	0	108	17.3	156	1,060	0.367	30	
Surr: 2-Fluorobiphenyl	293		492.9		59.5	10	123		0		
Surr: Terphenyl-d14 (surr)	374		492.9		75.9	46.2	179		0		

Work Order: 1711282
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1711282-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/17/2017** RunNo: **39980**
Client ID: **N14-Elevator-25** Batch ID: **R39980** Analysis Date: **11/17/2017** SeqNo: **770017**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	4.77	0.500						4.491	5.94	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1711282**
Logged by:	**Brianna Barnes**	Date Received:	**11/16/2017 4:25:00 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	☐
		Received straight from field				
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	23.5

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 11/16/17 Page: of:

Project Name: Block 21

Project No: see previous

Collected by: CMD

Location: Seattle

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers; cdriscoll@geoengineers.com

Laboratory Project No (internal): 1711282

Special Remarks: end of day please

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	cPAHs				Comments
1	N14-Elevator-25	11/16/17	1430	S						X							X				
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 11/16/17 1425

Relinquished x Date/Time

Received x [signature] Date/Time 11/16/17 1425 1625

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1801116

January 10, 2018

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 1/9/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1801116

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801116-001	E25S5-21	01/09/2018 2:35 PM	01/09/2018 4:17 PM

Case Narrative

WO#: **1801116**
Date: **1/10/2018**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1801116**
Date Reported: **1/10/2018**

Client: GeoEngineers
Collection Date: 1/9/2018 2:35:00 PM
Project: Block 21
Lab ID: 1801116-001
Matrix: Soil
Client Sample ID: **E25S5-21**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19440		Analyst: SB
Mineral Spirits	361	19.3		mg/Kg-dry	1	1/10/2018 3:02:17 AM
Diesel (Fuel Oil)	ND	19.3		mg/Kg-dry	1	1/10/2018 3:02:17 AM
Heavy Oil	297	48.4		mg/Kg-dry	1	1/10/2018 3:02:17 AM
Surr: 2-Fluorobiphenyl	84.0	50 - 150		%Rec	1	1/10/2018 3:02:17 AM
Surr: o-Terphenyl	86.3	50 - 150		%Rec	1	1/10/2018 3:02:17 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19449		Analyst: IH
Naphthalene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
2-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
1-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Acenaphthylene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Acenaphthene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Fluorene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Phenanthrene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Anthracene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Fluoranthene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Pyrene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Benz(a)anthracene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Chrysene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Benzo(b)fluoranthene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Benzo(k)fluoranthene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Benzo(a)pyrene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Indeno(1,2,3-cd)pyrene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Dibenz(a,h)anthracene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Benzo(g,h,i)perylene	ND	40.8		µg/Kg-dry	1	1/10/2018 12:42:17 PM
Surr: 2-Fluorobiphenyl	70.5	10 - 123		%Rec	1	1/10/2018 12:42:17 PM
Surr: Terphenyl-d14 (surr)	86.4	46.2 - 179		%Rec	1	1/10/2018 12:42:17 PM
Sample Moisture (Percent Moisture)				Batch ID: R40974		Analyst: CO
Percent Moisture	5.75	0.500		wt%	1	1/9/2018 5:14:34 PM

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-19440**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/9/2018**	RunNo: **40979**
Client ID: **MBLKS**	Batch ID: **19440**		Analysis Date: **1/9/2018**	SeqNo: **789551**

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	16.1		20.00		80.4	50	150				
Surr: o-Terphenyl	17.1		20.00		85.6	50	150				

Sample ID **LCS-19440**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/9/2018**	RunNo: **40979**
Client ID: **LCSS**	Batch ID: **19440**		Analysis Date: **1/9/2018**	SeqNo: **789552**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	488	20.0	500.0	0	97.5	65	135				
Surr: 2-Fluorobiphenyl	18.8		20.00		94.1	50	150				
Surr: o-Terphenyl	19.9		20.00		99.7	50	150				

Sample ID **1801103-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/9/2018**	RunNo: **40979**
Client ID: **BATCH**	Batch ID: **19440**		Analysis Date: **1/9/2018**	SeqNo: **789554**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	25.6						0		30	
Heavy Oil	87.4	64.1						69.75	22.4	30	
Surr: 2-Fluorobiphenyl	23.8		25.63		92.8	50	150		0		
Surr: o-Terphenyl	25.4		25.63		98.9	50	150		0		

Sample ID **1801103-001AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/9/2018**	RunNo: **40979**
Client ID: **BATCH**	Batch ID: **19440**		Analysis Date: **1/9/2018**	SeqNo: **789555**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	444	24.6	614.0	0	72.4	65	135				
Surr: 2-Fluorobiphenyl	10.6		24.56		43.0	50	150				S
Surr: o-Terphenyl	11.3		24.56		46.2	50	150				S

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1801103-001AMS**	SampType: **MS**			Units: **mg/Kg-dry**		Prep Date: **1/9/2018**		RunNo: **40979**		
Client ID:	**BATCH**	Batch ID: **19440**					Analysis Date: **1/9/2018**		SeqNo: **789555**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID	**1801103-001AMSD**	SampType: **MSD**			Units: **mg/Kg-dry**		Prep Date: **1/9/2018**		RunNo: **40979**		
Client ID:	**BATCH**	Batch ID: **19440**					Analysis Date: **1/9/2018**		SeqNo: **789556**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	627	25.8	645.3	0	97.1	65	135	444.3	34.0	30	R
Surr: 2-Fluorobiphenyl	19.2		25.81		74.4	50	150		0		
Surr: o-Terphenyl	20.2		25.81		78.2	50	150		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-19449**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/10/2018**	RunNo: **40998**
Client ID: **MBLKS**	Batch ID: **19449**		Analysis Date: **1/10/2018**	SeqNo: **789964**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	446		500.0		89.3	10	123				
Surr: Terphenyl-d14 (surr)	558		500.0		112	46.2	179				

Sample ID **LCS-19449**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/10/2018**	RunNo: **40998**
Client ID: **LCSS**	Batch ID: **19449**		Analysis Date: **1/10/2018**	SeqNo: **789965**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	788	40.0	1,000	0	78.8	46.4	125				
2-Methylnaphthalene	820	40.0	1,000	0	82.0	45.1	135				
1-Methylnaphthalene	812	40.0	1,000	0	81.2	46.2	133				
Acenaphthylene	883	40.0	1,000	0	88.3	32.8	136				
Acenaphthene	802	40.0	1,000	0	80.2	42	137				

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-19449** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **LCSS** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **789965**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	820	40.0	1,000	0	82.0	41.4	144				
Phenanthrene	815	40.0	1,000	0	81.5	36.6	141				
Anthracene	908	40.0	1,000	0	90.8	42.5	157				
Fluoranthene	884	40.0	1,000	0	88.4	43.4	144				
Pyrene	863	40.0	1,000	0	86.3	39.6	146				
Benz(a)anthracene	937	40.0	1,000	0	93.7	41.2	141				
Chrysene	797	40.0	1,000	0	79.7	43	165				
Benzo(b)fluoranthene	1,100	40.0	1,000	0	110	41	155				
Benzo(k)fluoranthene	816	40.0	1,000	0	81.6	30.6	164				
Benzo(a)pyrene	1,000	40.0	1,000	0	100	30.2	171				
Indeno(1,2,3-cd)pyrene	1,100	40.0	1,000	0	110	31.3	159				
Dibenz(a,h)anthracene	1,150	40.0	1,000	0	115	28	158				
Benzo(g,h,i)perylene	1,000	40.0	1,000	0	100	32.4	144				
Surr: 2-Fluorobiphenyl	455		500.0		91.1	10	123				
Surr: Terphenyl-d14 (surr)	525		500.0		105	46.2	179				

Sample ID **1801115-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790394**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	39.1						0		30	
2-Methylnaphthalene	ND	39.1						0		30	
1-Methylnaphthalene	ND	39.1						0		30	
Acenaphthylene	ND	39.1						0		30	
Acenaphthene	ND	39.1						0		30	
Fluorene	ND	39.1						0		30	
Phenanthrene	ND	39.1						0		30	
Anthracene	ND	39.1						0		30	
Fluoranthene	ND	39.1						0		30	
Pyrene	ND	39.1						0		30	

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801115-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790394**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	39.1						0		30	
Chrysene	ND	39.1						0		30	
Benzo(b)fluoranthene	ND	39.1						0		30	
Benzo(k)fluoranthene	ND	39.1						0		30	
Benzo(a)pyrene	ND	39.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	39.1						0		30	
Dibenz(a,h)anthracene	ND	39.1						0		30	
Benzo(g,h,i)perylene	ND	39.1						0		30	
Surr: 2-Fluorobiphenyl	336		488.3		68.8	10	123		0		
Surr: Terphenyl-d14 (surr)	433		488.3		88.6	46.2	179		0		

Sample ID **1801115-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790395**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	668	39.5	988.5	0	67.5	42.9	138				
2-Methylnaphthalene	715	39.5	988.5	0	72.3	42.8	151				
1-Methylnaphthalene	696	39.5	988.5	0	70.4	41.6	148				
Acenaphthylene	753	39.5	988.5	0	76.2	32.6	160				
Acenaphthene	689	39.5	988.5	0	69.7	31.7	126				
Fluorene	707	39.5	988.5	0	71.6	43.4	153				
Phenanthrene	697	39.5	988.5	0	70.5	23.8	135				
Anthracene	773	39.5	988.5	0	78.2	32.6	160				
Fluoranthene	801	39.5	988.5	0	81.0	28	144				
Pyrene	784	39.5	988.5	0	79.3	27.8	141				
Benz(a)anthracene	855	39.5	988.5	0	86.4	34.9	139				
Chrysene	679	39.5	988.5	0	68.7	45.2	146				
Benzo(b)fluoranthene	1,140	39.5	988.5	9.286	115	42.2	168				
Benzo(k)fluoranthene	672	39.5	988.5	0	68.0	20.5	150				
Benzo(a)pyrene	942	39.5	988.5	11.58	94.2	34.4	179				

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801115-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790395**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	898	39.5	988.5	9.252	89.9	11.8	140				
Dibenz(a,h)anthracene	952	39.5	988.5	0	96.3	17.3	156				
Benzo(g,h,i)perylene	787	39.5	988.5	8.243	78.8	24.9	119				
Surr: 2-Fluorobiphenyl	346		494.3		69.9	10	123				
Surr: Terphenyl-d14 (surr)	440		494.3		89.1	46.2	179				

Sample ID **1801115-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790396**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	582	37.9	948.5	0	61.3	42.9	138	667.6	13.7	30	
2-Methylnaphthalene	626	37.9	948.5	0	66.0	42.8	151	715.0	13.3	30	
1-Methylnaphthalene	608	37.9	948.5	0	64.1	41.6	148	696.0	13.5	30	
Acenaphthylene	674	37.9	948.5	0	71.1	32.6	160	752.9	11.0	30	
Acenaphthene	596	37.9	948.5	0	62.8	31.7	126	689.2	14.5	30	
Fluorene	617	37.9	948.5	0	65.0	43.4	153	707.4	13.7	30	
Phenanthrene	605	37.9	948.5	0	63.8	23.8	135	696.7	14.1	30	
Anthracene	692	37.9	948.5	0	73.0	32.6	160	773.4	11.1	30	
Fluoranthene	710	37.9	948.5	0	74.9	28	144	800.6	12.0	30	
Pyrene	689	37.9	948.5	0	72.6	27.8	141	783.7	12.9	30	
Benz(a)anthracene	785	37.9	948.5	0	82.7	34.9	139	854.5	8.53	30	
Chrysene	580	37.9	948.5	0	61.2	45.2	146	679.4	15.8	30	
Benzo(b)fluoranthene	992	37.9	948.5	9.286	104	42.2	168	1,144	14.2	30	
Benzo(k)fluoranthene	591	37.9	948.5	0	62.3	20.5	150	671.9	12.8	30	
Benzo(a)pyrene	832	37.9	948.5	11.58	86.5	34.4	179	942.3	12.4	30	
Indeno(1,2,3-cd)pyrene	818	37.9	948.5	9.252	85.2	11.8	140	898.4	9.38	30	
Dibenz(a,h)anthracene	863	37.9	948.5	0	91.0	17.3	156	952.3	9.82	30	
Benzo(g,h,i)perylene	705	37.9	948.5	8.243	73.5	24.9	119	786.9	11.0	30	
Surr: 2-Fluorobiphenyl	311		474.3		65.5	10	123		0		
Surr: Terphenyl-d14 (surr)	398		474.3		83.8	46.2	179		0		

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801115-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790396**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1801116
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1801116-001ADUP**	SampType: **DUP**	Units: **wt%**	Prep Date: **1/9/2018**	RunNo: **40974**
Client ID: **E25S5-21**	Batch ID: **R40974**		Analysis Date: **1/9/2018**	SeqNo: **789411**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	5.08	0.500						5.750	12.4	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1801116**
Logged by:	**Brianna Barnes**	Date Received:	**1/9/2018 4:17:00 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 ☐
		Received straight from field		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	14.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/9/18 Page: 1 of: 1

Laboratory Project No (internal): 1901116

Project Name: Block 21

Special Remarks: verbals

Project No: see previous

Collected by: CMP

Location: Seattle

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	G25 59-21	1/9/18	1435	S						X							
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/9/18 1617	x Casey Hoop	1/9/18 1617
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day TSAP
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/9/18 Page: 1 of: 1

Laboratory Project No (internal): 1901116

Project Name: Block 21

Special Remarks: verbals

Client: GSI

Project No: see previous

Address:

Collected by: CMP

City, State, Zip:

Location: Seattle

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)**	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	625 59-21	1/9/18	1435	S						X		(X)							Soldd perCD 1/10/18 ASAP cg
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/9/18 1617	x Casey O'Leep	1/9/18 1617
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day ASAP
- Same Day _____ (specify)

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/9/18 Page: 1 of: 1

Laboratory Project No (internal): 1901116

Project Name: Block 21

Special Remarks: Sample ID change per C.D. verbals 1/24/18 cw

Project No: see previous

Client: GSI

Collected by: CMD

Address:

Location: Seattle

City, State, Zip:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Telephone:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	~~E25 59-21~~	1/9/18	1435	S						X		(X)							Added per CD 1/10/18 ASAP cg
2	E2595-21																		
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x _____ Date/Time 1/9/18 1617

Received x Casey O'Leary Date/Time 1/9/18 1617

Relinquished x _____ Date/Time

Received x _____ Date/Time

Turn-around Time:

☐ Standard
☐ 3 Day
☐ 2 Day
☒ Next Day ASAP
Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1801122

January 10, 2018

Attention Chris Brown:

Fremont Analytical, Inc. received 4 sample(s) on 1/10/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *02/06/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1801122

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801122-001	E18 S9-21	01/10/2018 7:15 AM	01/10/2018 10:18 AM
1801122-002	E19 S8-21	01/10/2018 8:00 AM	01/10/2018 10:18 AM
1801122-003	E18 S7-21	01/10/2018 9:00 AM	01/10/2018 10:18 AM
1801122-004	E25S9-21	01/10/2018 9:10 AM	01/10/2018 10:18 AM

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

Case Narrative

WO#: **1801122**
Date: **1/10/2018**

CLIENT: GeoEngineers
Project: Block 21

WorkOrder Narrative:
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").

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 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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1801122**
Date Reported: **1/10/2018**

Client: GeoEngineers
Collection Date: 1/10/2018 7:15:00 AM
Project: Block 21
Lab ID: 1801122-001
Matrix: Soil
Client Sample ID: **E18 S9-21**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19457		Analyst: SB
Diesel (Fuel Oil)	ND	20.6		mg/Kg-dry	1	1/10/2018 2:00:47 PM
Heavy Oil	ND	51.5		mg/Kg-dry	1	1/10/2018 2:00:47 PM
Surr: 2-Fluorobiphenyl	70.3	50 - 150		%Rec	1	1/10/2018 2:00:47 PM
Surr: o-Terphenyl	75.0	50 - 150		%Rec	1	1/10/2018 2:00:47 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19449		Analyst: IH
Naphthalene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
2-Methylnaphthalene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
1-Methylnaphthalene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Acenaphthylene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Acenaphthene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Fluorene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Phenanthrene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Anthracene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Fluoranthene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Pyrene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Benz(a)anthracene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Chrysene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Benzo(b)fluoranthene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Benzo(k)fluoranthene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Benzo(a)pyrene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Indeno(1,2,3-cd)pyrene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Dibenz(a,h)anthracene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Benzo(g,h,i)perylene	ND	47.2		µg/Kg-dry	1	1/10/2018 1:04:15 PM
Surr: 2-Fluorobiphenyl	43.7	10 - 123		%Rec	1	1/10/2018 1:04:15 PM
Surr: Terphenyl-d14 (surr)	81.1	46.2 - 179		%Rec	1	1/10/2018 1:04:15 PM
Sample Moisture (Percent Moisture)				Batch ID: R40983		Analyst: CO
Percent Moisture	19.1	0.500		wt%	1	1/10/2018 12:01:02 PM

Analytical Report

Work Order: **1801122**
Date Reported: **1/10/2018**

Client: GeoEngineers
Collection Date: 1/10/2018 8:00:00 AM
Project: Block 21
Lab ID: 1801122-002
Matrix: Soil
Client Sample ID: **E19 S8-21**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19457		Analyst: SB
Diesel (Fuel Oil)	ND	21.1		mg/Kg-dry	1	1/10/2018 2:30:32 PM
Heavy Oil	ND	52.8		mg/Kg-dry	1	1/10/2018 2:30:32 PM
Surr: 2-Fluorobiphenyl	108	50 - 150		%Rec	1	1/10/2018 2:30:32 PM
Surr: o-Terphenyl	112	50 - 150		%Rec	1	1/10/2018 2:30:32 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19449		Analyst: IH
Naphthalene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
2-Methylnaphthalene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
1-Methylnaphthalene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Acenaphthylene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Acenaphthene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Fluorene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Phenanthrene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Anthracene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Fluoranthene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Pyrene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Benz(a)anthracene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Chrysene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Benzo(b)fluoranthene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Benzo(k)fluoranthene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Benzo(a)pyrene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Indeno(1,2,3-cd)pyrene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Dibenz(a,h)anthracene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Benzo(g,h,i)perylene	ND	43.0		µg/Kg-dry	1	1/10/2018 1:26:04 PM
Surr: 2-Fluorobiphenyl	47.5	10 - 123		%Rec	1	1/10/2018 1:26:04 PM
Surr: Terphenyl-d14 (surr)	70.0	46.2 - 179		%Rec	1	1/10/2018 1:26:04 PM
Sample Moisture (Percent Moisture)				Batch ID: R40983		Analyst: CO
Percent Moisture	11.3	0.500		wt%	1	1/10/2018 12:01:02 PM

Analytical Report

Work Order: **1801122**
Date Reported: **1/10/2018**

Client: GeoEngineers
Collection Date: 1/10/2018 9:00:00 AM
Project: Block 21
Lab ID: 1801122-003
Matrix: Soil
Client Sample ID: **E18 S7-21**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19457		Analyst: SB
Diesel (Fuel Oil)	ND	22.7		mg/Kg-dry	1	1/10/2018 3:00:17 PM
Heavy Oil	ND	56.7		mg/Kg-dry	1	1/10/2018 3:00:17 PM
Surr: 2-Fluorobiphenyl	69.0	50 - 150		%Rec	1	1/10/2018 3:00:17 PM
Surr: o-Terphenyl	72.4	50 - 150		%Rec	1	1/10/2018 3:00:17 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19449		Analyst: IH
Naphthalene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
2-Methylnaphthalene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
1-Methylnaphthalene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Acenaphthylene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Acenaphthene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Fluorene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Phenanthrene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Anthracene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Fluoranthene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Pyrene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Benz(a)anthracene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Chrysene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Benzo(b)fluoranthene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Benzo(k)fluoranthene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Benzo(a)pyrene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Indeno(1,2,3-cd)pyrene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Dibenz(a,h)anthracene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Benzo(g,h,i)perylene	ND	46.2		µg/Kg-dry	1	1/10/2018 1:47:52 PM
Surr: 2-Fluorobiphenyl	52.5	10 - 123		%Rec	1	1/10/2018 1:47:52 PM
Surr: Terphenyl-d14 (surr)	68.2	46.2 - 179		%Rec	1	1/10/2018 1:47:52 PM
Sample Moisture (Percent Moisture)				Batch ID: R40983		Analyst: CO
Percent Moisture	24.4	0.500		wt%	1	1/10/2018 12:01:02 PM

Analytical Report

Work Order: **1801122**
Date Reported: **1/10/2018**

Client: GeoEngineers
Collection Date: 1/10/2018 9:10:00 AM
Project: Block 21
Lab ID: 1801122-004
Matrix: Soil
Client Sample ID: **E25S9-21**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19457		Analyst: SB
Diesel (Fuel Oil)	ND	22.9		mg/Kg-dry	1	1/10/2018 3:30:03 PM
Heavy Oil	ND	57.4		mg/Kg-dry	1	1/10/2018 3:30:03 PM
Surr: 2-Fluorobiphenyl	76.4	50 - 150		%Rec	1	1/10/2018 3:30:03 PM
Surr: o-Terphenyl	81.6	50 - 150		%Rec	1	1/10/2018 3:30:03 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19449		Analyst: IH
Naphthalene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
2-Methylnaphthalene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
1-Methylnaphthalene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Acenaphthylene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Acenaphthene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Fluorene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Phenanthrene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Anthracene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Fluoranthene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Pyrene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Benz(a)anthracene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Chrysene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Benzo(b)fluoranthene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Benzo(k)fluoranthene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Benzo(a)pyrene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Indeno(1,2,3-cd)pyrene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Dibenz(a,h)anthracene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Benzo(g,h,i)perylene	ND	49.3		µg/Kg-dry	1	1/10/2018 2:09:47 PM
Surr: 2-Fluorobiphenyl	45.7	10 - 123		%Rec	1	1/10/2018 2:09:47 PM
Surr: Terphenyl-d14 (surr)	73.9	46.2 - 179		%Rec	1	1/10/2018 2:09:47 PM
Sample Moisture (Percent Moisture)				Batch ID: R40983		Analyst: CO
Percent Moisture	20.3	0.500		wt%	1	1/10/2018 12:01:02 PM

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**MB-19457**	SampType:	**MBLK**	Units:	**mg/Kg**	Prep Date:	**1/10/2018**	RunNo:	**40999**
Client ID:	**MBLKS**	Batch ID:	**19457**			Analysis Date:	**1/10/2018**	SeqNo:	**789973**

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	15.9		20.00		79.6	50	150				
Surr: o-Terphenyl	16.7		20.00		83.6	50	150				

Sample ID	**LCS-19457**	SampType:	**LCS**	Units:	**mg/Kg**	Prep Date:	**1/10/2018**	RunNo:	**40999**
Client ID:	**LCSS**	Batch ID:	**19457**			Analysis Date:	**1/10/2018**	SeqNo:	**789974**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	478	20.0	500.0	0	95.6	65	135				
Surr: 2-Fluorobiphenyl	17.9		20.00		89.3	50	150				
Surr: o-Terphenyl	18.5		20.00		92.7	50	150				

Sample ID	**1801122-001ADUP**	SampType:	**DUP**	Units:	**mg/Kg-dry**	Prep Date:	**1/10/2018**	RunNo:	**40999**
Client ID:	**E18 S9-21**	Batch ID:	**19457**			Analysis Date:	**1/10/2018**	SeqNo:	**790171**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	23.8						0		30	
Heavy Oil	ND	59.5						0		30	
Surr: 2-Fluorobiphenyl	17.8		23.78		75.0	50	150		0		
Surr: o-Terphenyl	19.0		23.78		79.8	50	150		0		

Sample ID	**1801122-001AMS**	SampType:	**MS**	Units:	**mg/Kg-dry**	Prep Date:	**1/10/2018**	RunNo:	**40999**
Client ID:	**E18 S9-21**	Batch ID:	**19457**			Analysis Date:	**1/10/2018**	SeqNo:	**790172**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	493	22.4	560.6	0	88.0	65	135				
Surr: 2-Fluorobiphenyl	17.4		22.42		77.5	50	150				
Surr: o-Terphenyl	18.2		22.42		81.0	50	150				

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1801122-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40999**
Client ID: **E18 S9-21** Batch ID: **19457** Analysis Date: **1/10/2018** SeqNo: **790172**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1801122-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40999**
Client ID: **E18 S9-21** Batch ID: **19457** Analysis Date: **1/10/2018** SeqNo: **790173**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	512	21.7	542.9	0	94.3	65	135	493.2	3.74	30	
Surr: 2-Fluorobiphenyl	18.0		21.71		82.9	50	150		0		
Surr: o-Terphenyl	19.0		21.71		87.5	50	150		0		

Sample ID **1801115-006ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40999**
Client ID: **BATCH** Batch ID: **19457** Analysis Date: **1/10/2018** SeqNo: **790182**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.5						0		30	
Heavy Oil	ND	51.2						0		30	
Surr: 2-Fluorobiphenyl	18.7		20.47		91.6	50	150		0		
Surr: o-Terphenyl	19.9		20.47		97.1	50	150		0		

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-19449**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/10/2018**	RunNo: **40998**
Client ID: **MBLKS**	Batch ID: **19449**		Analysis Date: **1/10/2018**	SeqNo: **789964**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	446		500.0		89.3	10	123				
Surr: Terphenyl-d14 (surr)	558		500.0		112	46.2	179				

Sample ID **LCS-19449**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/10/2018**	RunNo: **40998**
Client ID: **LCSS**	Batch ID: **19449**		Analysis Date: **1/10/2018**	SeqNo: **789965**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	788	40.0	1,000	0	78.8	46.4	125				
2-Methylnaphthalene	820	40.0	1,000	0	82.0	45.1	135				
1-Methylnaphthalene	812	40.0	1,000	0	81.2	46.2	133				
Acenaphthylene	883	40.0	1,000	0	88.3	32.8	136				
Acenaphthene	802	40.0	1,000	0	80.2	42	137				

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-19449** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **LCSS** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **789965**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	820	40.0	1,000	0	82.0	41.4	144				
Phenanthrene	815	40.0	1,000	0	81.5	36.6	141				
Anthracene	908	40.0	1,000	0	90.8	42.5	157				
Fluoranthene	884	40.0	1,000	0	88.4	43.4	144				
Pyrene	863	40.0	1,000	0	86.3	39.6	146				
Benz(a)anthracene	937	40.0	1,000	0	93.7	41.2	141				
Chrysene	797	40.0	1,000	0	79.7	43	165				
Benzo(b)fluoranthene	1,100	40.0	1,000	0	110	41	155				
Benzo(k)fluoranthene	816	40.0	1,000	0	81.6	30.6	164				
Benzo(a)pyrene	1,000	40.0	1,000	0	100	30.2	171				
Indeno(1,2,3-cd)pyrene	1,100	40.0	1,000	0	110	31.3	159				
Dibenz(a,h)anthracene	1,150	40.0	1,000	0	115	28	158				
Benzo(g,h,i)perylene	1,000	40.0	1,000	0	100	32.4	144				
Surr: 2-Fluorobiphenyl	455		500.0		91.1	10	123				
Surr: Terphenyl-d14 (surr)	525		500.0		105	46.2	179				

Sample ID **1801115-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790394**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	39.1						0		30	
2-Methylnaphthalene	ND	39.1						0		30	
1-Methylnaphthalene	ND	39.1						0		30	
Acenaphthylene	ND	39.1						0		30	
Acenaphthene	ND	39.1						0		30	
Fluorene	ND	39.1						0		30	
Phenanthrene	ND	39.1						0		30	
Anthracene	ND	39.1						0		30	
Fluoranthene	ND	39.1						0		30	
Pyrene	ND	39.1						0		30	

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801115-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790394**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	39.1						0		30	
Chrysene	ND	39.1						0		30	
Benzo(b)fluoranthene	ND	39.1						0		30	
Benzo(k)fluoranthene	ND	39.1						0		30	
Benzo(a)pyrene	ND	39.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	39.1						0		30	
Dibenz(a,h)anthracene	ND	39.1						0		30	
Benzo(g,h,i)perylene	ND	39.1						0		30	
Surr: 2-Fluorobiphenyl	336		488.3		68.8	10	123		0		
Surr: Terphenyl-d14 (surr)	433		488.3		88.6	46.2	179		0		

Sample ID **1801115-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790395**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	668	39.5	988.5	0	67.5	42.9	138				
2-Methylnaphthalene	715	39.5	988.5	0	72.3	42.8	151				
1-Methylnaphthalene	696	39.5	988.5	0	70.4	41.6	148				
Acenaphthylene	753	39.5	988.5	0	76.2	32.6	160				
Acenaphthene	689	39.5	988.5	0	69.7	31.7	126				
Fluorene	707	39.5	988.5	0	71.6	43.4	153				
Phenanthrene	697	39.5	988.5	0	70.5	23.8	135				
Anthracene	773	39.5	988.5	0	78.2	32.6	160				
Fluoranthene	801	39.5	988.5	0	81.0	28	144				
Pyrene	784	39.5	988.5	0	79.3	27.8	141				
Benz(a)anthracene	855	39.5	988.5	0	86.4	34.9	139				
Chrysene	679	39.5	988.5	0	68.7	45.2	146				
Benzo(b)fluoranthene	1,140	39.5	988.5	9.286	115	42.2	168				
Benzo(k)fluoranthene	672	39.5	988.5	0	68.0	20.5	150				
Benzo(a)pyrene	942	39.5	988.5	11.58	94.2	34.4	179				

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801115-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790395**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	898	39.5	988.5	9.252	89.9	11.8	140				
Dibenz(a,h)anthracene	952	39.5	988.5	0	96.3	17.3	156				
Benzo(g,h,i)perylene	787	39.5	988.5	8.243	78.8	24.9	119				
Surr: 2-Fluorobiphenyl	346		494.3		69.9	10	123				
Surr: Terphenyl-d14 (surr)	440		494.3		89.1	46.2	179				

Sample ID **1801115-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790396**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	582	37.9	948.5	0	61.3	42.9	138	667.6	13.7	30	
2-Methylnaphthalene	626	37.9	948.5	0	66.0	42.8	151	715.0	13.3	30	
1-Methylnaphthalene	608	37.9	948.5	0	64.1	41.6	148	696.0	13.5	30	
Acenaphthylene	674	37.9	948.5	0	71.1	32.6	160	752.9	11.0	30	
Acenaphthene	596	37.9	948.5	0	62.8	31.7	126	689.2	14.5	30	
Fluorene	617	37.9	948.5	0	65.0	43.4	153	707.4	13.7	30	
Phenanthrene	605	37.9	948.5	0	63.8	23.8	135	696.7	14.1	30	
Anthracene	692	37.9	948.5	0	73.0	32.6	160	773.4	11.1	30	
Fluoranthene	710	37.9	948.5	0	74.9	28	144	800.6	12.0	30	
Pyrene	689	37.9	948.5	0	72.6	27.8	141	783.7	12.9	30	
Benz(a)anthracene	785	37.9	948.5	0	82.7	34.9	139	854.5	8.53	30	
Chrysene	580	37.9	948.5	0	61.2	45.2	146	679.4	15.8	30	
Benzo(b)fluoranthene	992	37.9	948.5	9.286	104	42.2	168	1,144	14.2	30	
Benzo(k)fluoranthene	591	37.9	948.5	0	62.3	20.5	150	671.9	12.8	30	
Benzo(a)pyrene	832	37.9	948.5	11.58	86.5	34.4	179	942.3	12.4	30	
Indeno(1,2,3-cd)pyrene	818	37.9	948.5	9.252	85.2	11.8	140	898.4	9.38	30	
Dibenz(a,h)anthracene	863	37.9	948.5	0	91.0	17.3	156	952.3	9.82	30	
Benzo(g,h,i)perylene	705	37.9	948.5	8.243	73.5	24.9	119	786.9	11.0	30	
Surr: 2-Fluorobiphenyl	311		474.3		65.5	10	123		0		
Surr: Terphenyl-d14 (surr)	398		474.3		83.8	46.2	179		0		

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801115-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/10/2018** RunNo: **40998**
Client ID: **BATCH** Batch ID: **19449** Analysis Date: **1/10/2018** SeqNo: **790396**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Work Order: 1801122
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1801122-003ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **1/10/2018**		RunNo: **40983**	
Client ID: **E18 S7-21**	Batch ID: **R40983**						Analysis Date: **1/10/2018**		SeqNo: **789683**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	23.5	0.500						24.40	3.90	20	

Sample ID **1801124-002ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **1/10/2018**		RunNo: **40983**	
Client ID: **BATCH**	Batch ID: **R40983**						Analysis Date: **1/10/2018**		SeqNo: **789702**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	14.2	0.500						15.14	6.43	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1801122**
Logged by:	**Clare Griggs**	Date Received:	**1/10/2018 10:18:00 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 ☐
	Samples received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 1/10/18 Page: 1 of: 1

Laboratory Project No (internal): 1801122

Project Name: Block 21

Special Remarks: ASAP

Project No: see previous

Client: GEI

Collected by: CMD

Address:

Location: Seattle, WA

City, State, Zip:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Telephone:

PM Email: cbrown@geiengineers.com; cdriscoll@geiengineers

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)			Comments
1	E1859-21	1/10/18	0715	S						X	X									
2	E1958-21		0800	|						X	X									
3	E1857-21		0900	|						X	X									
4	E2555-21		0910	|						X	X									
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/10/18 1018	x	1/10/18 1018
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day ASAP (specify)

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 1/10/18 Page: 1 of: 1

Laboratory Project No (internal): 1801122

Project Name: Block 21

Special Remarks: ASAP
Sample ID change per C.D. 1/24/18 cw

Client: GEI

Project No: see previous

Address:

Collected by: CmD

City, State, Zip:

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geengineers.com; cdriscoll@geengineers

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E1859-21	1/10/18	0715	S					X		X							
2	E1958-21		0800	|					X		X							
3	E1857-21		0900	|					X		X							
4	~~E2555-21~~		0910	|					X		X							E2559-21
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/10/18 1018	x	1/10/18 1018
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:
- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day ASAP (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1801198

January 16, 2018

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 1/15/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *01/16/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1801198

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801198-001	E20S0-22	01/15/2018 9:20 AM	01/15/2018 2:00 PM
1801198-002	E23S0-23	01/15/2018 1:00 PM	01/15/2018 2:00 PM
1801198-003	E23S0- Composite-23-24	01/15/2018 1:15 PM	01/15/2018 2:00 PM

Case Narrative

WO#: **1801198**
Date: **1/16/2018**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1801198**
Date Reported: **1/16/2018**

Client: GeoEngineers
Collection Date: 1/15/2018 9:20:00 AM
Project: Block 21
Lab ID: 1801198-001
Matrix: Soil
Client Sample ID: **E20S0-22**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19508		Analyst: SB
Diesel (Fuel Oil)	ND	23.6		mg/Kg-dry	1	1/16/2018 12:34:41 PM
Heavy Oil	ND	59.0		mg/Kg-dry	1	1/16/2018 12:34:41 PM
Surr: 2-Fluorobiphenyl	85.1	50 - 150		%Rec	1	1/16/2018 12:34:41 PM
Surr: o-Terphenyl	91.5	50 - 150		%Rec	1	1/16/2018 12:34:41 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19504		Analyst: IH
Naphthalene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
2-Methylnaphthalene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
1-Methylnaphthalene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Acenaphthylene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Acenaphthene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Fluorene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Phenanthrene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Anthracene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Fluoranthene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Pyrene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Benz(a)anthracene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Chrysene	ND	46.5	Q	µg/Kg-dry	1	1/16/2018 11:14:36 AM
Benzo(b)fluoranthene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Benzo(k)fluoranthene	ND	46.5	Q	µg/Kg-dry	1	1/16/2018 11:14:36 AM
Benzo(a)pyrene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Indeno(1,2,3-cd)pyrene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Dibenz(a,h)anthracene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Benzo(g,h,i)perylene	ND	46.5		µg/Kg-dry	1	1/16/2018 11:14:36 AM
Surr: 2-Fluorobiphenyl	58.9	10 - 123		%Rec	1	1/16/2018 11:14:36 AM
Surr: Terphenyl-d14 (surr)	85.2	46.2 - 179		%Rec	1	1/16/2018 11:14:36 AM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41092		Analyst: CO
Percent Moisture	17.1	0.500		wt%	1	1/15/2018 2:28:18 PM

Analytical Report

Work Order: **1801198**
Date Reported: **1/16/2018**

Client: GeoEngineers
Collection Date: 1/15/2018 1:00:00 PM
Project: Block 21
Lab ID: 1801198-002
Matrix: Soil
Client Sample ID: **E23S0-23**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19508		Analyst: SB
Diesel (Fuel Oil)	8,660	232	D	mg/Kg-dry	10	1/16/2018 2:34:35 PM
Heavy Oil	ND	57.9		mg/Kg-dry	1	1/16/2018 1:04:36 PM
Surr: 2-Fluorobiphenyl	133	50 - 150		%Rec	1	1/16/2018 1:04:36 PM
Surr: o-Terphenyl	92.7	50 - 150		%Rec	1	1/16/2018 1:04:36 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19504		Analyst: IH
Naphthalene	3,710	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
2-Methylnaphthalene	15,200	409	D	µg/Kg-dry	10	1/16/2018 2:10:37 PM
1-Methylnaphthalene	13,100	409	D	µg/Kg-dry	10	1/16/2018 2:10:37 PM
Acenaphthylene	270	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Acenaphthene	1,170	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Fluorene	2,380	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Phenanthrene	6,180	409	D	µg/Kg-dry	10	1/16/2018 2:10:37 PM
Anthracene	622	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Fluoranthene	147	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Pyrene	619	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Benz(a)anthracene	ND	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Chrysene	42.3	40.9	Q	µg/Kg-dry	1	1/16/2018 12:42:46 PM
Benzo(b)fluoranthene	ND	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Benzo(k)fluoranthene	ND	40.9	Q	µg/Kg-dry	1	1/16/2018 12:42:46 PM
Benzo(a)pyrene	ND	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Indeno(1,2,3-cd)pyrene	ND	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Dibenz(a,h)anthracene	ND	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Benzo(g,h,i)perylene	ND	40.9		µg/Kg-dry	1	1/16/2018 12:42:46 PM
Surr: 2-Fluorobiphenyl	93.1	10 - 123		%Rec	1	1/16/2018 12:42:46 PM
Surr: Terphenyl-d14 (surr)	94.9	46.2 - 179		%Rec	1	1/16/2018 12:42:46 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41092		Analyst: CO
Percent Moisture	17.0	0.500		wt%	1	1/15/2018 2:28:18 PM

Analytical Report

Work Order: **1801198**
Date Reported: **1/16/2018**

Client: GeoEngineers
Collection Date: 1/15/2018 1:15:00 PM
Project: Block 21
Lab ID: 1801198-003
Matrix: Soil
Client Sample ID: **E23S0- Composite-23-24**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19508		Analyst: SB
Diesel (Fuel Oil)	212	20.4		mg/Kg-dry	1	1/16/2018 1:34:32 PM
Heavy Oil	ND	50.9		mg/Kg-dry	1	1/16/2018 1:34:32 PM
Surr: 2-Fluorobiphenyl	95.5	50 - 150		%Rec	1	1/16/2018 1:34:32 PM
Surr: o-Terphenyl	98.5	50 - 150		%Rec	1	1/16/2018 1:34:32 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19504		Analyst: IH
Naphthalene	96.7	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
2-Methylnaphthalene	500	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
1-Methylnaphthalene	479	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Acenaphthylene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Acenaphthene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Fluorene	92.1	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Phenanthrene	250	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Anthracene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Fluoranthene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Pyrene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Benz(a)anthracene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Chrysene	ND	46.1	Q	µg/Kg-dry	1	1/16/2018 1:04:42 PM
Benzo(b)fluoranthene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Benzo(k)fluoranthene	ND	46.1	Q	µg/Kg-dry	1	1/16/2018 1:04:42 PM
Benzo(a)pyrene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Indeno(1,2,3-cd)pyrene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Dibenz(a,h)anthracene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Benzo(g,h,i)perylene	ND	46.1		µg/Kg-dry	1	1/16/2018 1:04:42 PM
Surr: 2-Fluorobiphenyl	68.0	10 - 123		%Rec	1	1/16/2018 1:04:42 PM
Surr: Terphenyl-d14 (surr)	97.7	46.2 - 179		%Rec	1	1/16/2018 1:04:42 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41092		Analyst: CO
Percent Moisture	17.4	0.500		wt%	1	1/15/2018 2:28:18 PM

Work Order: 1801198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-19508**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/16/2018**	RunNo: **41121**
Client ID: **MBLKS**	Batch ID: **19508**		Analysis Date: **1/16/2018**	SeqNo: **792132**

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	17.8		20.00		88.8	50	150				
Surr: o-Terphenyl	18.9		20.00		94.4	50	150				

Sample ID **LCS-19508**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/16/2018**	RunNo: **41121**
Client ID: **LCSS**	Batch ID: **19508**		Analysis Date: **1/16/2018**	SeqNo: **792133**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	501	20.0	500.0	0	100	65	135				
Surr: 2-Fluorobiphenyl	18.6		20.00		93.2	50	150				
Surr: o-Terphenyl	19.7		20.00		98.5	50	150				

Sample ID **1801198-001ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/16/2018**	RunNo: **41121**
Client ID: **E20S0-22**	Batch ID: **19508**		Analysis Date: **1/16/2018**	SeqNo: **792137**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	22.6						0		30	
Heavy Oil	ND	56.6						0		30	
Surr: 2-Fluorobiphenyl	19.1		22.64		84.4	50	150		0		
Surr: o-Terphenyl	20.1		22.64		88.6	50	150		0		

Work Order: 1801198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-19504**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/15/2018**	RunNo: **41113**
Client ID: **MBLKS**	Batch ID: **19504**		Analysis Date: **1/16/2018**	SeqNo: **792103**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									Q
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									Q
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	415		500.0		83.1	10	123				
Surr: Terphenyl-d14 (surr)	559		500.0		112	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-19504**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/15/2018**	RunNo: **41113**
Client ID: **LCSS**	Batch ID: **19504**		Analysis Date: **1/16/2018**	SeqNo: **792105**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	810	40.0	1,000	0	81.0	46.4	125				
2-Methylnaphthalene	859	40.0	1,000	0	85.9	45.1	135				
1-Methylnaphthalene	853	40.0	1,000	0	85.3	46.2	133				
Acenaphthylene	923	40.0	1,000	0	92.3	32.8	136				

Work Order: 1801198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-19504** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/15/2018** RunNo: **41113**
Client ID: **LCSS** Batch ID: **19504** Analysis Date: **1/16/2018** SeqNo: **792105**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	844	40.0	1,000	0	84.4	42	137				
Fluorene	866	40.0	1,000	0	86.6	41.4	144				
Phenanthrene	854	40.0	1,000	0	85.4	36.6	141				
Anthracene	933	40.0	1,000	0	93.3	42.5	157				
Fluoranthene	918	40.0	1,000	0	91.8	43.4	144				
Pyrene	908	40.0	1,000	0	90.8	39.6	146				
Benz(a)anthracene	980	40.0	1,000	0	98.0	41.2	141				
Chrysene	839	40.0	1,000	0	83.9	43	165				
Benzo(b)fluoranthene	1,180	40.0	1,000	0	118	41	155				
Benzo(k)fluoranthene	785	40.0	1,000	0	78.5	30.6	164				
Benzo(a)pyrene	969	40.0	1,000	0	96.9	30.2	171				
Indeno(1,2,3-cd)pyrene	934	40.0	1,000	0	93.4	31.3	159				
Dibenz(a,h)anthracene	986	40.0	1,000	0	98.6	28	158				
Benzo(g,h,i)perylene	816	40.0	1,000	0	81.6	32.4	144				
Surr: 2-Fluorobiphenyl	448		500.0		89.6	10	123				
Surr: Terphenyl-d14 (surr)	559		500.0		112	46.2	179				

Sample ID **1801198-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/15/2018** RunNo: **41113**
Client ID: **E20S0-22** Batch ID: **19504** Analysis Date: **1/16/2018** SeqNo: **792109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	46.9						0		30	
2-Methylnaphthalene	ND	46.9						0		30	
1-Methylnaphthalene	ND	46.9						0		30	
Acenaphthylene	ND	46.9						0		30	
Acenaphthene	ND	46.9						0		30	
Fluorene	ND	46.9						0		30	
Phenanthrene	ND	46.9						0		30	
Anthracene	ND	46.9						0		30	
Fluoranthene	ND	46.9						0		30	

Work Order: 1801198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801198-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/15/2018** RunNo: **41113**
Client ID: **E20S0-22** Batch ID: **19504** Analysis Date: **1/16/2018** SeqNo: **792109**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	46.9						0		30	
Benz(a)anthracene	ND	46.9						0		30	
Chrysene	ND	46.9						0		30	Q
Benzo(b)fluoranthene	ND	46.9						0		30	
Benzo(k)fluoranthene	ND	46.9						0		30	Q
Benzo(a)pyrene	ND	46.9						0		30	
Indeno(1,2,3-cd)pyrene	ND	46.9						0		30	
Dibenz(a,h)anthracene	ND	46.9						0		30	
Benzo(g,h,i)perylene	ND	46.9						0		30	
Surr: 2-Fluorobiphenyl	340		585.9		58.0	10	123		0		
Surr: Terphenyl-d14 (surr)	516		585.9		88.2	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1801198-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/15/2018** RunNo: **41113**
Client ID: **E20S0-22** Batch ID: **19504** Analysis Date: **1/16/2018** SeqNo: **792111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	691	43.5	1,088	0	63.5	42.9	138				
2-Methylnaphthalene	777	43.5	1,088	12.21	70.3	42.8	151				
1-Methylnaphthalene	758	43.5	1,088	15.12	68.2	41.6	148				
Acenaphthylene	813	43.5	1,088	0	74.7	32.6	160				
Acenaphthene	748	43.5	1,088	1.837	68.5	31.7	126				
Fluorene	769	43.5	1,088	3.336	70.4	43.4	153				
Phenanthrene	757	43.5	1,088	10.46	68.6	23.8	135				
Anthracene	827	43.5	1,088	0	75.9	32.6	160				
Fluoranthene	836	43.5	1,088	0	76.8	28	144				
Pyrene	812	43.5	1,088	0	74.6	27.8	141				
Benz(a)anthracene	850	43.5	1,088	0	78.1	34.9	139				
Chrysene	744	43.5	1,088	0	68.4	45.2	146				
Benzo(b)fluoranthene	987	43.5	1,088	0	90.7	42.2	168				

Work Order: 1801198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801198-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/15/2018** RunNo: **41113**
Client ID: **E20S0-22** Batch ID: **19504** Analysis Date: **1/16/2018** SeqNo: **792111**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	723	43.5	1,088	0	66.4	20.5	150				
Benzo(a)pyrene	847	43.5	1,088	0	77.8	34.4	179				
Indeno(1,2,3-cd)pyrene	817	43.5	1,088	9.127	74.2	11.8	140				
Dibenz(a,h)anthracene	858	43.5	1,088	10.08	77.9	17.3	156				
Benzo(g,h,i)perylene	726	43.5	1,088	6.977	66.1	24.9	119				
Surr: 2-Fluorobiphenyl	404		544.2		74.2	10	123				
Surr: Terphenyl-d14 (surr)	492		544.2		90.3	46.2	179				

Sample ID **1801198-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/15/2018** RunNo: **41113**
Client ID: **E20S0-22** Batch ID: **19504** Analysis Date: **1/16/2018** SeqNo: **792113**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	769	48.0	1,201	0	64.1	42.9	138	691.1	10.7	30	
2-Methylnaphthalene	855	48.0	1,201	12.21	70.2	42.8	151	777.2	9.58	30	
1-Methylnaphthalene	843	48.0	1,201	15.12	69.0	41.6	148	757.8	10.7	30	
Acenaphthylene	908	48.0	1,201	0	75.6	32.6	160	813.3	11.0	30	
Acenaphthene	823	48.0	1,201	1.837	68.3	31.7	126	747.7	9.54	30	
Fluorene	850	48.0	1,201	3.336	70.5	43.4	153	769.4	9.98	30	
Phenanthrene	839	48.0	1,201	10.46	69.0	23.8	135	756.7	10.4	30	
Anthracene	909	48.0	1,201	0	75.7	32.6	160	826.5	9.49	30	
Fluoranthene	919	48.0	1,201	0	76.5	28	144	835.9	9.49	30	
Pyrene	893	48.0	1,201	0	74.4	27.8	141	811.9	9.54	30	
Benz(a)anthracene	944	48.0	1,201	0	78.6	34.9	139	849.6	10.5	30	
Chrysene	827	48.0	1,201	0	68.9	45.2	146	744.1	10.6	30	
Benzo(b)fluoranthene	1,110	48.0	1,201	0	92.3	42.2	168	987.3	11.6	30	
Benzo(k)fluoranthene	785	48.0	1,201	0	65.4	20.5	150	722.9	8.25	30	
Benzo(a)pyrene	927	48.0	1,201	0	77.2	34.4	179	846.7	9.11	30	
Indeno(1,2,3-cd)pyrene	910	48.0	1,201	9.127	75.0	11.8	140	816.8	10.8	30	
Dibenz(a,h)anthracene	976	48.0	1,201	10.08	80.4	17.3	156	858.2	12.8	30	
Benzo(g,h,i)perylene	807	48.0	1,201	6.977	66.6	24.9	119	726.2	10.5	30	

Work Order: 1801198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801198-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/15/2018** RunNo: **41113**
Client ID: **E20S0-22** Batch ID: **19504** Analysis Date: **1/16/2018** SeqNo: **792113**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	453		600.5		75.5	10	123		0		
Surr: Terphenyl-d14 (surr)	545		600.5		90.8	46.2	179		0		

Work Order: 1801198
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1801187-002ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **1/15/2018**		RunNo: **41092**	
Client ID: **BATCH**	Batch ID: **R41092**						Analysis Date: **1/15/2018**		SeqNo: **791631**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	24.1	0.500						23.43	2.75	20	

Sample ID **1801198-003ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **1/15/2018**		RunNo: **41092**	
Client ID: **E23S0- Composite-23-2**	Batch ID: **R41092**						Analysis Date: **1/15/2018**		SeqNo: **791642**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	17.8	0.500						17.40	2.04	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1801198**
Logged by:	**Brianna Barnes**	Date Received:	**1/15/2018 2:00:00 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	☐
		No cooler present.				
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	18.5

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 1/15/18 | Page: | of:

Laboratory Project No (internal): 1801198

Project Name: Block 21

Special Remarks:

Client: GEI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location:

Telephone:

Report To (PM):

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Fax:

PM Email:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1 E2050-22	1/15/18	920	S						X	X										
2 E2350-23	|	1300	|						X	X										
3 E2350-Composite-23,24	|	1315	L						X	X										
4																					
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1400 1/15/18	x	1400 1/15/18
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1801309

January 24, 2018

Attention Chris Brown:

Fremont Analytical, Inc. received 3 sample(s) on 1/23/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *01/24/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1801309

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801309-001	E14S0-25	01/23/2018 7:15 AM	01/23/2018 1:05 PM
1801309-002	E17S0-25	01/23/2018 7:30 AM	01/23/2018 1:05 PM
1801309-003	E19S2-29	01/23/2018 7:00 AM	01/23/2018 1:05 PM

Case Narrative

WO#: **1801309**
Date: **1/24/2018**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1801309**
Date Reported: **1/24/2018**

Client: GeoEngineers
Collection Date: 1/23/2018 7:15:00 AM
Project: Block 21
Lab ID: 1801309-001
Matrix: Soil
Client Sample ID: **E14S0-25**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19587		Analyst: SB
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	1/24/2018 3:22:56 AM
Heavy Oil	ND	51.9		mg/Kg-dry	1	1/24/2018 3:22:56 AM
Surr: 2-Fluorobiphenyl	116	50 - 150		%Rec	1	1/24/2018 3:22:56 AM
Surr: o-Terphenyl	123	50 - 150		%Rec	1	1/24/2018 3:22:56 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19597		Analyst: IH
Naphthalene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
2-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
1-Methylnaphthalene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Acenaphthylene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Acenaphthene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Fluorene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Phenanthrene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Anthracene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Fluoranthene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Pyrene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Benz(a)anthracene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Chrysene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Benzo(b)fluoranthene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Benzo(k)fluoranthene	ND	41.7	Q	µg/Kg-dry	1	1/23/2018 6:39:52 PM
Benzo(a)pyrene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Indeno(1,2,3-cd)pyrene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Dibenz(a,h)anthracene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Benzo(g,h,i)perylene	ND	41.7		µg/Kg-dry	1	1/23/2018 6:39:52 PM
Surr: 2-Fluorobiphenyl	58.3	10 - 123		%Rec	1	1/23/2018 6:39:52 PM
Surr: Terphenyl-d14 (surr)	66.0	46.2 - 179		%Rec	1	1/23/2018 6:39:52 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41269		Analyst: CO
Percent Moisture	10.5	0.500		wt%	1	1/23/2018 4:38:44 PM

Analytical Report

Work Order: **1801309**
Date Reported: **1/24/2018**

Client: GeoEngineers
Collection Date: 1/23/2018 7:30:00 AM
Project: Block 21
Lab ID: 1801309-002
Matrix: Soil
Client Sample ID: **E17S0-25**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19587		Analyst: SB
Diesel (Fuel Oil)	ND	21.9		mg/Kg-dry	1	1/24/2018 3:52:31 AM
Heavy Oil	ND	54.7		mg/Kg-dry	1	1/24/2018 3:52:31 AM
Surr: 2-Fluorobiphenyl	83.4	50 - 150		%Rec	1	1/24/2018 3:52:31 AM
Surr: o-Terphenyl	94.1	50 - 150		%Rec	1	1/24/2018 3:52:31 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19597		Analyst: IH
Naphthalene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
2-Methylnaphthalene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
1-Methylnaphthalene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Acenaphthylene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Acenaphthene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Fluorene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Phenanthrene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Anthracene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Fluoranthene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Pyrene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Benz(a)anthracene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Chrysene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Benzo(b)fluoranthene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Benzo(k)fluoranthene	ND	42.9	Q	µg/Kg-dry	1	1/23/2018 8:06:51 PM
Benzo(a)pyrene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Indeno(1,2,3-cd)pyrene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Dibenz(a,h)anthracene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Benzo(g,h,i)perylene	ND	42.9		µg/Kg-dry	1	1/23/2018 8:06:51 PM
Surr: 2-Fluorobiphenyl	51.5	10 - 123		%Rec	1	1/23/2018 8:06:51 PM
Surr: Terphenyl-d14 (surr)	57.6	46.2 - 179		%Rec	1	1/23/2018 8:06:51 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41269		Analyst: CO
Percent Moisture	11.1	0.500		wt%	1	1/23/2018 4:38:44 PM

Analytical Report

Work Order: **1801309**
Date Reported: **1/24/2018**

Client: GeoEngineers
Collection Date: 1/23/2018 7:00:00 AM
Project: Block 21
Lab ID: 1801309-003
Matrix: Soil
Client Sample ID: **E19S2-29**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19587		Analyst: SB
Diesel (Fuel Oil)	ND	20.0		mg/Kg-dry	1	1/24/2018 4:22:03 AM
Heavy Oil	ND	49.9		mg/Kg-dry	1	1/24/2018 4:22:03 AM
Surr: 2-Fluorobiphenyl	85.4	50 - 150		%Rec	1	1/24/2018 4:22:03 AM
Surr: o-Terphenyl	96.7	50 - 150		%Rec	1	1/24/2018 4:22:03 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19597		Analyst: IH
Naphthalene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
2-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
1-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Acenaphthylene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Acenaphthene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Fluorene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Phenanthrene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Anthracene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Fluoranthene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Pyrene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Benz(a)anthracene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Chrysene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Benzo(b)fluoranthene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Benzo(k)fluoranthene	ND	40.8	Q	µg/Kg-dry	1	1/23/2018 8:28:32 PM
Benzo(a)pyrene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Indeno(1,2,3-cd)pyrene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Dibenz(a,h)anthracene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Benzo(g,h,i)perylene	ND	40.8		µg/Kg-dry	1	1/23/2018 8:28:32 PM
Surr: 2-Fluorobiphenyl	49.0	10 - 123		%Rec	1	1/23/2018 8:28:32 PM
Surr: Terphenyl-d14 (surr)	60.3	46.2 - 179		%Rec	1	1/23/2018 8:28:32 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41269		Analyst: CO
Percent Moisture	11.9	0.500		wt%	1	1/23/2018 4:38:44 PM

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-19587**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **MBLKS**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795798**

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	15.9		20.00		79.6	50	150				
Surr: o-Terphenyl	17.7		20.00		88.7	50	150				

Sample ID **LCS-19587**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **LCSS**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	501	20.0	500.0	0	100	65	135				
Surr: 2-Fluorobiphenyl	17.5		20.00		87.5	50	150				
Surr: o-Terphenyl	19.5		20.00		97.4	50	150				

Sample ID **1801212-010ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **BATCH**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795803**

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	52.8						0		30	
Surr: 2-Fluorobiphenyl	16.2		21.14		76.8	50	150		0		
Surr: o-Terphenyl	17.7		21.14		83.9	50	150		0		

Sample ID **1801212-010AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **BATCH**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795804**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	489	21.7	543.1	0	90.1	65	135				
Surr: 2-Fluorobiphenyl	18.8		21.72		86.3	50	150				
Surr: o-Terphenyl	20.6		21.72		95.0	50	150				

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1801212-010AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41278**
Client ID: **BATCH** Batch ID: **19587** Analysis Date: **1/23/2018** SeqNo: **795804**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1801212-010AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41278**
Client ID: **BATCH** Batch ID: **19587** Analysis Date: **1/23/2018** SeqNo: **795805**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	525	22.0	550.5	0	95.5	65	135	489.1	7.16	30	
Surr: 2-Fluorobiphenyl	19.3		22.02		87.6	50	150		0		
Surr: o-Terphenyl	21.2		22.02		96.5	50	150		0		

Sample ID **1801276-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41278**
Client ID: **BATCH** Batch ID: **19587** Analysis Date: **1/24/2018** SeqNo: **795833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.5						0		30	
Heavy Oil	ND	53.7						0		30	
Surr: 2-Fluorobiphenyl	17.3		21.50		80.7	50	150		0		
Surr: o-Terphenyl	19.6		21.50		91.4	50	150		0		

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-19597**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/23/2018**	RunNo: **41282**
Client ID: **MBLKS**	Batch ID: **19597**		Analysis Date: **1/23/2018**	SeqNo: **795927**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									Q
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	360		500.0		72.1	10	123				
Surr: Terphenyl-d14 (surr)	414		500.0		82.8	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-19597**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/23/2018**	RunNo: **41282**
Client ID: **LCSS**	Batch ID: **19597**		Analysis Date: **1/23/2018**	SeqNo: **795928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	790	40.0	1,000	0	79.0	46.4	125				
2-Methylnaphthalene	843	40.0	1,000	0	84.3	45.1	135				
1-Methylnaphthalene	828	40.0	1,000	0	82.8	46.2	133				
Acenaphthylene	906	40.0	1,000	0	90.6	32.8	136				

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-19597** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **LCSS** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	804	40.0	1,000	0	80.4	42	137				
Fluorene	823	40.0	1,000	0	82.3	41.4	144				
Phenanthrene	798	40.0	1,000	0	79.8	36.6	141				
Anthracene	897	40.0	1,000	0	89.7	42.5	157				
Fluoranthene	885	40.0	1,000	0	88.5	43.4	144				
Pyrene	863	40.0	1,000	0	86.3	39.6	146				
Benz(a)anthracene	951	40.0	1,000	0	95.1	41.2	141				
Chrysene	756	40.0	1,000	0	75.6	43	165				
Benzo(b)fluoranthene	1,140	40.0	1,000	0	114	41	155				
Benzo(k)fluoranthene	777	40.0	1,000	0	77.7	30.6	164				
Benzo(a)pyrene	1,010	40.0	1,000	0	101	30.2	171				
Indeno(1,2,3-cd)pyrene	1,130	40.0	1,000	0	113	31.3	159				
Dibenz(a,h)anthracene	1,200	40.0	1,000	0	120	28	158				
Benzo(g,h,i)perylene	1,020	40.0	1,000	0	102	32.4	144				
Surr: 2-Fluorobiphenyl	380		500.0		76.0	10	123				
Surr: Terphenyl-d14 (surr)	423		500.0		84.7	46.2	179				

Sample ID **1801309-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **E14S0-25** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795930**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	38.6						0		30	
2-Methylnaphthalene	ND	38.6						0		30	
1-Methylnaphthalene	ND	38.6						0		30	
Acenaphthylene	ND	38.6						0		30	
Acenaphthene	ND	38.6						0		30	
Fluorene	ND	38.6						0		30	
Phenanthrene	ND	38.6						0		30	
Anthracene	ND	38.6						0		30	
Fluoranthene	ND	38.6						0		30	

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801309-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **E14S0-25** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795930**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	38.6						0		30	
Benz(a)anthracene	ND	38.6						0		30	
Chrysene	ND	38.6						0		30	
Benzo(b)fluoranthene	ND	38.6						0		30	
Benzo(k)fluoranthene	ND	38.6						0		30	Q
Benzo(a)pyrene	ND	38.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	38.6						0		30	
Dibenz(a,h)anthracene	ND	38.6						0		30	
Benzo(g,h,i)perylene	ND	38.6						0		30	
Surr: 2-Fluorobiphenyl	271		482.0		56.3	10	123		0		
Surr: Terphenyl-d14 (surr)	312		482.0		64.8	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1801309-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **E14S0-25** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795931**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	633	40.0	999.3	0	63.4	42.9	138				
2-Methylnaphthalene	679	40.0	999.3	0	67.9	42.8	151				
1-Methylnaphthalene	670	40.0	999.3	0	67.1	41.6	148				
Acenaphthylene	729	40.0	999.3	0	72.9	32.6	160				
Acenaphthene	645	40.0	999.3	0	64.6	31.7	126				
Fluorene	667	40.0	999.3	0	66.7	43.4	153				
Phenanthrene	651	40.0	999.3	0	65.1	23.8	135				
Anthracene	721	40.0	999.3	0	72.1	32.6	160				
Fluoranthene	711	40.0	999.3	0	71.1	28	144				
Pyrene	694	40.0	999.3	0	69.4	27.8	141				
Benz(a)anthracene	772	40.0	999.3	0	77.3	34.9	139				
Chrysene	607	40.0	999.3	0	60.8	45.2	146				
Benzo(b)fluoranthene	970	40.0	999.3	0	97.1	42.2	168				

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801309-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **E14S0-25** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795931**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	611	40.0	999.3	0	61.2	20.5	150				
Benzo(a)pyrene	792	40.0	999.3	0	79.3	34.4	179				
Indeno(1,2,3-cd)pyrene	921	40.0	999.3	7.991	91.4	11.8	140				
Dibenz(a,h)anthracene	968	40.0	999.3	0	96.9	17.3	156				
Benzo(g,h,i)perylene	820	40.0	999.3	6.047	81.4	24.9	119				
Surr: 2-Fluorobiphenyl	300		499.6		60.0	10	123				
Surr: Terphenyl-d14 (surr)	332		499.6		66.5	46.2	179				

Sample ID **1801309-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **E14S0-25** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795932**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	601	40.2	1,005	0	59.8	42.9	138	633.2	5.25	30	
2-Methylnaphthalene	644	40.2	1,005	0	64.1	42.8	151	678.9	5.34	30	
1-Methylnaphthalene	632	40.2	1,005	0	62.9	41.6	148	670.0	5.88	30	
Acenaphthylene	692	40.2	1,005	0	68.9	32.6	160	728.9	5.20	30	
Acenaphthene	613	40.2	1,005	0	61.1	31.7	126	645.2	5.06	30	
Fluorene	636	40.2	1,005	0	63.3	43.4	153	667.0	4.77	30	
Phenanthrene	612	40.2	1,005	0	60.9	23.8	135	650.7	6.19	30	
Anthracene	674	40.2	1,005	0	67.1	32.6	160	720.6	6.66	30	
Fluoranthene	668	40.2	1,005	0	66.5	28	144	710.5	6.23	30	
Pyrene	653	40.2	1,005	0	65.0	27.8	141	693.6	5.99	30	
Benz(a)anthracene	718	40.2	1,005	0	71.5	34.9	139	772.3	7.26	30	
Chrysene	578	40.2	1,005	0	57.5	45.2	146	607.2	4.94	30	
Benzo(b)fluoranthene	861	40.2	1,005	0	85.7	42.2	168	970.1	11.9	30	
Benzo(k)fluoranthene	607	40.2	1,005	0	60.4	20.5	150	611.2	0.717	30	
Benzo(a)pyrene	776	40.2	1,005	0	77.2	34.4	179	792.1	2.10	30	
Indeno(1,2,3-cd)pyrene	850	40.2	1,005	7.991	83.8	11.8	140	921.0	7.98	30	
Dibenz(a,h)anthracene	905	40.2	1,005	0	90.1	17.3	156	968.0	6.71	30	
Benzo(g,h,i)perylene	768	40.2	1,005	6.047	75.8	24.9	119	819.7	6.53	30	

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801309-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **E14S0-25** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795932**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	295		502.3		58.7	10	123		0		
Surr: Terphenyl-d14 (surr)	327		502.3		65.0	46.2	179		0		

Work Order: 1801309
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1801317-002ADUP** SampType: **DUP** Units: **wt%** Prep Date: **1/23/2018** RunNo: **41269**
Client ID: **BATCH** Batch ID: **R41269** Analysis Date: **1/23/2018** SeqNo: **795631**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	7.33	0.500						8.648	16.5	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1801309**
Logged by:	**Clare Griggs**	Date Received:	**1/23/2018 1:05:00 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 ☐
		No cooler present.		
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	16.4

* 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: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 1/23/18 Page: 1 of: 1

Laboratory Project No (internal): 1801309

Project Name: Block 21

Special Remarks: ASAP

Project No: See previous

Collected by: CMD

Location: Seattle

Client: GEI

Address:

City, State, Zip:

Telephone:

Fax:

Report To (PM): Chris Brown

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers.com

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E1450-25	1/23/18	715	S						X		X							
2	E1750-25	"	730	"						X		X							
3	E1952-29	"	740	"						X		X							
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 1/23/18 1305

Relinquished x Date/Time

Received x [signature] Date/Time 1/23/18 1305

Received x Date/Time

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day ____ (specify)

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1801317

January 24, 2018

Attention Chris Brown:

Fremont Analytical, Inc. received 2 sample(s) on 1/23/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

CC:
Callan Driscoll

Date: *01/24/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1801317

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1801317-001	E20 S4-33	01/23/2018 2:40 PM	01/23/2018 4:00 PM
1801317-002	E21 S2-34	01/23/2018 2:30 PM	01/23/2018 4:00 PM

Case Narrative

WO#: **1801317**
Date: **1/24/2018**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1801317**
Date Reported: **1/24/2018**

Client: GeoEngineers
Collection Date: 1/23/2018 2:40:00 PM
Project: Block 21
Lab ID: 1801317-001
Matrix: Soil
Client Sample ID: **E20 S4-33**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19587		Analyst: SB
Diesel (Fuel Oil)	ND	18.4		mg/Kg-dry	1	1/24/2018 4:51:29 AM
Heavy Oil	ND	46.0		mg/Kg-dry	1	1/24/2018 4:51:29 AM
Surr: 2-Fluorobiphenyl	77.0	50 - 150		%Rec	1	1/24/2018 4:51:29 AM
Surr: o-Terphenyl	87.9	50 - 150		%Rec	1	1/24/2018 4:51:29 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19597		Analyst: IH
Naphthalene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
2-Methylnaphthalene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
1-Methylnaphthalene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Acenaphthylene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Acenaphthene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Fluorene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Phenanthrene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Anthracene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Fluoranthene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Pyrene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Benz(a)anthracene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Chrysene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Benzo(b)fluoranthene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Benzo(k)fluoranthene	ND	37.7	Q	µg/Kg-dry	1	1/23/2018 10:38:00 PM
Benzo(a)pyrene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Indeno(1,2,3-cd)pyrene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Dibenz(a,h)anthracene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Benzo(g,h,i)perylene	ND	37.7		µg/Kg-dry	1	1/23/2018 10:38:00 PM
Surr: 2-Fluorobiphenyl	54.3	10 - 123		%Rec	1	1/23/2018 10:38:00 PM
Surr: Terphenyl-d14 (surr)	64.2	46.2 - 179		%Rec	1	1/23/2018 10:38:00 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41269		Analyst: CO
Percent Moisture	8.85	0.500		wt%	1	1/23/2018 4:38:44 PM

Analytical Report

Work Order: **1801317**
Date Reported: **1/24/2018**

Client: GeoEngineers
Collection Date: 1/23/2018 2:30:00 PM
Project: Block 21
Lab ID: 1801317-002
Matrix: Soil
Client Sample ID: **E21 S2-34**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19587		Analyst: SB
Diesel (Fuel Oil)	ND	18.7		mg/Kg-dry	1	1/24/2018 5:21:02 AM
Heavy Oil	ND	46.8		mg/Kg-dry	1	1/24/2018 5:21:02 AM
Surr: 2-Fluorobiphenyl	90.8	50 - 150		%Rec	1	1/24/2018 5:21:02 AM
Surr: o-Terphenyl	97.4	50 - 150		%Rec	1	1/24/2018 5:21:02 AM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19597		Analyst: IH
Naphthalene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
2-Methylnaphthalene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
1-Methylnaphthalene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Acenaphthylene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Acenaphthene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Fluorene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Phenanthrene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Anthracene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Fluoranthene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Pyrene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Benz(a)anthracene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Chrysene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Benzo(b)fluoranthene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Benzo(k)fluoranthene	ND	42.3	Q	µg/Kg-dry	1	1/23/2018 11:00:00 PM
Benzo(a)pyrene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Indeno(1,2,3-cd)pyrene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Dibenz(a,h)anthracene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Benzo(g,h,i)perylene	ND	42.3		µg/Kg-dry	1	1/23/2018 11:00:00 PM
Surr: 2-Fluorobiphenyl	55.6	10 - 123		%Rec	1	1/23/2018 11:00:00 PM
Surr: Terphenyl-d14 (surr)	65.0	46.2 - 179		%Rec	1	1/23/2018 11:00:00 PM

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample Moisture (Percent Moisture)				Batch ID: R41269		Analyst: CO
Percent Moisture	8.65	0.500		wt%	1	1/23/2018 4:38:44 PM

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-19587**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **MBLKS**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795798**

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	15.9		20.00		79.6	50	150				
Surr: o-Terphenyl	17.7		20.00		88.7	50	150				

Sample ID **LCS-19587**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **LCSS**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	501	20.0	500.0	0	100	65	135				
Surr: 2-Fluorobiphenyl	17.5		20.00		87.5	50	150				
Surr: o-Terphenyl	19.5		20.00		97.4	50	150				

Sample ID **1801212-010ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **BATCH**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795803**

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	52.8						0		30	
Surr: 2-Fluorobiphenyl	16.2		21.14		76.8	50	150		0		
Surr: o-Terphenyl	17.7		21.14		83.9	50	150		0		

Sample ID **1801212-010AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **1/23/2018**	RunNo: **41278**
Client ID: **BATCH**	Batch ID: **19587**		Analysis Date: **1/23/2018**	SeqNo: **795804**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	489	21.7	543.1	0	90.1	65	135				
Surr: 2-Fluorobiphenyl	18.8		21.72		86.3	50	150				
Surr: o-Terphenyl	20.6		21.72		95.0	50	150				

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **1801212-010AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41278**
Client ID: **BATCH** Batch ID: **19587** Analysis Date: **1/23/2018** SeqNo: **795804**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **1801212-010AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41278**
Client ID: **BATCH** Batch ID: **19587** Analysis Date: **1/23/2018** SeqNo: **795805**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	525	22.0	550.5	0	95.5	65	135	489.1	7.16	30	
Surr: 2-Fluorobiphenyl	19.3		22.02		87.6	50	150		0		
Surr: o-Terphenyl	21.2		22.02		96.5	50	150		0		

Sample ID **1801276-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41278**
Client ID: **BATCH** Batch ID: **19587** Analysis Date: **1/24/2018** SeqNo: **795833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	21.5						0		30	
Heavy Oil	ND	53.7						0		30	
Surr: 2-Fluorobiphenyl	17.3		21.50		80.7	50	150		0		
Surr: o-Terphenyl	19.6		21.50		91.4	50	150		0		

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-19597**	SampType: **MBLK**	Units: **µg/Kg**	Prep Date: **1/23/2018**	RunNo: **41282**
Client ID: **MBLKS**	Batch ID: **19597**		Analysis Date: **1/23/2018**	SeqNo: **795927**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									Q
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	360		500.0		72.1	10	123				
Surr: Terphenyl-d14 (surr)	414		500.0		82.8	46.2	179				

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **LCS-19597**	SampType: **LCS**	Units: **µg/Kg**	Prep Date: **1/23/2018**	RunNo: **41282**
Client ID: **LCSS**	Batch ID: **19597**		Analysis Date: **1/23/2018**	SeqNo: **795928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	790	40.0	1,000	0	79.0	46.4	125				
2-Methylnaphthalene	843	40.0	1,000	0	84.3	45.1	135				
1-Methylnaphthalene	828	40.0	1,000	0	82.8	46.2	133				
Acenaphthylene	906	40.0	1,000	0	90.6	32.8	136				

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-19597** SampType: **LCS** Units: **µg/Kg** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **LCSS** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795928**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthene	804	40.0	1,000	0	80.4	42	137				
Fluorene	823	40.0	1,000	0	82.3	41.4	144				
Phenanthrene	798	40.0	1,000	0	79.8	36.6	141				
Anthracene	897	40.0	1,000	0	89.7	42.5	157				
Fluoranthene	885	40.0	1,000	0	88.5	43.4	144				
Pyrene	863	40.0	1,000	0	86.3	39.6	146				
Benz(a)anthracene	951	40.0	1,000	0	95.1	41.2	141				
Chrysene	756	40.0	1,000	0	75.6	43	165				
Benzo(b)fluoranthene	1,140	40.0	1,000	0	114	41	155				
Benzo(k)fluoranthene	777	40.0	1,000	0	77.7	30.6	164				
Benzo(a)pyrene	1,010	40.0	1,000	0	101	30.2	171				
Indeno(1,2,3-cd)pyrene	1,130	40.0	1,000	0	113	31.3	159				
Dibenz(a,h)anthracene	1,200	40.0	1,000	0	120	28	158				
Benzo(g,h,i)perylene	1,020	40.0	1,000	0	102	32.4	144				
Surr: 2-Fluorobiphenyl	380		500.0		76.0	10	123				
Surr: Terphenyl-d14 (surr)	423		500.0		84.7	46.2	179				

Sample ID **1801309-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **BATCH** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795930**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	38.6						0		30	
2-Methylnaphthalene	ND	38.6						0		30	
1-Methylnaphthalene	ND	38.6						0		30	
Acenaphthylene	ND	38.6						0		30	
Acenaphthene	ND	38.6						0		30	
Fluorene	ND	38.6						0		30	
Phenanthrene	ND	38.6						0		30	
Anthracene	ND	38.6						0		30	
Fluoranthene	ND	38.6						0		30	

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801309-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **BATCH** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795930**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene	ND	38.6						0		30	
Benz(a)anthracene	ND	38.6						0		30	
Chrysene	ND	38.6						0		30	
Benzo(b)fluoranthene	ND	38.6						0		30	
Benzo(k)fluoranthene	ND	38.6						0		30	Q
Benzo(a)pyrene	ND	38.6						0		30	
Indeno(1,2,3-cd)pyrene	ND	38.6						0		30	
Dibenz(a,h)anthracene	ND	38.6						0		30	
Benzo(g,h,i)perylene	ND	38.6						0		30	
Surr: 2-Fluorobiphenyl	271		482.0		56.3	10	123		0		
Surr: Terphenyl-d14 (surr)	312		482.0		64.8	46.2	179		0		

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF).

Sample ID **1801309-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **BATCH** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795931**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	633	40.0	999.3	0	63.4	42.9	138				
2-Methylnaphthalene	679	40.0	999.3	0	67.9	42.8	151				
1-Methylnaphthalene	670	40.0	999.3	0	67.1	41.6	148				
Acenaphthylene	729	40.0	999.3	0	72.9	32.6	160				
Acenaphthene	645	40.0	999.3	0	64.6	31.7	126				
Fluorene	667	40.0	999.3	0	66.7	43.4	153				
Phenanthrene	651	40.0	999.3	0	65.1	23.8	135				
Anthracene	721	40.0	999.3	0	72.1	32.6	160				
Fluoranthene	711	40.0	999.3	0	71.1	28	144				
Pyrene	694	40.0	999.3	0	69.4	27.8	141				
Benz(a)anthracene	772	40.0	999.3	0	77.3	34.9	139				
Chrysene	607	40.0	999.3	0	60.8	45.2	146				
Benzo(b)fluoranthene	970	40.0	999.3	0	97.1	42.2	168				

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801309-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **BATCH** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795931**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	611	40.0	999.3	0	61.2	20.5	150				
Benzo(a)pyrene	792	40.0	999.3	0	79.3	34.4	179				
Indeno(1,2,3-cd)pyrene	921	40.0	999.3	7.991	91.4	11.8	140				
Dibenz(a,h)anthracene	968	40.0	999.3	0	96.9	17.3	156				
Benzo(g,h,i)perylene	820	40.0	999.3	6.047	81.4	24.9	119				
Surr: 2-Fluorobiphenyl	300		499.6		60.0	10	123				
Surr: Terphenyl-d14 (surr)	332		499.6		66.5	46.2	179				

Sample ID **1801309-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **BATCH** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795932**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	601	40.2	1,005	0	59.8	42.9	138	633.2	5.25	30	
2-Methylnaphthalene	644	40.2	1,005	0	64.1	42.8	151	678.9	5.34	30	
1-Methylnaphthalene	632	40.2	1,005	0	62.9	41.6	148	670.0	5.88	30	
Acenaphthylene	692	40.2	1,005	0	68.9	32.6	160	728.9	5.20	30	
Acenaphthene	613	40.2	1,005	0	61.1	31.7	126	645.2	5.06	30	
Fluorene	636	40.2	1,005	0	63.3	43.4	153	667.0	4.77	30	
Phenanthrene	612	40.2	1,005	0	60.9	23.8	135	650.7	6.19	30	
Anthracene	674	40.2	1,005	0	67.1	32.6	160	720.6	6.66	30	
Fluoranthene	668	40.2	1,005	0	66.5	28	144	710.5	6.23	30	
Pyrene	653	40.2	1,005	0	65.0	27.8	141	693.6	5.99	30	
Benz(a)anthracene	718	40.2	1,005	0	71.5	34.9	139	772.3	7.26	30	
Chrysene	578	40.2	1,005	0	57.5	45.2	146	607.2	4.94	30	
Benzo(b)fluoranthene	861	40.2	1,005	0	85.7	42.2	168	970.1	11.9	30	
Benzo(k)fluoranthene	607	40.2	1,005	0	60.4	20.5	150	611.2	0.717	30	
Benzo(a)pyrene	776	40.2	1,005	0	77.2	34.4	179	792.1	2.10	30	
Indeno(1,2,3-cd)pyrene	850	40.2	1,005	7.991	83.8	11.8	140	921.0	7.98	30	
Dibenz(a,h)anthracene	905	40.2	1,005	0	90.1	17.3	156	968.0	6.71	30	
Benzo(g,h,i)perylene	768	40.2	1,005	6.047	75.8	24.9	119	819.7	6.53	30	

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1801309-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **1/23/2018** RunNo: **41282**
Client ID: **BATCH** Batch ID: **19597** Analysis Date: **1/23/2018** SeqNo: **795932**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	295		502.3		58.7	10	123		0		
Surr: Terphenyl-d14 (surr)	327		502.3		65.0	46.2	179		0		

Work Order: 1801317
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1801317-002ADUP**	SampType: **DUP**			Units: **wt%**		Prep Date: **1/23/2018**			RunNo: **41269**		
Client ID: **E21 S2-34**	Batch ID: **R41269**					Analysis Date: **1/23/2018**			SeqNo: **795631**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	7.33	0.500						8.648	16.5	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1801317**
Logged by:	**Clare Griggs**	Date Received:	**1/23/2018 4:00:00 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 ☐
	Samples received straight from field.			
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:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/23/18 Page: of:

Laboratory Project No (internal): 180317

Project Name: see previous

Special Remarks: ASAP

Client: GEI

Project No: Block 21

Address:

Collected by: CMP

City, State, Zip:

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; cdriscoll@geoengineers

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8) Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1	E20 S4-33	1/23/18	1440	S					X		X						
2	E21 S2-34	1	1430	1					X		X						
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☒ Next Day
- Same Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	1/23/18 1600	x	1/23/18 1600
Relinquished	Date/Time	Received	Date/Time
x		x	

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

GeoEngineers
Chris Brown
600 Stewart Street, Suite 1700
Seattle, WA 98101

RE: Block 21
Work Order Number: 1802040

February 12, 2018

Attention Chris Brown:

Fremont Analytical, Inc. received 1 sample(s) on 1/30/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)

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
Laboratory Director

Date: *02/12/2018*

CLIENT: GeoEngineers
Project: Block 21
Work Order: 1802040

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1802040-001	E21 S5-45	01/30/2018 11:35 AM	01/30/2018 12:31 PM

Case Narrative

WO#: **1802040**
Date: **2/12/2018**

CLIENT: GeoEngineers
Project: Block 21

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 Reporting Limit
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
R - High relative percent difference observed

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

Work Order: **1802040**
Date Reported: **2/12/2018**

Client: GeoEngineers
Collection Date: 1/30/2018 11:35:00 AM
Project: Block 21
Lab ID: 1802040-001
Matrix: Soil
Client Sample ID: **E21 S5-45**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 19741		Analyst: SB
Diesel (Fuel Oil)	ND	20.1		mg/Kg-dry	1	2/7/2018 7:00:54 PM
Heavy Oil	ND	50.2		mg/Kg-dry	1	2/7/2018 7:00:54 PM
Surr: 2-Fluorobiphenyl	83.2	50 - 150		%Rec	1	2/7/2018 7:00:54 PM
Surr: o-Terphenyl	96.2	50 - 150		%Rec	1	2/7/2018 7:00:54 PM
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 19743		Analyst: IH
Naphthalene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
2-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
1-Methylnaphthalene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Acenaphthylene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Acenaphthene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Fluorene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Phenanthrene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Anthracene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Fluoranthene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Pyrene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Benz(a)anthracene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Chrysene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Benzo(b)fluoranthene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Benzo(k)fluoranthene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Benzo(a)pyrene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Indeno(1,2,3-cd)pyrene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Dibenz(a,h)anthracene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Benzo(g,h,i)perylene	ND	40.8		µg/Kg-dry	1	2/7/2018 11:05:53 PM
Surr: 2-Fluorobiphenyl	30.7	10 - 123		%Rec	1	2/7/2018 11:05:53 PM
Surr: Terphenyl-d14 (surr)	133	36.1 - 142		%Rec	1	2/7/2018 11:05:53 PM
Sample Moisture (Percent Moisture)				Batch ID: R41582		Analyst: CO
Percent Moisture	4.75	0.500		wt%	1	2/7/2018 12:05:13 PM

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID **MB-19741**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **2/7/2018**	RunNo: **41600**
Client ID: **MBLKS**	Batch ID: **19741**		Analysis Date: **2/7/2018**	SeqNo: **802111**

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	17.5		20.00		87.6	50	150				
Surr: o-Terphenyl	20.0		20.00		100	50	150				

Sample ID **LCS-19741**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **2/7/2018**	RunNo: **41600**
Client ID: **LCSS**	Batch ID: **19741**		Analysis Date: **2/7/2018**	SeqNo: **802112**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	470	20.0	500.0	0	94.0	65	135				
Surr: 2-Fluorobiphenyl	18.9		20.00		94.5	50	150				
Surr: o-Terphenyl	21.3		20.00		106	50	150				

Sample ID **1802035-002ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **2/7/2018**	RunNo: **41600**
Client ID: **BATCH**	Batch ID: **19741**		Analysis Date: **2/7/2018**	SeqNo: **802114**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.1						0		30	
Heavy Oil	ND	50.2						0		30	
Surr: 2-Fluorobiphenyl	16.9		20.07		84.2	50	150		0		
Surr: o-Terphenyl	19.3		20.07		96.3	50	150		0		

Sample ID **1802035-002AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **2/7/2018**	RunNo: **41600**
Client ID: **BATCH**	Batch ID: **19741**		Analysis Date: **2/7/2018**	SeqNo: **802115**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	548	20.3	506.6	0	108	65	135				
Surr: 2-Fluorobiphenyl	20.1		20.26		99.3	50	150				
Surr: o-Terphenyl	22.6		20.26		112	50	150				

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

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

Sample ID	**1802035-002AMS**	SampType:	**MS**		Units:	**mg/Kg-dry**	Prep Date:	**2/7/2018**		RunNo:	**41600**	
Client ID:	**BATCH**	Batch ID:	**19741**				Analysis Date:	**2/7/2018**		SeqNo:	**802115**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Sample ID	**1802035-002AMSD**	SampType:	**MSD**		Units:	**mg/Kg-dry**	Prep Date:	**2/7/2018**		RunNo:	**41600**	
Client ID:	**BATCH**	Batch ID:	**19741**				Analysis Date:	**2/7/2018**		SeqNo:	**802116**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Diesel (Fuel Oil)	540	20.2	506.1	0	107	65	135	547.6	1.48	30		
Surr: 2-Fluorobiphenyl	19.0		20.24		93.9	50	150		0			
Surr: o-Terphenyl	21.4		20.24		106	50	150		0			

Sample ID	**1802075-005ADUP**	SampType:	**DUP**		Units:	**mg/Kg-dry**	Prep Date:	**2/7/2018**		RunNo:	**41600**	
Client ID:	**BATCH**	Batch ID:	**19741**				Analysis Date:	**2/8/2018**		SeqNo:	**802129**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Diesel (Fuel Oil)	ND	18.9						0		30		
Heavy Oil	82.7	47.3						142.9	53.3	30	R	
Surr: 2-Fluorobiphenyl	15.8		18.93		83.3	50	150		0			
Surr: o-Terphenyl	18.1		18.93		95.8	50	150		0			

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-19743** SampType: **MBLK** Units: **µg/Kg** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **MBLKS** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	269		500.0		53.8	10	123				
Surr: Terphenyl-d14 (surr)	651		500.0		130	36.1	142				

Sample ID **LCS-19743** SampType: **LCS** Units: **µg/Kg** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **LCSS** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,080	40.0	1,000	0	108	46.4	125				
2-Methylnaphthalene	1,190	40.0	1,000	0	119	45.1	135				
1-Methylnaphthalene	1,180	40.0	1,000	0	118	46.2	133				
Acenaphthylene	1,230	40.0	1,000	0	123	32.8	136				
Acenaphthene	1,280	40.0	1,000	0	128	42	137				

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-19743** SampType: **LCS** Units: **µg/Kg** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **LCSS** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802307**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	1,280	40.0	1,000	0	128	41.4	144				
Phenanthrene	1,270	40.0	1,000	0	127	36.6	141				
Anthracene	1,200	40.0	1,000	0	120	42.5	157				
Fluoranthene	1,270	40.0	1,000	0	127	43.4	144				
Pyrene	1,270	40.0	1,000	0	127	39.6	146				
Benz(a)anthracene	1,200	40.0	1,000	0	120	41.2	141				
Chrysene	1,300	40.0	1,000	0	130	43	165				
Benzo(b)fluoranthene	1,220	40.0	1,000	0	122	41	155				
Benzo(k)fluoranthene	1,160	40.0	1,000	0	116	30.6	164				
Benzo(a)pyrene	1,140	40.0	1,000	0	114	30.2	171				
Indeno(1,2,3-cd)pyrene	1,210	40.0	1,000	0	121	31.3	159				
Dibenz(a,h)anthracene	1,220	40.0	1,000	0	122	28	158				
Benzo(g,h,i)perylene	1,270	40.0	1,000	0	127	32.4	144				
Surr: 2-Fluorobiphenyl	316		500.0		63.2	10	123				
Surr: Terphenyl-d14 (surr)	681		500.0		136	36.1	142				

Sample ID **1802075-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **BATCH** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802309**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	213	39.3						145.7	37.3	30	R
2-Methylnaphthalene	94.2	39.3						69.83	29.7	30	
1-Methylnaphthalene	55.6	39.3						45.72	19.4	30	
Acenaphthylene	393	39.3						352.6	10.9	30	
Acenaphthene	73.3	39.3						55.49	27.6	30	
Fluorene	47.9	39.3						33.93	34.1	30	
Phenanthrene	539	39.3						487.2	10.1	30	
Anthracene	397	39.3						350.2	12.6	30	
Fluoranthene	866	39.3						825.4	4.75	30	
Pyrene	879	39.3						888.9	1.17	30	

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1802075-001ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **BATCH** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802309**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	517	39.3						481.8	7.12	30	
Chrysene	642	39.3						703.9	9.25	30	
Benzo(b)fluoranthene	1,030	39.3						936.4	9.45	30	
Benzo(k)fluoranthene	617	39.3						527.9	15.5	30	
Benzo(a)pyrene	933	39.3						902.2	3.37	30	
Indeno(1,2,3-cd)pyrene	1,510	39.3						1,381	9.20	30	
Dibenz(a,h)anthracene	499	39.3						369.9	29.7	30	
Benzo(g,h,i)perylene	1,900	39.3						1,903	0.0125	30	
Surr: 2-Fluorobiphenyl	318		491.6		64.6	10	123		0		
Surr: Terphenyl-d14 (surr)	557		491.6		113	36.1	142		0		

NOTES:
R - High RPD due to suspected sample inhomogeneity. The method is in control as indicated by the Laboratory Control Sample (LCS).

Sample ID **1802075-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **BATCH** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802310**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,100	42.6	1,064	145.7	89.5	42.9	138				
2-Methylnaphthalene	1,130	42.6	1,064	69.83	99.4	42.8	151				
1-Methylnaphthalene	1,080	42.6	1,064	45.72	96.9	41.6	148				
Acenaphthylene	1,430	42.6	1,064	352.6	101	32.6	160				
Acenaphthene	1,240	42.6	1,064	55.49	111	31.7	126				
Fluorene	1,230	42.6	1,064	33.93	112	43.4	153				
Phenanthrene	2,310	42.6	1,064	487.2	171	23.8	135				S
Anthracene	1,590	42.6	1,064	350.2	116	32.6	160				
Fluoranthene	2,510	42.6	1,064	825.4	158	28	144				S
Pyrene	2,730	42.6	1,064	888.9	173	27.8	141				S
Benz(a)anthracene	1,860	42.6	1,064	481.8	129	34.9	139				
Chrysene	1,960	42.6	1,064	703.9	118	45.2	146				
Benzo(b)fluoranthene	2,260	42.6	1,064	936.4	125	42.2	168				
Benzo(k)fluoranthene	1,890	42.6	1,064	527.9	128	20.5	150				

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1802075-001AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **BATCH** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802310**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzo(a)pyrene	2,180	42.6	1,064	902.2	120	34.4	179				
Indeno(1,2,3-cd)pyrene	2,400	42.6	1,064	1,381	95.6	11.8	140				
Dibenz(a,h)anthracene	1,550	42.6	1,064	369.9	110	17.3	156				
Benzo(g,h,i)perylene	2,590	42.6	1,064	1,903	64.7	24.9	119				
Surr: 2-Fluorobiphenyl	385		532.2		72.4	10	123				
Surr: Terphenyl-d14 (surr)	643		532.2		121	36.1	142				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID **1802075-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **BATCH** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,160	43.5	1,089	145.7	93.5	42.9	138	1,098	5.80	30	
2-Methylnaphthalene	1,190	43.5	1,089	69.83	103	42.8	151	1,128	5.66	30	
1-Methylnaphthalene	1,140	43.5	1,089	45.72	100	41.6	148	1,077	5.46	30	
Acenaphthylene	1,650	43.5	1,089	352.6	119	32.6	160	1,433	14.2	30	
Acenaphthene	1,240	43.5	1,089	55.49	109	31.7	126	1,240	0.207	30	
Fluorene	1,270	43.5	1,089	33.93	114	43.4	153	1,226	3.79	30	
Phenanthrene	1,610	43.5	1,089	487.2	104	23.8	135	2,309	35.4	30	R
Anthracene	1,590	43.5	1,089	350.2	114	32.6	160	1,586	0.155	30	
Fluoranthene	2,020	43.5	1,089	825.4	109	28	144	2,511	21.9	30	
Pyrene	2,010	43.5	1,089	888.9	103	27.8	141	2,730	30.3	30	R
Benz(a)anthracene	1,730	43.5	1,089	481.8	115	34.9	139	1,858	7.16	30	
Chrysene	1,880	43.5	1,089	703.9	108	45.2	146	1,961	4.01	30	
Benzo(b)fluoranthene	2,430	43.5	1,089	936.4	138	42.2	168	2,262	7.35	30	
Benzo(k)fluoranthene	1,720	43.5	1,089	527.9	110	20.5	150	1,890	9.31	30	
Benzo(a)pyrene	2,000	43.5	1,089	902.2	101	34.4	179	2,180	8.73	30	
Indeno(1,2,3-cd)pyrene	2,580	43.5	1,089	1,381	110	11.8	140	2,399	7.33	30	
Dibenz(a,h)anthracene	1,550	43.5	1,089	369.9	109	17.3	156	1,546	0.505	30	
Benzo(g,h,i)perylene	2,650	43.5	1,089	1,903	68.5	24.9	119	2,592	2.17	30	

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1802075-001AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **2/7/2018** RunNo: **41611**
Client ID: **BATCH** Batch ID: **19743** Analysis Date: **2/7/2018** SeqNo: **802311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	269		544.3		49.5	10	123		0		
Surr: Terphenyl-d14 (surr)	644		544.3		118	36.1	142		0		

NOTES:
R - High RPD observed, spike recoveries are within range.

Work Order: 1802040
CLIENT: GeoEngineers
Project: Block 21

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1802038-019ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **2/7/2018**		RunNo: **41582**	
Client ID: **BATCH**	Batch ID: **R41582**						Analysis Date: **2/7/2018**		SeqNo: **801724**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	25.0	0.500						25.25	1.16	20	

Sample ID **1802040-001ADUP**	SampType: **DUP**			Units: **wt%**			Prep Date: **2/7/2018**		RunNo: **41582**	
Client ID: **E21 S5-45**	Batch ID: **R41582**						Analysis Date: **2/7/2018**		SeqNo: **801734**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	5.14	0.500						4.753	7.84	20	

Sample Log-In Check List

Client Name:	**GEI**	Work Order Number:	**1802040**
Logged by:	**Clare Griggs**	Date Received:	**1/30/2018 12:31:00 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 ☐
	Sample received straight from field.			
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: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 1/30/18 Page: of:

Laboratory Project No (internal): 1802040

Project Name: Block 21

Special Remarks:

Client: GSI

Project No: see previous

Address:

Collected by: CMD

City, State, Zip:

Location: Seattle, WA

Telephone:

Report To (PM): Chris Brown

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

Fax:

PM Email: cbrown@geoengineers.com; edriscoll@geoengineers.com

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1	E2155-45	1/30/18	1135	S						X		X									hold
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-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 Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:

- ☐ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x Callen Driscoll	1/30/18 1231	x	1/30/18 1231
Relinquished x	Date/Time	Received x	Date/Time

APPENDIX D
UST Site Assessment Checklist and Removal Documents

UST ID #: _____

County: _____

DEPARTMENT OF ECOLOGY
State of Washington

SITE CHECK/SITE ASSESSMENT CHECKLIST

FOR UNDERGROUND STORAGE TANKS

This checklist certifies that site check or site assessment activities were performed in accordance with Chapter 173-360 WAC. Instructions are found on the last page.

I. UST FACILITY		II. OWNER/OPERATOR INFORMATION	
Facility Compliance Tag #:	N/A	Owner/Operator Name:	Acorn Development, LLC
UST ID #:	UST-1, UST-2, UST-3	Business Name:	
Site Name:	Rufus 2.0 Block 21 Development	Address:	1191 2nd Ave, Suite 1500
Site Address:	Full Block between Bell and Blanchard 7th Ave & 8th Ave	City:	Seattle State: WA Zip: 98101
City:	Seattle	Phone:	206-239-3251 Chris Brown, GeoEngineers
Phone:	N/A	Email:	cbrown@geoengineers.com

III. CERTIFIED SITE ASSESSOR			
Service Provider Name:	Callen Driscoll	Company Name:	GeoEngineers, Inc.
Cell Phone:	406 498 2127 Email: cdriscoll@geoengineers.com	Address:	1600 Stewart St, Suite 1700
Certification #:	8452857 Exp. Date: 5/12/18	City:	Seattle State: WA Zip: 98101

IV. TANK INFORMATION

TANK ID	TANK CAPACITY	LAST SUBSTANCE STORED	DATE SITE CHECK OR ASSESSMENT CONDUCTED
UST-1	800	Heating oil	10/16/17
UST-2	530	Heating oil	10/31/17
UST-3	750	Heating oil	11/3/17
		↓	
		Known from product sample	

V. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT (check one)

- [x] Release investigation following permanent UST system closure (i.e. tank removal or closure-in-place).
- [ ] Release investigation following a failed tank and/or line tightness test.
- [ ] Release investigation following discovery of contaminated soil and/or groundwater.
- [ ] Release investigation directed by Ecology to determine if the UST system is the source of offsite impacts.
- [ ] UST system is undergoing a "change-in-service", which is changing from storing a regulated substance (e.g. gasoline) to storing a non-regulated substance (e.g. water).
- [ ] Directed by Ecology for UST system permanently closed or abandoned before 12/22/1988.
- [ ] Other (describe):

VI. Checklist

The site assessor must check each of the following items and include it in the report. Sections referenced below can be found in the Ecology publication *Guidance for Site Checks and Site Assessments for Underground Storage Tanks*.	YES	NO
1. The location of the UST site is shown on a vicinity map.	☒	☐
2. A brief summary of information obtained during the site inspection is provided (Section 3.2)	☒	☐
3. A summary of UST system data is provided (Section 3.1)	☒	☐
4. The soils characteristics at the UST site are described. (Section 5.2)	☒	☐
5. Is there any apparent groundwater in the tank excavation?	☐	☒
6. A brief description of the surrounding land use is provided. (Section 3.1)	☒	☐
7. The name and address of the laboratory used to perform analyses is provided. The methods used to collect and analyze the samples, including the number and types of samples collected, are also documented in the report. The data from the laboratory is appended to the report.	☒ Tables 1, 3, 2	☐
8. The following items are provided in one or more sketches:		
• Location and ID number for all field samples collected	☒	☐
• If applicable, groundwater samples are distinguished from soil samples	☐ NA	☐
• Location of samples collected from stockpiled excavated soil	☐ NA	☐
• Tank and piping locations and limits of excavation pit	☒	☐
• Adjacent structures and streets	☒	☐
• Approximate locations of any on-site and nearby utilities	☒	☐
9. If sampling procedures are different from those specified in the guidance, has justification for using these alternative sampling procedures been provided? (Section 3.4)	☒	☐
10. A table is provided showing laboratory results for each sample collected including; sample ID number, constituents analyzed for and corresponding concentration, analytical method, and detection limit for that method. Any sample exceeding MTCA Method A cleanup standards are highlighted or bolded.	☒ Tables 1, 3, 2	☐
11. Any factors that may have compromised the quality of the data or validity of the results are described.	☒	☐
12. The results of this site check/site assessment indicate that a confirmed release of a regulated substance has occurred. The requirements for reporting confirmed releases can be found in WAC 173-360-372.	☒	☐

VII. Required Signatures

Signature acknowledges the Site Check or Site Assessment complies with UST regulations WAC 173-360-360 through -395.

Callan Driscoll		2/9/18
Print or Type Name	Signature of Certified Site Assessor	Date

SITE CHECK/SITE ASSESSMENT CHECKLIST
FOR UNDERGROUND STORAGE TANKS

INSTRUCTIONS

This checklist must accompany the results of a Site Check Report, which is performed if a release of petroleum or other regulated substance is suspected. It is also required to accompany a Site Assessment Report, which is required following the permanent closure or "change-in-service" of an underground storage tank system. This form is required to be filled out whether or not contamination is found. This checklist is to be completed by the Site Assessor and submitted **within thirty days of completing** these activities to the following address:

Dept. of Ecology
UST Section
PO Box 47655
Olympia, WA 98504-7655

I./II. UST Facility and Owner/Operator Information: Fill out these sections completely. If you do not know your UST ID number, include the facility compliance tag number.

III. Service Provider Information: It is the responsibility of the ICC-certified Site Assessor to ensure that sampling and documentation procedures are completed in accordance with Ecology's *Guidance for Site Checks and Site Assessment for Underground Storage Tanks*.

IV. Tank Information: Use the same Tank identification numbers listed on the facility's Business License which is based on the most recent UST Addendum on file with Ecology. List the last substance stored in each tank, the tank sizes and the date the site check or site assessment was completed.

V. Required Signature: The Site Assessor signature certifies these procedures were followed.

All confirmed releases must be reported to Ecology by the owner within 24 hours and by service providers within 72 hours of discovery. A Site Characterization Report must be submitted to Ecology within 90 days after confirming a release.

Further questions? *Please contact your regional office below and ask for a tank inspector to assist you.*

Regional Office	Counties Served
Central (509) 575-2490	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima
Eastern (509) 329-3400	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman
HQ (360) 407-7170	Federal facilities in Western Washington
Northwest (425) 649-7000	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom
Southwest (360) 407-6300	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum

or find a complete list of UST inspectors at:
www.ecy.wa.gov/programs/tcp/ust-lust/people.html

To request materials in a format for the visually impaired call Ecology at 360-407-7170, Relay Service 711, or TTY 877-833-6341

U.S. MARINE CHEMISTS & ENGINEERING -
Phillip Dovinh, P.O. Box 63, Mukilteo, WA 98275
Office: (206) 200-6912 Fax: (206) 763-8084
Cell: (206) 200-6912 Email: pdovinh@comcast.net

MARINE CHEMIST CERTIFICATE

Serial 667-03554

Cameron Allen-NW Construction Survey Requested by	Northwest Construction, Inc. Vessel Owner Agent	Oct 30, 2017 Date
Underground Storage Tank Vessel	Underground Storage Tanks Type of Vessel	2200 7th Avenue Seattle, WA Specific Location of Vessel
Diesel Fuel/Heating Oil (3X) Last Three 3 Loadings	O_2, LEL, Visual, CO, H2S, THCs Tests Performed	10:34 Time Survey Completed

Inspected Spaces:

Group 1.
—ONE (1) APPROX 1100-GALLON UNDERGROUND STORAGE TANK (UST)

CERTIFICATION & AUTHORIZATION:

1) TANK IS INERTED AS OF 10:15 OCT 30, 2017;
2) HOT WORK AUTHORIZED TO CUT ACCESS FOR TANK-CLEANING OPS;
3) HOT WORK COMPLETED AT 1030H OCT 30, 2017;
4) TANK CLEANING COMPLETED AT 10:15H ON OCT 30, 2017;
5) ALL RESIDUES & SLUDGE REMOVED FROM TANK;
6) TANK IS AUTHORIZED FOR EXCAVATION, TRANSPORT, SCRAPPING.
7) CHEMIST ONSITE CONTINUOUSLY FOR INERTION, HOT WORK & TANK-CLEANING/GAS-FREEING OPERATIONS.

Safety Designations:

SAFE FOR HOT WORK
INERTED
Inert Medium: —*Carbon Dioxide (CO2)*
Method for maintaining safe conditions: —*Keep Closed & Secured During Hot Work.*
Measures for safe disposal of inert gas: —*Keep Closed & Secured During Hot Work.*
Other instructions: —*Remove Tank Off Site By 11:00H On Oct 31, 2017.*

Test Results	% O_2	% LEL	CO	H2S	THCs
Inspected spaces group 1	<3%	0%	0 ppm	0 ppm	0 ppm

Limits of Detection

0.5% O2, 1% LEL, 0.1 ppm H2S, 1 ppm CO, 1 ppb THCs/VOCs w/PPB PID

In the event of physical or atmospheric changes affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, this certificate is voided; spaces not listed on the Certificate are not to be entered unless authorized on another Certificate and/or maintained in accordance with OSHA 29 CFR 1915; or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist. Unless otherwise stated on the Certificate, all spaces and affected adjacent spaces are to be reinspected daily or more often as necessary by the competent person or the authority having jurisdiction as applicable in support of work prior to entry or recommencement of work.

QUALIFICATIONS: Transfer of ballast, cargo, fuel or manipulation of valves or closure equipment tending to alter conditions in pipelines, tanks, or compartments subject to gas accumulation, unless specifically approved on this Certificate, requires inspection and a new Certificate for spaces so affected. All lines, vents, heating coils, valves, and similar enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated. Movement of the vessel from its specific location voids the Certificate unless shifting of the vessel within the facility has been specifically authorized on this certificate.

STANDARD SAFETY DESIGNATIONS: (partial list, paraphrased from NFP 306, Subsections 4.3.1 through 4.3.6)

ATMOSPHERE SAFE FOR WORKERS: In the compartment or space so designated (a) the oxygen content of the atmosphere shall be at least 19.5 percent and not greater than 22 percent by volume; (b) the concentration of flammable materials is below 10 percent of the lower explosive limit; (c) any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, or fumigants are within permissible concentrations at the time of the inspection.

NOT SAFE FOR WORKERS: In the compartment or space so designated, entry shall not be permitted.

ENTER WITH RESTRICTIONS: In the compartment or space so designated, entry for work is permitted only if conditions of proper protective equipment, or clothing, or time, or all of the aforementioned, as appropriate, are as specified.

SAFE FOR HOT WORK: In the compartment or space so designated (a) the oxygen content of the atmosphere is not greater than 22 percent by volume; (b) the concentration of flammable materials in the atmosphere is less than 10 percent of the lower explosive limit; (c) the residues, scale, or preservative coatings are cleaned sufficiently to prevent the spread of fire and are not be capable of producing a higher concentration than permitted by (a) or (b); (d) all adjacent spaces, containing or having contained flammable or combustible materials shall be sufficiently cleaned of residues, scale, or preservative coatings to prevent the spread of fire; or they are inerted. Ship's fuel tanks, lube tanks, or engine room or fire room bilges, or other machinery spaces, are treated in accordance with the Marine Chemist's requirements.

SAFE FOR LIMITED HOT WORK: In the compartment or space so designated (a) portions of the space meet the requirements Safe for Hot Work and Partial Cleaning, as applicable, or (b) the space is inerted, adjacent spaces meet the requirements for Safe for Hot Work, and hot work is restricted to specific locations; (c) portions of the space shall meet the requirements for Safe for Hot Work, as applicable; and the nature or type of hot work shall be limited or restricted.

NOT SAFE FOR HOT WORK: In the compartment or space so designated, hot is not permitted.

CHEMISTS ENDORSEMENT. This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on Vessels and have found the condition of each to be in accordance with its assigned designation.

"The undersigned acknowledges receipt of this Certificate under NFPA 306 and understands conditions and limitations under which it was issued, and the requirements for maintaining its validity."

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

Authorized Representative	Oct 30, 2017 Date	Northwest Construction Company	Signed Marine Chemist	667 CMC No.

U.S. MARINE CHEMISTS & ENGINEERING -
Philip Dovinh, P.O. Box 63, Mukilteo, WA 98275
Office: (206) 200-6912 Fax: (206) 763-8084
Cell: (206) 200-6912 Email: pdovinh@comcast.net

MARINE CHEMIST CERTIFICATE

Serial 667-03561

Cameron Allen-NW Construction	Northwest Construction, Inc.	Nov 3, 2017
Survey Requested by	Vessel Owner Agent	Date
Underground Storage Tank	Underground Storage Tanks	2200 7th Avenue Seattle, WA
Vessel	Type of Vessel	Specific Location of Vessel
Diesel Fuel/Heating Oil (3X)	O_2, LEL, Visual, CO, H2S, THCs	13:29
Last Three 3 Loadings	Tests Performed	Time Survey Completed

Inspected Spaces:

Group 1.
—ONE (1) APPROX 1100-GALLON UNDERGROUND STORAGE TANK (UST)

CERTIFICATION & AUTHORIZATION:

1) TANK IS INERTED AS OF 0910 NOVEMBER 03, 2017;
2) HOT WORK AUTHORIZED TO CUT ACCESS FOR TANK-CLEANING OPS;
3) HOT WORK COMPLETED AT 0925H NOVEMBER 03, 2017;
4) TANK CLEANING COMPLETED AT 1320H ON NOVEMBER 03, 2017; OIL SPILLED INTO THE EXCAVATION PIT ON TOP OF WATER WAS PUMPED (ALONG WITH WATER) & REMOVED.
5) ALL RESIDUES & SLUDGE REMOVED FROM TANK;
6) TANK IS AUTHORIZED FOR EXCAVATION, TRANSPORT, SCRAPPING.
7) CHEMIST ONSITE CONTINUOUSLY FOR INERTION, HOT WORK & TANK-CLEANING/GAS-FREEING OPERATIONS.

Safety Designations:

SAFE FOR HOT WORK
INERTED
Inert Medium: —*Carbon Dioxide (CO2)*
Method for maintaining safe conditions: —*Keep Closed & Secured During Hot Work.*
Measures for safe disposal of inert gas: —*Keep Closed & Secured During Hot Work.*
Other instructions: —*Remove Tank Off Site By 11:00H On November 04, 2017.*

Test Results	% O_2	% LEL	CO	H2S	THCs
Inspected spaces group 1	<3%	0%	0 ppm	0 ppm	0 ppm

Limits of Detection

0.5% O2, 1% LEL, 0.1 ppm H2S, 1 ppm CO, 1 ppb THCs/VOCs w/PPB PID

In the event of physical or atmospheric changes affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, this certificate is voided; spaces not listed on the Certificate are not to be entered unless authorized on another Certificate and/or maintained in accordance with OSHA 29 CFR 1915; or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist. Unless otherwise stated on the Certificate, all spaces and affected adjacent spaces are to be reinspected daily or more often as necessary by the competent person or the authority having jurisdiction as applicable in support of work prior to entry or recommencement of work.

QUALIFICATIONS: Transfer of ballast, cargo, fuel or manipulation of valves or closure equipment tending to alter conditions in pipelines, tanks, or compartments subject to gas accumulation, unless specifically approved on this Certificate, requires inspection and a new Certificate for spaces so affected. All lines, vents, heating coils, valves, and similar enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated. Movement of the vessel from its specific location voids the Certificate unless shifting of the vessel within the facility has been specifically authorized on this certificate.

STANDARD SAFETY DESIGNATIONS: (partial list, paraphrased from NFP 306, Subsections 4.3.1 through 4.3.6)

ATMOSPHERE SAFE FOR WORKERS: In the compartment or space so designated (a) the oxygen content of the atmosphere shall be at least 19.5 percent and not greater than 22 percent by volume; (b) the concentration of flammable materials is below 10 percent of the lower explosive limit; (c) any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, or fumigants are within permissible concentrations at the time of the inspection.

NOT SAFE FOR WORKERS: In the compartment or space so designated, entry shall not be permitted.

ENTER WITH RESTRICTIONS: In the compartment or space so designated, entry for work is permitted only if conditions of proper protective equipment, or clothing, or time, or all of the aforementioned, as appropriate, are as specified.

SAFE FOR HOT WORK: In the compartment or space so designated (a) the oxygen content of the atmosphere is not greater than 22 percent by volume; (b) the concentration of flammable materials in the atmosphere is less than 10 percent of the lower explosive limit; (c) the residues, scale, or preservative coatings are cleaned sufficiently to prevent the spread of fire and are not be capable of producing a higher concentration than permitted by (a) or (b); (d) all adjacent spaces, containing or having contained flammable or combustible materials shall be sufficiently cleaned of residues, scale, or preservative coatings to prevent the spread of fire; or they are inerted. Ship's fuel tanks, lube tanks, or engine room or fire room bilges, or other machinery spaces, are treated in accordance with the Marine Chemist's requirements.

SAFE FOR LIMITED HOT WORK: In the compartment or space so designated (a) portions of the space meet the requirements Safe for Hot Work and Partial Cleaning, as applicable, or (b) the space is inerted, adjacent spaces meet the requirements for Safe for Hot Work, and hot work is restricted to specific locations; (c) portions of the space shall meet the requirements for Safe for Hot Work, as applicable; and the nature or type of hot work shall be limited or restricted.

NOT SAFE FOR HOT WORK: In the compartment or space so designated, hot is not permitted.

CHEMISTS ENDORSEMENT. This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on Vessels and have found the condition of each to be in accordance with its assigned designation.

"The undersigned acknowledges receipt of this Certificate under NFPA 306 and understands conditions and limitations under which it was issued, and the requirements for maintaining its validity."

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

Authorized Representative	Nov 3, 2017 Date	Northwest Construction Company	Signed Marine Chemist	667 CMC No.

U.S. MARINE CHEMISTS & ENGINEERING -
Philip Dovinh, P.O. Box 63, Mukilteo, WA 98275
Office: (206) 200-6912 Fax: (206) 763-8084
Cell: (206) 200-6912 Email: pdovinh@comcast.net

MARINE CHEMIST CERTIFICATE

Serial 667-03531

Cameron Allen-NW Construction	Northwest Construction, Inc.	Oct 16, 2017
Survey Requested by	Vessel Owner Agent	Date
Underground Storage Tank	Underground Storage Tanks	2200 7th Avenue Seattle, WA
Vessel	Type of Vessel	Specific Location of Vessel
Diesel Fuel/Heating Oil (3X)	O_2, LEL, Visual, CO, H2S, THCs	9:53
Last Three 3 Loadings	Tests Performed	Time Survey Completed

Inspected Spaces:

Group 1
—ONE (1) APPROX 1100-GALLON UNDERGROUND STORAGE TANK (UST)

CERTIFICATION & AUTHORIZATION:

1) TANK IS INERTED AS OF 0915 OCT 16, 2017;
2) HOT WORK AUTHORIZED TO CUT ACCESS FOR TANK-CLEANING OPS;
3) HOT WORK COMPLETED AT 0948H OCT 16, 2017;
4) TANK CLEANING COMPLETED AT 10:30H ON OCT 16, 2017;
5) ALL RESIDUES & SLUDGE REMOVED FROM TANK;
6) TANK IS AUTHORIZED FOR EXCAVATION, TRANSPORT, SCRAPPING.
7) CHEMIST ONSITE CONTINUOUSLY FOR INERTION, HOT WORK & TANK-CLEANING/GAS-FREEING OPERATIONS.

Safety Designations:

SAFE FOR HOT WORK
INERTED
Inert Medium: —*Carbon Dioxide (CO2)*
Method for maintaining safe conditions: —*Keep Closed & Secured During Hot Work.*
Measures for safe disposal of inert gas: —*Keep Closed & Secured During Hot Work.*
Other instructions: —*Remove Tank Off Site By 11:00H On Oct 17, 2017.*

Test Results	% O_2	% LEL	CO	H2S	THCs
Inspected spaces group 1	<3%	0%	0 ppm	0 ppm	0 ppm

Limits of Detection

0.5% O2, 1% LEL, 0.1 ppm H2S, 1 ppm CO, 1 ppb THCs/VOCs w/PPB PID

In the event of physical or atmospheric changes affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, this certificate is voided; spaces not listed on the Certificate are not to be entered unless authorized on another Certificate and/or maintained in accordance with OSHA 29 CFR 1915; or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist. Unless otherwise stated on the Certificate, all spaces and affected adjacent spaces are to be reinspected daily or more often as necessary by the competent person or the authority having jurisdiction as applicable in support of work prior to ~~entry or recommencement~~ of work.

QUALIFICATIONS: Transfer of ballast, cargo, fuel or manipulation of valves or closure equipment tending to alter conditions in pipelines, tanks, or compartments subject to gas accumulation, unless specifically approved on this Certificate, requires inspection and a new Certificate for spaces so affected. All lines, vents, heating coils, valves, and similar enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated. Movement of the vessel from its specific location voids the Certificate unless shifting of the vessel within the facility has been specifically authorized on this certificate.

STANDARD SAFETY DESIGNATIONS: (partial list, paraphrased from NFP 306, Subsections 4.3.1 through 4.3.6)

ATMOSPHERE SAFE FOR WORKERS: In the compartment or space so designated (a) the oxygen content of the atmosphere shall be at least 19.5 percent and not greater than 22 percent by volume; (b) the concentration of flammable materials is below 10 percent of the lower explosive limit; (c) any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, or fumigants are within permissible concentrations at the time of the inspection.

NOT SAFE FOR WORKERS: In the compartment or space so designated, entry shall not be permitted.

ENTER WITH RESTRICTIONS: In the compartment or space so designated, entry for work is permitted only if conditions of proper protective equipment, or clothing, or time, or all of the aforementioned, as appropriate, are as specified.

SAFE FOR HOT WORK: In the compartment or space so designated (a) the oxygen content of the atmosphere is not greater than 22 percent by volume; (b) the concentration of flammable materials in the atmosphere is less than 10 percent of the lower explosive limit; (c) the residues, scale, or preservative coatings are cleaned sufficiently to prevent the spread of fire and are not be capable of producing a higher concentration than permitted by (a) or (b); (d) all adjacent spaces, containing or having contained flammable or combustible materials shall be sufficiently cleaned of residues, scale, or preservative coatings to prevent the spread of fire; or they are inerted. Ship's fuel tanks, lube tanks, or engine room or fire room bilges, or other machinery spaces, are treated in accordance with the Marine Chemist's requirements.

SAFE FOR LIMITED HOT WORK: In the compartment or space so designated (a) portions of the space meet the requirements Safe for Hot Work and Partial Cleaning, as applicable, or (b) the space is inerted, adjacent spaces meet the requirements for Safe for Hot Work, and hot work is restricted to specific locations; (c) portions of the space shall meet the requirements for Safe for Hot Work, as applicable, and the nature or type of hot work shall be limited or restricted.

NOT SAFE FOR HOT WORK: In the compartment or space so designated, hot is not permitted.

CHEMISTS ENDORSEMENT. This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on Vessels and have found the condition of each to be in accordance with its assigned designation.

"The undersigned acknowledges receipt of this Certificate under NFPA 306 and understands conditions and limitations under which it was issued, and the requirements for maintaining its validity."

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

Authorized Representative	Oct 16, 2017	Northwest Construction	Signed Marine Chemist	667
	Date	Company		CMC No.

APPENDIX E
Soil Disposal Weight Tickets

Organization ID	Customer Name (Site)	Ticket In (Date/Time)	Ticket No	Profile Nm (Master)	Profile Nm (Site)	Material Nm - Ticket	Tons	Rate UOM - Material
S07325	GLY CONSTRUCTION	1/10/2018 8:45	140159	WA-125581OR	125581OR	Daily Cover-PCS-Tons	15.13	Tons
S07325	GLY CONSTRUCTION	1/10/2018 8:39	140156	WA-125581OR	125581OR	Daily Cover-PCS-Tons	13.67	Tons
S07325	GLY CONSTRUCTION	10/27/2017 9:01	138894	WA-125581OR	125581OR	Daily Cover-PCS-Tons	29.86	Tons
S07325	GLY CONSTRUCTION	1/10/2018 9:11	140167	WA-125581OR	125581OR	Daily Cover-PCS-Tons	17.08	Tons
S07325	GLY CONSTRUCTION	1/10/2018 8:44	140158	WA-125581OR	125581OR	Daily Cover-PCS-Tons	15.17	Tons
S07325	GLY CONSTRUCTION	10/27/2017 9:22	138899	WA-125581OR	125581OR	Daily Cover-PCS-Tons	31.63	Tons
S07325	GLY CONSTRUCTION	10/27/2017 9:18	138898	WA-125581OR	125581OR	Daily Cover-PCS-Tons	32.46	Tons
S07325	GLY CONSTRUCTION	1/10/2018 8:42	140157	WA-125581OR	125581OR	Daily Cover-PCS-Tons	16.35	Tons
S07325	GLY CONSTRUCTION	10/27/2017 9:25	138900	WA-125581OR	125581OR	Daily Cover-PCS-Tons	4.28	Tons
S07325	GLY CONSTRUCTION	1/24/2018 11:03	140390	WA-125581OR	125581OR	Daily Cover-PCS-Tons	29.91	Tons
S07325	GLY CONSTRUCTION	1/10/2018 9:02	140164	WA-125581OR	125581OR	Daily Cover-PCS-Tons	14.86	Tons
S07325	GLY CONSTRUCTION	1/18/2018 8:03	140289	WA-125581OR	125581OR	Daily Cover-PCS-Tons	20.71	Tons
S07325	GLY CONSTRUCTION	1/10/2018 9:04	140165	WA-125581OR	125581OR	Daily Cover-PCS-Tons	16.74	Tons
S07325	GLY CONSTRUCTION	1/10/2018 9:01	140163	WA-125581OR	125581OR	Daily Cover-PCS-Tons	15.76	Tons
S07325	GLY CONSTRUCTION	1/10/2018 8:59	140162	WA-125581OR	125581OR	Daily Cover-PCS-Tons	15.26	Tons

288.87

Organization ID	Customer Name (Site)	Ticket In (Date/Time)	Ticket No	Profile Nm (Master)	Profile Nm (Site)	Material Nm - Ticket	Tons	Rate UOM - Material
S09681	GLY CONSTRUCTION	1/16/2018 10:34	17697	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.39	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:24	17691	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.6	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:13	17666	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.07	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:04	17661	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.47	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:52	17654	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	23.6	Tons
S09681	GLY CONSTRUCTION	1/15/2018 9:29	17624	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32.35	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:44	17614	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	25.36	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:23	17577	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.8	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:14	17574	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.3	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:46	17572	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.07	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:42	17546	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.09	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:57	17530	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.63	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:23	17510	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.08	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:12	17506	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.76	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:58	17501	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.46	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:57	17500	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.42	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:41	17494	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.45	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:13	17460	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.55	Tons
S09681	GLY CONSTRUCTION	1/10/2018 8:22	17438	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	13.58	Tons
S09681	GLY CONSTRUCTION	1/10/2018 8:05	17434	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.06	Tons
S09681	GLY CONSTRUCTION	11/22/2017 8:31	16152	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	36.37	Tons
S09681	GLY CONSTRUCTION	11/17/2017 8:17	15814	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.99	Tons

S09681	GLY CONSTRUCTION	11/17/2017 7:55	15807	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32.06	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:35	15796	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.44	Tons
S09681	GLY CONSTRUCTION	10/31/2017 8:45	14486	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.63	Tons
S09681	GLY CONSTRUCTION	10/23/2017 12:01	14036	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	26.44	Tons
S09681	GLY CONSTRUCTION	1/24/2018 10:04	17862	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.41	Tons
S09681	GLY CONSTRUCTION	1/17/2018 8:24	17738	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.75	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:53	17705	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.56	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:05	17682	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.77	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:35	17672	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.13	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:26	17669	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	21.3	Tons
S09681	GLY CONSTRUCTION	1/15/2018 9:09	17621	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	25.72	Tons
S09681	GLY CONSTRUCTION	1/15/2018 9:03	17620	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	26.17	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:50	17616	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	26.1	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:31	17612	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	23.59	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:41	17583	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.41	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:28	17580	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.9	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:38	17569	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.22	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:28	17539	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.93	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:03	17533	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.26	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:00	17532	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.48	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:44	17495	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.27	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:27	17489	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.7	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:04	17480	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.5	Tons

S09681	GLY CONSTRUCTION	1/10/2018 11:00	17478	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.98	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:58	17477	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.75	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:53	17475	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.92	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:36	17466	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.75	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:22	17463	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.27	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:59	17456	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.58	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:27	17445	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.95	Tons
S09681	GLY CONSTRUCTION	1/10/2018 8:24	17439	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.08	Tons
S09681	GLY CONSTRUCTION	1/10/2018 8:15	17437	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.51	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:46	15801	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.49	Tons
S09681	GLY CONSTRUCTION	10/31/2017 11:12	14515	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	27.93	Tons
S09681	GLY CONSTRUCTION	10/31/2017 11:02	14512	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.76	Tons
S09681	GLY CONSTRUCTION	10/31/2017 8:14	14477	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32.03	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:45	17701	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	22.96	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:15	17686	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.13	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:28	17670	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.21	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:30	17650	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.8	Tons
S09681	GLY CONSTRUCTION	1/11/2018 7:44	17585	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	34.41	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:28	17566	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.45	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:20	17562	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.28	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:02	17557	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.7	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:45	17523	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.65	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:17	17509	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14	Tons

S09681	GLY CONSTRUCTION	1/10/2018 12:04	17504	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.61	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:53	17499	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.42	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:50	17497	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.29	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:06	17481	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.61	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:18	17462	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.87	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:02	17457	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.05	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:46	17451	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.96	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:34	17448	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.06	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:24	17444	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.94	Tons
S09681	GLY CONSTRUCTION	1/10/2018 8:12	17436	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.66	Tons
S09681	GLY CONSTRUCTION	1/10/2018 7:58	17432	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.32	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:26	15649	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	37.18	Tons
S09681	GLY CONSTRUCTION	10/31/2017 10:10	14502	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.46	Tons
S09681	GLY CONSTRUCTION	10/31/2017 8:27	14482	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.5	Tons
S09681	GLY CONSTRUCTION	10/31/2017 7:59	14475	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.91	Tons
S09681	GLY CONSTRUCTION	10/30/2017 10:24	14430	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	26.26	Tons
S09681	GLY CONSTRUCTION	10/30/2017 9:53	14423	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32.36	Tons
S09681	GLY CONSTRUCTION	1/24/2018 9:24	17857	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.02	Tons
S09681	GLY CONSTRUCTION	1/17/2018 8:50	17741	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.89	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:29	17694	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.57	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:12	17685	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.49	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:52	17678	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	21.32	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:18	17667	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	24.79	Tons

S09681	GLY CONSTRUCTION	1/10/2018 15:21	17576	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.13	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:16	17575	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.55	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:26	17565	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.2	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:18	17561	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.43	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:04	17558	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.6	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:53	17552	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.53	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:49	17550	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.76	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:37	17544	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.81	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:30	17540	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.81	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:59	17531	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.09	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:39	17519	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.33	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:34	17516	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	11.52	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:32	17515	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.04	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:03	17503	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.74	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:36	17491	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.35	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:19	17485	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.01	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:08	17482	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.61	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:44	17470	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.34	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:41	17469	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.04	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:27	17464	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.22	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:53	17454	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.58	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:40	17450	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.06	Tons
S09681	GLY CONSTRUCTION	1/10/2018 8:06	17435	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.58	Tons

S09681	GLY CONSTRUCTION	11/21/2017 8:50	16008	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	34.88	Tons
S09681	GLY CONSTRUCTION	11/17/2017 8:13	15813	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	33.45	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:59	15809	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.79	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:49	15803	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.18	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:48	15802	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.59	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:54	15656	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	35.34	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:21	15648	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	36.96	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:17	15647	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	39.47	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:14	15645	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	36.1	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:10	15644	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	33.03	Tons
S09681	GLY CONSTRUCTION	10/31/2017 12:08	14525	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.47	Tons
S09681	GLY CONSTRUCTION	10/31/2017 11:20	14517	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	27.55	Tons
S09681	GLY CONSTRUCTION	10/30/2017 10:08	14425	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.73	Tons
S09681	GLY CONSTRUCTION	1/24/2018 9:18	17855	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.73	Tons
S09681	GLY CONSTRUCTION	1/17/2018 8:48	17740	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.4	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:47	17702	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	24.75	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:32	17696	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	19.41	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:22	17690	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	22.33	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:21	17689	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	19.87	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:42	17675	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.49	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:33	17671	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	21.13	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:47	17652	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.88	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:22	17647	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	23	Tons

S09681	GLY CONSTRUCTION	1/15/2018 9:13	17622	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.19	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:32	17541	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.51	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:55	17529	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.01	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:50	17526	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.42	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:44	17522	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.94	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:46	17496	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.25	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:37	17492	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.56	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:34	17490	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.37	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:14	17484	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.11	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:52	17474	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.29	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:40	17468	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.06	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:48	17452	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.64	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:28	17446	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.96	Tons
S09681	GLY CONSTRUCTION	11/21/2017 8:48	16007	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32.91	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:28	15795	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.06	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:02	15642	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	36.55	Tons
S09681	GLY CONSTRUCTION	10/31/2017 10:28	14505	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	38	Tons
S09681	GLY CONSTRUCTION	10/31/2017 9:31	14492	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	33.22	Tons
S09681	GLY CONSTRUCTION	10/23/2017 12:15	14041	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.71	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:49	17703	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	19.64	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:28	17693	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	19.64	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:56	17679	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.01	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:44	17676	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	22.29	Tons

S09681	GLY CONSTRUCTION	1/16/2018 9:39	17674	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	19.13	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:03	17643	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	21.64	Tons
S09681	GLY CONSTRUCTION	1/16/2018 7:57	17642	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	21.47	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:58	17619	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	25.03	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:53	17617	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	22.22	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:34	17613	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	22.62	Tons
S09681	GLY CONSTRUCTION	1/11/2018 7:37	17584	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	34.65	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:31	17567	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.94	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:59	17555	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.73	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:36	17543	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.91	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:34	17534	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.5	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:47	17524	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.63	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:42	17521	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.31	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:29	17513	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.41	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:13	17507	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.72	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:52	17498	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.45	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:21	17486	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.09	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:13	17483	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.17	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:55	17476	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.35	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:57	17455	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.18	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:51	17453	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.49	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:37	17449	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.5	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:22	17443	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.37	Tons

S09681	GLY CONSTRUCTION	1/10/2018 8:26	17440	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.68	Tons
S09681	GLY CONSTRUCTION	11/21/2017 8:45	16006	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	34.24	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:43	15654	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	38.35	Tons
S09681	GLY CONSTRUCTION	10/31/2017 13:38	14551	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.31	Tons
S09681	GLY CONSTRUCTION	10/30/2017 10:37	14433	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	27.53	Tons
S09681	GLY CONSTRUCTION	1/24/2018 9:46	17860	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	22.66	Tons
S09681	GLY CONSTRUCTION	1/17/2018 8:21	17737	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	27.17	Tons
S09681	GLY CONSTRUCTION	1/17/2018 8:06	17734	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.94	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:55	17706	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	26.41	Tons
S09681	GLY CONSTRUCTION	1/16/2018 10:43	17700	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	22.08	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:58	17680	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.34	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:11	17665	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.44	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:01	17659	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.41	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:53	17655	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	20.7	Tons
S09681	GLY CONSTRUCTION	1/15/2018 9:15	17623	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.4	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:47	17615	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	24.08	Tons
S09681	GLY CONSTRUCTION	1/11/2018 8:05	17588	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	35.96	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:32	17582	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.84	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:26	17579	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.88	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:24	17578	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.72	Tons
S09681	GLY CONSTRUCTION	1/10/2018 15:13	17573	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.47	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:25	17564	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.4	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:01	17556	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.96	Tons

S09681	GLY CONSTRUCTION	1/10/2018 13:54	17553	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.44	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:44	17547	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	14.91	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:22	17536	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.76	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:48	17525	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.36	Tons
S09681	GLY CONSTRUCTION	1/10/2018 12:31	17514	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.22	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:05	17458	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.99	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:14	17442	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.79	Tons
S09681	GLY CONSTRUCTION	11/21/2017 8:41	16005	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.63	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:41	15653	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	36.51	Tons
S09681	GLY CONSTRUCTION	10/31/2017 9:58	14496	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.72	Tons
S09681	GLY CONSTRUCTION	10/30/2017 10:05	14424	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.06	Tons
S09681	GLY CONSTRUCTION	1/24/2018 10:11	17864	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.49	Tons
S09681	GLY CONSTRUCTION	1/24/2018 10:09	17863	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32	Tons
S09681	GLY CONSTRUCTION	1/24/2018 9:48	17861	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	27.12	Tons
S09681	GLY CONSTRUCTION	1/17/2018 8:10	17735	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.5	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:09	17664	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	19.13	Tons
S09681	GLY CONSTRUCTION	1/16/2018 9:03	17660	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	21.14	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:45	17651	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	21.23	Tons
S09681	GLY CONSTRUCTION	1/16/2018 8:26	17648	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	25.14	Tons
S09681	GLY CONSTRUCTION	1/15/2018 8:56	17618	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	23	Tons
S09681	GLY CONSTRUCTION	1/10/2018 14:22	17563	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.27	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:26	17538	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.84	Tons
S09681	GLY CONSTRUCTION	1/10/2018 13:11	17535	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.2	Tons

S09681	GLY CONSTRUCTION	1/10/2018 12:40	17520	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	13.84	Tons
S09681	GLY CONSTRUCTION	1/10/2018 11:02	17479	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.02	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:47	17472	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.14	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:46	17471	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.53	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:34	17465	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	17.8	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:15	17461	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.74	Tons
S09681	GLY CONSTRUCTION	1/10/2018 10:11	17459	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	18.32	Tons
S09681	GLY CONSTRUCTION	1/10/2018 9:32	17447	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	16.29	Tons
S09681	GLY CONSTRUCTION	1/10/2018 8:02	17433	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	15.01	Tons
S09681	GLY CONSTRUCTION	11/17/2017 8:03	15811	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32.53	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:54	15806	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	28.69	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:53	15805	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	32.62	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:45	15800	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	31.99	Tons
S09681	GLY CONSTRUCTION	11/17/2017 7:40	15798	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	25.74	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:04	15643	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	37.4	Tons
S09681	GLY CONSTRUCTION	11/15/2017 8:00	15641	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	38.73	Tons
S09681	GLY CONSTRUCTION	11/15/2017 7:58	15640	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	35.85	Tons
S09681	GLY CONSTRUCTION	10/31/2017 12:16	14528	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	26.53	Tons
S09681	GLY CONSTRUCTION	10/31/2017 10:53	14509	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	33.3	Tons
S09681	GLY CONSTRUCTION	10/31/2017 10:03	14499	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.46	Tons
S09681	GLY CONSTRUCTION	10/31/2017 8:37	14484	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	30.44	Tons
S09681	GLY CONSTRUCTION	10/30/2017 9:50	14422	WA-125581OR	125581ORD	Daily Cover-PCS-Tons	29.48	Tons

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