### **Cleanup Action Report**

Rufus 2.0 Block 19 Denny Triangle Neighborhood Seattle, Washington

for

Acorn Development LLC June 10, 2015



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File No. 20434-001-25

June 10, 2015

Prepared for:

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#### **EXECUTIVE SUMMARY**

This report summarizes a Cleanup Action completed at the Block 19 project site located in the Denny Triangle Neighborhood in downtown Seattle, Washington. Block 19 is bounded by 7<sup>th</sup> Avenue to the north, Lenora Street to the east, 6th Avenue to the south and Blanchard Street to the west. Remedial excavations were conducted concurrent with property redevelopment of a large 38-story office tower with seven levels of underground parking. Petroleum hydrocarbons and PAHs detected at concentrations greater than the Washington State Model Toxics Control Act (MTCA) cleanup levels were removed during construction excavation from six localized areas. The remedial excavations were conducted between April and September 2014. The sources of the petroleum hydrocarbon contamination included a former residential heating oil underground storage tank (UST), an oil water separator and four unknown sources. The contamination at all six areas was shallow and completely removed within the bounds of the Subject Property and construction excavation. Upon discovery of the petroleum contaminated soil during building construction, remedial excavations were conducted to remove the contaminated soil from the Subject Property for transport and permitted treatment and disposal at CEMEX' facility in Everett, Washington and Waste Management's (WM) transfer station in Seattle, Washington for rail haul to the WM subtitle D landfill in Arlington, Oregon. The total tonnage of contaminated soil transported to CEMEX and WM from Block 19 was 1,546 tons. Based on chemical analytical testing from the six areas, contaminants of concern either were not detected or were detected at concentrations less than the MTCA cleanup levels in the soil at the final limits of the remedial excavations.

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



#### **1.0 INTRODUCTION**

This report summarizes a Cleanup Action of petroleum hydrocarbon and polycyclic aromatic hydrocarbon (PAH)-contaminated soil at the Block 19 redevelopment project in the Denny Triangle Neighborhood in downtown Seattle, Washington. Block 19 is bounded by 7<sup>th</sup> Avenue to the north, Lenora Street to the east, 6<sup>th</sup> Avenue to the south and Blanchard Street to the west. Diesel- and heavy oil-range petroleum hydrocarbon contaminated soil was encountered at five localized areas on Block 19. Additionally, PAH-contaminated soil was encountered in one isolated location on Block 19.

At the time of this report, Block 19 is being redeveloped. The former buildings on the Subject Property were demolished in early 2014 and the Subject Property is being redeveloped with an approximately 38-story office building with seven levels of underground parking. The approximate location of Block 19 relative to surrounding physical features is shown on the Vicinity Map, Figure 1. The locations of the remedial excavations conducted on Block 19 are shown on Figure 2.

Several environmental studies have been completed at Block 19 since 2012 and are summarized in the reports listed in Section 6.0, References. Based on the results of the Phase I and II ESAs, a handling plan for soil and groundwater management (aka a Construction Contingency Plan, GeoEngineers, 2014a) was developed by GeoEngineers to provide guidance to Acorn Development LLC (Acorn) and their contractors regarding recognition, characterization, handling and disposal of potentially contaminated soil and groundwater encountered during construction excavation and shoring activities associated with the property redevelopment.

#### **1.1. Statement of Objective**

The objective of this document is to summarize the Independent MTCA Cleanup Action of soil impacted with petroleum hydrocarbons and polycyclcic aromatic hydrocarbons (PAHs) exceeding MTCA cleanup levels at six locations (referred to as Areas A through F), including one former unregulated residential heating oil UST (Area C), at Block 19.

#### 2.0 BACKGROUND AND SITE DEFINITION

#### **2.1.** Historic Operations and Property Uses

Based on the results of our Phase I Environmental Site Assessment (GeoEngineers, 2012a), Block 19 was developed with approximately 18 residential buildings in 1905. These buildings were demolished by the early 1930s. The west half of the block appears vacant in a 1936 aerial photograph. Historical documents suggest auto sales and repair businesses and the possible past presence of a fuel station at the site during this time period. From the 1940s to the 1970s, residential and office buildings were constructed and demolished. Prior to the 2014 building demolition and property redevelopment, Block 19 was most recently occupied by office space, a theater and surface parking lots.



#### 2.2. Phase II ESA Summary and Subsurface Conditions

#### 2.2.1. Soil Conditions

GeoEngineers conducted a Phase II ESA at Block 19 in 2012 (GeoEngineers, 2012b). Soil encountered at Block 19 consists of:

- relatively shallow fill (loose to dense silty sand and silt with variable gravel and cobble content and occasional brick, charcoal or wood debris) overlying,
- recent deposits (stiff to very stiff silt and clay with occasional sand interbeds and variable gravel content or medium dense to dense sand with variable silt and gravel content), and
- competent glacially consolidated soils (cohesive silt and clay, cohesionless sand and gravel, and till-like deposits).

The thickness of fill encountered in the explorations completed at Block 19 ranged up to approximately 22 feet, with the fill increasing from about 1 to 4 feet along the boundary with 6<sup>th</sup> Avenue to about 11 to 22 feet along the boundary with 7<sup>th</sup> Avenue.

As reported in our Phase II ESA (GeoEngineers, 2012b), contaminants of concern (PAHs, VOCs and petroleum hydrocarbons) were not detected and metals were detected at concentrations similar to the state background metals concentrations in each of the soil samples submitted for chemical analysis from fill and native soil samples. The approximate locations of 2012 borings are shown on Figure 2. However, as will be discussed in this report, undocumented petroleum hydrocarbon- and PAH-contaminated soil was discovered during construction excavation at six localized areas.

#### 2.2.2. Groundwater Conditions

Groundwater is present beneath the Subject Property at approximately 80 to 90 feet below the ground surface at Block 19. Two deep monitoring wells (MW19-2 and MW19-3) were completed to an approximate depth of 100 feet below the ground surface. Groundwater measurements in the two deep wells indicate the regional water table ranges in depth between 80 and 90 feet below ground surface. Perched groundwater was not observed on Block 19.

#### 2.2.3. Vapor Conditions

Vapor conditions were not evaluated at the Subject Property because no contaminants of concern were identified on Block 19 during the Phase II ESA. The historic site use (use as residences, a theater, offices and a parking lot) did not warrant soil vapor sampling or testing. Additionally, the six undocumented soil contamination locations that were discovered during construction excavation (heavier hydrocarbons and PAHs) have limited, if any, volatility. Finally, the selected remedy (remedial excavation) resulted in the removal of source material that could result in vapor generation.

#### 2.3. Contaminants of Concern

Based on the chemical analytical results of a characterization soil samples obtained prior to the start of remedial excavation activities, the potential contaminants of concern are summarized on the table below, based on Table 830-1 in WAC 173-340.



Area of Remedial Excavation (See Figure 2)	Potential Source	Contaminants of Concern
А	Unknown	Diesel and Heavy Oil - Range Petroleum Hydrocarbons
В	Unknown	Diesel and Heavy Oil - Range Petroleum Hydrocarbons
с	Residential Heating Oil Underground Storage Tank	Diesel and Heavy Oil - Range Petroleum Hydrocarbons
D	Unknown	Diesel and Heavy Oil - Range Petroleum Hydrocarbons, cPAHs
E	Unknown	Diesel and Heavy Oil - Range Petroleum Hydrocarbons
F	Oil – Water Separator	Diesel and Heavy Oil - Range Petroleum Hydrocarbons

Soil samples obtained from the limits of the six remedial excavations (A – F) were submitted for chemical analysis of each of the potential contaminants of concern listed above.

#### 2.4. Establishment of Cleanup Levels and Terrestrial Ecological Evaluation

GeoEngineers completed a Terrestrial Ecological Evaluation (TEE) for the Site in accordance with MTCA. The site qualifies for an exclusion from the TEE because there is "less than 1.5 acres of contiguous undeveloped land on the site or within 500 feet of the site" (WAC 173-340-7491(c)(i)). No further evaluation relative to the TEE is necessary. MTCA Method A cleanup levels were used for the remedial excavations completed at the site.

#### 2.5. Review of Feasible Cleanup Alternatives and Selection of Preferred Remedy

The objectives of the cleanup action to be completed at the Subject Property are to: (1) prevent direct human contact with soil containing contaminant concentrations greater than the MTCA Method A cleanup levels for unrestricted land use, and (2) prevent leaching of contaminants from soil to groundwater. Other pathways such as groundwater to surface water, and soil vapor intrusion to indoor air are not considered complete exposure pathways for the Subject Property based on site conditions, absence of contaminant impacts to groundwater, contaminant type and current and future land use. Excavation and off-site disposal were selected as the cleanup remedy 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 transport off site of contaminated soil was considered to be the most permanent and cost effective cleanup option for this Site.
- Excavation of and transport off site of contaminated soil was necessary for property redevelopment.



The soil cleanup action was conducted by Sellen Construction and their earthwork contractor Hos Brothers from April to September 2014. The remaining sections of this report below describe GeoEngineers' scope, remedial excavation activities, cleanup confirmation soil sampling, and off-site permitted disposal of contaminated soil.

#### **3.0 PURPOSE AND SCOPE**

The purpose of our services was to document the removal of the petroleum and PAH-contaminated soil impacted by known and unknown sources on Block 19 in general accordance with the Model Toxics Control Act (MTCA). Our scope of services included the following activities:

#### **3.1. Preparation for Field Activities**

GeoEngineers prepared a Construction Contingency Plan dated March 4, 2014 to prepare the contractor to handle and dispose of contaminated soil discovered at the site. A preconstruction meeting was completed to establish a communication protocol should potentially contaminated soil be discovered by the earthwork contractor (remember that no contaminated soil was identified on this site based on the Phase II ESA study). A procedure was established where GeoEngineers was notified, excavation halted in the area of suspect soil and then GeoEngineers visited the site to oversee field screening, soil sampling and appropriate handling of contaminated soil as outlined in Section 3.2.

#### 3.2. Field Activities: Soil Removal and Subcontracted Chemical Analysis

- GeoEngineers oversaw and observed soil excavation and segregation of contaminated soils.
- GeoEngineers obtained soil samples from the limits of the remedial excavations and field screened soil from the excavation for evidence of petroleum hydrocarbons using visual and water sheen screening methods.
- GeoEngineers submitted selected soil samples obtained from the limits of the remedial excavation to an Ecology-accredited laboratory, Fremont Analytical in Seattle, Washington, for chemical analytical testing of contaminants of concern.

#### **3.3. Reporting and Technical Support**

 GeoEngineers evaluated field and laboratory data relative to the Washington State Model Toxics Control Act (MTCA) Method A cleanup levels.

#### 4.0 REMEDIAL EXCAVATION ACTIVITIES

During excavation for property redevelopment, soil with physical indications of petroleum contamination (odor, sheen, staining) was discovered in six localized areas (A – F) on Block 19. Additionally, an underground storage tank (UST) was encountered in one of the six areas (Area C). GeoEngineers observed the remedial excavation of the contaminated soil in each of the six areas and obtained characterization and confirmation soil samples. GeoEngineers also observed and documented the removal of the UST encountered in Area C. The remedial excavation of soil from Areas A, B, D, E and F is described in Section 4.1. The UST removal activities and remedial excavation of soil in Area C is described in Section 4.2.



#### 4.1. Areas A, B, D, E and F

#### 4.1.1. General

Five remedial excavations were conducted by Hos Brothers Construction (Hos) at Block 19 to remove petroleum-contaminated soil encountered in Areas A, B, D, E and F during mass excavation of soil for property redevelopment. Hos removed a total of 550 tons (according to weight tickets provided by CEMEX and Waste Management) of petroleum-contaminated soil from Areas A, B, D, E and F concurrent with property redevelopment activities. GeoEngineers performed field screening (visual, headspace and/or water sheen) to evaluate the potential lateral and vertical extent of petroleum-impacted soil in the release areas. Soil samples were obtained throughout remedial excavation activities for field screening using visual, water sheen, and headspace vapor screening methods. Field screening methods are described in Appendix A. 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, B, D, E and F are shown on Figures 3, 4, 6, 7 and 8.

#### 4.1.2. Areas A, B, D, E and F Characterization Soil Sampling

A total of six discrete and/or composite soil samples were obtained from suspect soil that had evidence of contamination based on field screening at each of the areas: A, B, D, E and F (at Area C, a UST was discovered and it is described separately below). The characterization samples were obtained prior to the initiation of remedial excavation activities at areas A, B, D, E and F in order to understand the chemical type and then to characterize soil for off-site permitted disposal. Each of the soil samples were submitted for chemical analysis of gasoline- and/or diesel-range petroleum hydrocarbons using Northwest Methods NWTPH-Gx, NWTPH-HCID or NWTPH-Dx. Additionally, two soil samples obtained from Area D were submitted for chemical analysis of polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270D/SIM.

Diesel- and/or heavy oil-range petroleum hydrocarbons were detected in each of the nine characterization soil samples submitted for chemical analysis during the excavation. Additionally, carcinogenic PAHs (cPAHs) were detected at a concentration greater than the MTCA Method A cleanup level in one of the two characterization soil samples obtained from Area D. 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 in Section 4.1.3.

#### 4.1.3. Areas A, B, D, E and F Confirmation Soil Sampling

A total of 23 discrete and composite soil samples were obtained after the remedial excavations of the contaminated soil encountered from the five areas: A, B, D, E and F. The approximate locations of the cleanup confirmation soil samples are shown in Figures 3, 4, 6, 7 and 8. Soil samples obtained from the limits of the remedial excavations were field screened for evidence of petroleum hydrocarbon and/or volatile contamination using visual, water sheen and headspace vapor screening. Field screening evidence of petroleum hydrocarbon contamination was not observed in any of the confirmation soil samples obtained are described in Appendix B. Each of the samples were submitted to Fremont Analytical for chemical analysis of one or more of the following:

- Diesel- and heavy oil-range petroleum hydrocarbons by Northwest Method NWTPH-Dx;
- Gasoline-range petroleum hydrocarbons by Northwest Method NWTPH-Gx; and,
- Polycyclic aromatic hydrocarbons (PAHs, including naphthalenes) by EPA Method 8270D/SIM.



Contaminants of concern were not detected in the confirmation soil samples obtained at the final limits of the six remedial excavations that were completed to remove the contaminated soil represented by characterization soil samples, with one exception. Diesel-range petroleum hydrocarbons were detected at a concentration of 59.7 milligrams per kilogram (mg/kg) in one confirmation soil sample obtained from Area C. This detected concentration is significantly less than the cleanup level of 2,000 mg/kg. Chemical analytical results are summarized in Table 1. The laboratory reports and our review of the laboratory quality control data are presented in Appendix B.

#### 4.2. UST Removal, Area C

#### 4.2.1. General

On April 15, 2014, a residential heating oil UST was encountered on Block 19 during mass excavation for property redevelopment. The presence of the UST was unknown and was damaged by an excavator during construction excavation activities, which caused it to leak approximately 100-gallons of residual petroleum and water into soil immediately adjacent to the UST. The approximate location of the UST is shown on Figure 2. Prior to the removal of the UST, a "30-Day Notice" was submitted to the Washington State Department of Ecology (Ecology) to notify them of the removal of the UST. Following the removal of the UST, Ecology's Site Check/Site Assessment Checklist was completed by GeoEngineers for the site in general accordance with Ecology's "Guidance for Site Checks and Site Assessments for Underground Storage Tanks." The 30-Day Notice and the Site Check/Site Assessment Checklist are presented in Appendix C.

The UST removal activities described below were conducted on April 22, 2014. The UST was removed by an accredited UST decommissioning contractor, Filco. The UST was inspected and certified safe for removal by a marine chemist with Sound Testing, Inc. of Seattle, Washington. A Washington State Site Assessment certified representative of GeoEngineers (Dean Chahim, ICC ID Number 8218427) was present to observe UST removal operations and document its condition. During the UST removal activities, our representative also visually observed the soils encountered and performed field screening of soil samples obtained from the limits of the excavation. Selected samples from the excavation were submitted for chemical analytical testing.

#### 4.2.2. UST Removal Observations

The UST was constructed of single-walled steel and estimated to be approximately 1,000 - gallons in size and formerly contained heating oil. The top of the UST was buried approximately 4 feet below the ground surface. The UST was rusted with small holes observed on the exterior of the tank at the time of removal.

Following the removal of the UST, Hos removed approximately 623 cubic yards (996 tons) of petroleum contaminated soil in the vicinity of the UST. Soil was removed and temporarily stockpiled on site pending chemical analytical results, remedial excavation and transport off-site for permitted disposal. During the excavation of the UST, the foundation of a concrete basement was encountered. This basement is likely the foundation of the former apartment building for which the heating oil UST fueled, indicating that the UST is not regulated, as per Washington Administrative Code (WAC) 173-360-110(2)(h).

#### 4.2.3. UST Removal Characterization Soil Sampling

Three discrete soil samples (PCS-4, SP-1 and SP-2) were obtained from contaminated soil adjacent to the UST to understand the hydrocarbon type and to characterize the soil for off-site disposal. Sample PCS-4 was a discrete soil sample obtained from soil with physical indications of petroleum contamination located



immediately beneath the leaking UST and samples SP-1 and SP-2 were discrete soil samples obtained from a stockpile generated during the removal of the UST. Sample PCS-4 was submitted for chemical analysis of petroleum hydrocarbon identification using Northwest Method NWTPH-HCID. Samples SP-1 and SP-2 were submitted for chemical analysis of diesel- and heavy oil-range petroleum hydrocarbons using Northwest Method NWTPH-Dx.

Diesel- and heavy oil-range petroleum hydrocarbons (consistent with heating oil) were detected at concentrations greater than the MTCA Method A cleanup level in sample PCS-4. Diesel-range petroleum hydrocarbons were detected at concentrations greater than the MTCA Method A cleanup in SP-2. Contaminants of concern were not detected in sample SP-1. Soil represented by each of the characterization stockpile samples was subsequently excavated and transported off-site for permitted disposal. Confirmation soil samples were obtained at the limits of the remedial excavation, as described in Section 4.2.4.

#### 4.2.4. UST Removal Confirmation Soil Sampling

Eight discrete confirmation soil samples (UST-1-1-25.0 through UST-1-10-10.0) were obtained at depths ranging between approximately 7 and 13 feet below the ground surface from soil encountered at the limits of the excavation to remove the UST. Two of the soil samples (UST-1-4-12.0 and UST-1-6-13.0) were base samples obtained from immediately below the UST at each end of the UST. The remaining soil samples were sidewall samples obtained from the excavation. Confirmation soil sample UST-1-1-25.0 is representative of soil at the south end of the excavation. Due to conditions at the site from excavation activities, and heavy rainfall, petroleum product from the UST ran down the steep excavation hillslope, where the sidewall sample was obtained at 25 feet below the ground surface. The approximate locations of the confirmation soil samples obtained at the limits of the UST excavation are shown on Figure 5.

Soil samples obtained from the limits of the UST excavation were field screened for evidence of petroleum hydrocarbon and/or volatile contamination using visual, water sheen and headspace vapor screening. Field screening evidence of petroleum hydrocarbon contamination was not observed in each of the soil samples obtained from the UST removal excavation limits. Field screening methods are described in Appendix B. Each of the samples was submitted to Fremont Analytical in Seattle, Washington for chemical analysis of diesel- and heavy oil-range petroleum hydrocarbons using Northwest Method NWTPH-Dx (in accordance with WAC 173-340-900 Table 830-1, Footnotes (13)(14)(15) for residential heating oil).

Diesel and heavy oil-range petroleum hydrocarbons were either not detected or were detected at concentrations less than the MTCA Method A cleanup levels in each of the confirmation soil samples. The chemical analytical results for soil samples obtained at the limits of the UST removal are summarized in Table 1. Laboratory reports and our review of the laboratory quality control data are presented in Appendix B.

#### 4.3. Groundwater

Groundwater was not observed during the remedial excavations completed at Block 19.



#### 4.4. Contaminated Soil Disposal

Contaminated soil removed from the six remedial excavation areas was transported to Waste Management's transfer station in Seattle, Washington for permitted disposal at their Subtitle D landfill located in Arlington, Oregon or CEMEX for permitted disposal at their treatment and disposal facility in Everett, Washington. Approximately 1,546 tons (according to weight summaries provided by the disposal facilities) of petroleum contaminated soil was removed from the site during remedial excavations performed by Hos. Contaminated soil tonnage summaries provided by the disposal facilities are included in Appendix D.

#### **5.0 CONCLUSIONS**

#### 5.1. Soil

Soil with diesel and heavy oil-range petroleum hydrocarbons or cPAHs at concentrations greater than MTCA Method A cleanup levels was encountered during construction activities at Block 19. Five remedial excavations were conducted from five localized areas (Areas A, B, D, E and F) to remove contaminated soil encountered during the redevelopment construction activities from April to September, 2014. In a sixth area (Area C), one residential heating oil underground storage tank was discovered and removed in April 2014. The UST was damaged during its discovery, releasing diesel and heavy oil-range petroleum hydrocarbons to the soil around the UST. Contaminants of concern were detected at concentrations greater than the MTCA Method A cleanup level in soil samples obtained near the UST, confirming that a remedial action was necessary. A remedial excavation to remove contaminated soil was conducted immediately following the UST removal.

Based on the chemical analytical results of the soil samples obtained at the final limits of the six remedial excavations, soil with concentrations greater than the MTCA Method A cleanup levels was successfully removed from the Subject Property. Additionally, our site observations, characterization soil samples and confirmation soil samples confirmed that the contaminated soil encountered did not extend off of the Subject Property into the ROWs. Based on the weight tickets provided by Waste Management and CEMEX, the total quantity of soil removed Block 19 for permitted disposal was 1,546 tons. The remedial actions completed resulted in site conditions that are protective of human health and the environment.

#### 5.2. Groundwater

Regional groundwater is present at approximately 80 to 90 feet below the ground surface beneath Block 19. In our opinion, groundwater is not impacted by the releases at Areas A through F based on the following:

- The contaminated soil extended to a maximum depth of approximately 13 feet below the ground surface and the regional groundwater aquifer is present at a depth of approximately 80-90 feet below the ground surface. Additionally, the regional groundwater aquifer does not fluctuate significantly with seasons based on GeoEngineers study of the groundwater aquifer in the Denny Triangle and South Lake Union neighborhoods of downtown Seattle. Based on this, the soil to groundwater pathway for contaminant migration is incomplete;
- 2. The potential source of contaminated groundwater (contaminated soil) was successfully excavated and removed from the site; and,



3. Petroleum hydrocarbons and PAHs were not detected in groundwater samples obtained from the deep regional aquifer at the adjacent blocks (Blocks 14 and 20) during the Phase II ESA activities.

Based on the rationale above, groundwater was not likely impacted at Block 19. Confirmation groundwater sampling is not necessary to document the successful cleanup action of the contaminated soil.

#### 5.3. Vapor

Vapor conditions were not evaluated at the Subject Property because no contaminants of concern were identified on Block 19 during the Phase II ESA. The historic site use (use as residences, a theater, offices and a parking lot) did not warrant soil vapor sampling or testing. Additionally, the six undocumented soil contamination locations that were discovered during construction excavation (heavier hydrocarbons and PAHs) have limited, if any, volatility. Finally, the selected remedy (remedial excavation) resulted in the removal of source material that could result in vapor generation. As a result vapor conditions were not evaluated following completion of the remedial excavation. Therefore, these conditions are protective of human health and the environment.

#### 6.0 REFERENCES

- GeoEngineers, 2012a. Phase I Environmental Site Assessment, Rufus 2.0, Denny Triangle, Blocks 14, 19, 20, 18 and 21, Seattle Washington, dated June 7, 2012.
- GeoEngineers, 2012b. Phase II Environmental Site Assessment, Rufus 2.0, Rufus 2.0 Development, Blocks 14, 19, and 20, Denny Triangle, Seattle Washington 98101, dated June 7, 2012.
- GeoEngineers, 2014a. Block 19 Construction Contingency Plan, Soil and Groundwater Management, Rufus 2.0 Development, Block 19, Denny Triangle, Seattle, Washington 98101, dated March 4, 2014.

#### 7.0 LIMITATIONS

We have prepared this report 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. No other party may rely on the product of our services unless we agree 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.

Our conclusions are based on our site observations, field screening results and chemical analysis of a limited number of soil samples at the site. It is always possible that contaminants remain in areas that were not observed, sampled or tested.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.



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





## Table 1

# Summary of Field Screening and Chemical Analytical Data

Project Rufus 2.0 Block 19, Denny Triangle, Seattle, Washington

GeoEngineers File No. 20434-001-25

				Location of Sample	Field Scr	eening <sup>3</sup>	Petro	oleum Hydroc (mg/kg)	arbons	Non-Ca	arcinogenic P/ (µg/kg)	AHs <sup>6</sup>	Total cPAHs <sup>7</sup> (µg∕kg)
Area Description	Sample ID <sup>1</sup>	Sample Date	Depth (feet bgs)	Relative to Remedial Excavation	Sheen	Headspace (ppm)	Gasoline Range <sup>4</sup>	Diesel Range <sup>5</sup>	Heavy Oil Range <sup>5</sup>	Naphthalene	2- Methylnaph thalene	1- Methylnaph thalene	TEQ
Characterization Samples	3 <sup>2</sup>												
Area B (Near Soldier Pile N44)	N-44-6.0	9/9/2014	6.0	Sidewall	NS	<1		<21.9	108	-	-		_
	PCS-4	4/15/2014	8.0		HS	500	<511	20,700	3,320		-	-	
Area C (UST Removal)	SP-1	4/24/2014	-		NS	<1		<23.7	<59.3		-	-	
	SP-2	4/25/2014	8.0	-	MS	108		5,400	855		-		
Area D	B19-12-0.5-2	2/21/2014	0.5-2.0		NS	<1	<21.0	<21.0	304	<52.8	103.0	71.8	131
(Tremie Pipe Area)	TP-5-2.0	4/4/2014	2.0		NS	<1	-	<23.3	183	<60.5	<60.5	<60.5	45.7
Area E (East Wall)	PCS-2-3.0	4/9/2014	3.0		SS	<1	<23.4	10,000	<58.4				
Area F (Oil Water Separator)	PCS-1-10.0	4/8/2014	10.0	-	HS	220	<27.2	308	3,530	-	-	-	-
<b>Confirmation Samples</b>													
Area A (Near Soldier Pile N13)	SP-1	5/9/2014		Composite	NS	<1	<23.9	<59.9	<120				
Area B (Near Soldier Pile N44)	N-44-10.0	9/9/2014	10.0	Sidewall	NS	<1		<24.2	<60.6				
	UST-1-1-25.0	4/23/2014	25.0	Sidewall	SS	<1		59.7	<60.1		-		
	UST-1-2-8.0	4/23/2014	8.0	Sidewall	NS	<1		<25.2	<63.0		-		
Area C (UST Removal)	UST-1-3-7.0	4/23/2014	7.0	Sidewall	NS	<1	-	<25.8	<64.5		-		
	UST-1-4-12.0	4/23/2014	12.0	Base	NS	<1		<24.8	<62.0		-		
	UST-1-6-13.0	4/28/2014	13.0	Base	NS	<1	-	<23.3	<58.1		-		
	UST-1-7-12.0	4/28/2014	12.0	Sidewall	NS	<1	-	<242	<60.5	-	-		
	UST-1-9-10.0	4/28/2014	10.0	Sidewall	NS	<1	-	<22.9	<57.3		-		
	UST-1-10-10.0	4/28/2014	10.0	Sidewall	NS	<1	-	<23.6	<59.0		-		



				Location of Sample	Field Scr	eening <sup>3</sup>	Petro	leum Hydroca (mg/kg)	arbons	Non-Ca	arcinogenic P/ (µg/kg)	AHs <sup>6</sup>	Total cPAHs <sup>7</sup> (µg/kg)
Area Description	Sample ID <sup>1</sup>	Sample Date	Depth (feet bgs)	Relative to Remedial Excavation	Sheen	Headspace (ppm)	Gasoline Range <sup>4</sup>	Diesel Range <sup>5</sup>	Heavy Oil Range <sup>5</sup>	Naphthalene	2- Methylnaph thalene	1- Methylnaph thalene	TEQ
	B19-12-4.5-7.5	2/21/2014	4.5-7.5	Center	NS	<1	<24.4	<60.9	<122	<63.1	<63.1	<63.1	47.6
	TP-4-2.0	4/4/2014	2.0	Sidewall	NS	<1			-	<61.4	<61.4	<61.4	46.3
Area D (Tremie Pipe Area)	TP-6-2.0	4/4/2014	2.0	Sidewall	NS	<1		-		<63.4	<63.4	<63.4	47.9
	TP-7-2.0	4/4/2014	2.0	Sidewall	NS	<1				<63.3	<63.3	<63.3	47.8
	TP-8-2.0	4/4/2014	2.0	Sidewall	NS	<1		<22.8	<56.9	<59.5	<59.5	<59.5	44.9
	EX-6-4.5	4/9/2014	4.5	Base	NS	<1		<26.5	<66.4	-			
	EX-7-4.5	4/9/2014	4.5	Sidewall	NS	<1		<24.0	<60.0			-	
	EX-8-4.5	4/9/2014	4.5	Sidewall	NS	<1		<26.7	<66.7	-		-	
	EX-9-5.0	4/10/2014	5.0	Base	NS	<1		<24.7	<61.7	-		-	
	EX-10-5.0	4/10/2014	5.0	Sidewall	NS	<1		<26.0	<65.0	-		-	
Area E (East Wall Petroleum	EX-11-4.5	7/17/2014	4.5	Sidewall	NS	<1		<22.2	125	-			
Impacted Area)	EX-12-4.5	7/17/2014	4.5	Sidewall	NS	<1		<24.0	<59.9	-		-	
	EX-13-5.0	7/17/2014	5.0	Base	NS	<1		<24.3	<60.7	-		-	
	EX-14-4.5	8/29/2014	4.5	Sidewall	NS	<1		<21.5	<53.7	-		-	
	EX-15-4.5	8/29/2014	4.5	Sidewall	NS	<1		<21.3	<53.1			-	
	EX-16-3.5	8/29/2014	3.5	Sidewall	NS	<1		<22.3	<55.7	-			
	EX-17-Comp	8/29/2014		Composite	NS	<1		<22.1	<55.4	-		-	
	EX-1-12.0	4/8/2014	12.0	Base	NS	<1		<22.6	<56.6	-			
Area F (Oil Water Separator)	EX-2-10.0	4/8/2014	10.0	Sidewall	NS	<1		<24.4	<61.0				
	EX-3-10.0	4/8/2014	10.0	Sidewall	NS	<1		<23.7	<59.2	-			
· ·····	EX-4-10.0	4/8/2014	10.0	Sidewall	NS	<1		<23.4	<58.5	-			
	EX-5-10.0	4/8/2014	10.0	Sidewall	NS	<1		<23.4	<58.5	-			
MTCA Method A or B Cle	anup Level for Unres	tricted Land Use				•	30/100 <sup>8</sup>	2,000	2,000		5,000		100

#### Notes:

<sup>1</sup>Soil samples were obtained between April and September, 2014. Approximate sample locations shown on the attached figures. Chemical analytical testing by Fremont Analytical in Seattle, Washington.

<sup>2</sup>Soil represented by each of these samples was subsequently excavated and transported to Cemex or Waste Management for permitted disposal.

<sup>3</sup>Field screening methods are described in Appendix A.

<sup>4</sup>Gasoline-range hydrocarbons analyzed by petroleum hydrocarbon identification using Northwest Method NWTPH-HCID.

<sup>5</sup>Diesel- and heavy oil-range hydrocarbons analyzed by Northwest Method NWTPH-Dx xtended with a silica gel cleanup.

<sup>6</sup>Polycyclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270D/SIM. Only compounds with detections greater than the MTCA Method A cleanup levels are shown in the table. See the laboratory report for the full list of compounds analyzed. these calculations. See Appendix A for the cPAH calculations.

bgs = below ground surface

<sup>8</sup>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.

mg/kg = milligrams per kilogram µg/kg = micrograms per kilogram

-- = not tested

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.











### Legend

Α	Remedial Excavation Areas (A-E). Excavation areas identified by field screening and soil sampling. See figures 2-6 for characterization and confirmation soil sample locations.
	<ul> <li>A: Petroleum impacted soil near soldier pile N13</li> <li>B: Petroleum impacted soil near soldier pile N44</li> <li>C: Former underground storage tank and remedial excavation of petroleum contaminated soil</li> <li>D: PAH contaminated soil from tremie pipe</li> <li>E: Petroleum contaminated soil</li> <li>F: Former oil-water separator and petroleum contaminated soil</li> </ul>
B19-12 🕲	Lead Flight Auger Test Boring Completed in Feburary 2014
MW14-3 🔘	Shallow Monitoring Wells Completed in April 2012
B14-6 💓	Direct-Push Borings Completed in April 2012
B14-1 🔶	Hollow-stem Auger Borings Completed in February 2012
MW19-1 ●	Monitoring Well Completed in February 2012



### Notes

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

Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.

### **Block 19 Remedial Excavation Areas**

Block 19 Remedial Excavation Areas Seattle, Washington

GEOENGINEERS



TMICHAUD Å DWG\TAB:FIG 3 MODIFIED I SITE PLANS. ES\20434001-19 FIG 3-8 RE EXCAVATION Ē No EXCAVAI EDIAL P:\20\2043400I\CAD\19\REME

### Legend



Approximate Remedial Excavation Area. Soil excavated from this area was transported to CEMEX in Everett, WA for permitted disposal.

B19-7 👿

Direct-Push Borings Completed in April 2012





Characterization or Confirmation Soil Sample Contaminants of concern were not detected

Soldier Pile



### Notes

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Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.



Block 19 Remedial Excavation Areas Seattle, Washington

GEOENGINEERS



### Legend



Approximate Remedial Excavation Area. Soil excavated from this area was transported to CEMEX in Everett, WA for permitted disposal.



Characterization or Confirmation Soil Sample -Obtained in 2014 Approximate Depth Below Ground Surface Sample ID



Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.



Contaminants of concern were not detected





### Notes

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

Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.

# **Remedial Excavation Area B**

Block 19 Remedial Excavation Areas Seattle, Washington

GEOENGINEERS



13, 2015 - 15:51 E S ŝ WG\TAB:FIG PLANS SITE EXCAVATION 3-8 RE ES\20434001-19 FIG FIGUR S ω P:\20\2043400I\CAD\19\REMI

### Legend



Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.





Characterization or Confirmation Soil Sample -Obtained in 2014 Approximate Depth Below Ground Surface Sample ID

Direct-Push Borings Completed in April 2012



Contaminants of concern detected at concentrations greater than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.



Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.



Contaminants of concern were not detected



### Notes

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

Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.





### Legend

	Legena
	Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.
B19-12 ⊗	Lead Flight Auger Test Boring Completed by Sellen Construction in Feburary 2014
B19-10 💓	Direct-Push Borings Completed in April 2012
B19-2 -	Hollow-stem Auger Borings Completed in February 2012
「P-5-10.0」●	Characterization or Confirmation Soil Sample - Obtained in 2014 - Approximate Depth Below Ground Surface - Sample ID
	Contaminants of concern detected at concentrations greater than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
$\bigcirc$	Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.
	Contaminants of concern were not detected
1	0 0 10 FEET
Notes	
2. This drawin showing fe GeoEngine electronic f will serve a	hs of all features shown are approximate. g is for information purposes. It is intended to assist in atures discussed in an attached document. eers, Inc. cannot guarantee the accuracy and content of illes. The master file is stored by GeoEngineers, Inc. and as the official record of this communication.
	e survey CAD file "XS-SUR.dwg" provided by Bush,

Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings , Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.





### Legend



Approximate Remedial Excavation Area. Soil excavated from this area was transported to Waste Management in Seattle, WA for permitted disposal.



Characterization or Confirmation Soil Sample -Obtained in 2014 Approximate Depth Below Ground Surface Sample ID



Contaminants of concern detected at concentrations greater than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.



Contaminants of concern detected at concentrations less than MTCA Method A Cleanup levels. Soil represented by this sample was subsequently excavated and transported off-site for permitted disposal.



Contaminants of concern were not detected



### Notes

- 1. The locations of all features shown are approximate.
- This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
- 3. Chemical analytical data pending for EX-11-4.5, EX-12-4.5, and EX-13-5.0.

Reference: Site survey CAD file "XS-SUR.dwg" provided by Bush, Roed & Hitchings, Inc., dated March 2012. Shoring design cad files by Ground Support provided on 4-9-14.



Block 19 Remedial Excavation Areas Seattle, Washington

GEOENGINEERS



FIGUR

### Legend





# **APPENDIX A** Field Methods

### APPENDIX A FIELD METHODS

#### **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. Gloves were changed between samples 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 below ground surface. 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 include: (1) visual screening, and (2) water sheen screening.

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 methods 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.



# **APPENDIX B** Chemical Analytical Program

### APPENDIX B 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**

No quality control exceptions were noted by the testing laboratory. It is our opinion that the analytical data are of acceptable quality for their intended use in this report.





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

**GeoEngineers, Inc. - Redmond** Jessica Smith 8410 154th Ave. NE Redmond, Washington 98052

RE: Rufus 2.0 Block 19 Lab ID: 1402225

April 04, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 4 sample(s) on 2/21/2014 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)

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,

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers, Inc Redmond Rufus 2.0 Block 19 1402225	Work Order Sample Summary					
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received				
1402225-001	B19-12-0.5-2	02/21/2014 10:30 AM	02/21/2014 3:12 PM				
1402225-002	B19-12-2-4.5	02/21/2014 10:50 AM	02/21/2014 3:12 PM				
1402225-003	B19-12-4.5-7.5	02/21/2014 11:10 AM	02/21/2014 3:12 PM				
1402225-004	B19-12-7.5-10	02/21/2014 11:20 AM	02/21/2014 3:12 PM				



**Case Narrative** 

WO#: **1402225** Date: **4/4/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Rufus 2.0 Block 19

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.


WO#: **1402225** Date Reported: **4/4/2014** 

lient: GeoEngineers, Inc Red	mond			Collection	Date: 2/2	1/2014 10:30:00 A
roject: Rufus 2.0 Block 19						
ab ID: 1402225-001				Matrix: So	hil	
lient Sample ID: B19-12-0.5-2					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
•	Desself		0	11	<b>DF</b>	
nalyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH	-Dx/Dx Ext.			Batcl	n ID: 6795	Analyst: BR
Diesel (Fuel Oil)	ND	21.0		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Heavy Oil	304	52.5		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	2/27/2014 9:09:00 PM
Surr: o-Terphenyl	105	50-150		%REC	1	2/27/2014 9:09:00 PM
				,		
Hydrocarbon Identification by N	WTPH-HCID			Batcl	n ID: 6725	Analyst: BR
Gasoline	ND	21.0		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Mineral Spirits	ND	31.5		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Kerosene	ND	52.5		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Diesel (Fuel Oil)	ND	52.5		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Heavy Oil	DETECT	105		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Mineral Oil	ND	105		mg/Kg-dry	1	2/27/2014 9:09:00 PM
Surr: 2-Fluorobiphenyl	109	50-150		%REC	1	2/27/2014 9:09:00 PM
Surr: o-Terphenyl	106	50-150		%REC	1	2/27/2014 9:09:00 PM
Polyaromatic Hydrocarbons by	EPA Method 8	<u>270 (SIM)</u>		Batcl	n ID: 6705	Analyst: PH
Naphthalene	ND	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
2-Methylnaphthalene	103	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
1-Methylnaphthalene	71.8	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Acenaphthylene	89.5	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Acenaphthene	ND	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Fluorene	ND	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Phenanthrene	89.3	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Anthracene	ND	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Fluoranthene	66.4	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Pyrene	146	52.8		μg/Kg-dry	1	2/26/2014 2:11:00 PM
Benz(a)anthracene	102	52.8		μg/Kg-dry	1	2/26/2014 2:11:00 PM
Chrysene	128	52.8		μg/Kg-dry	1	2/26/2014 2:11:00 PM
Benzo(b)fluoranthene	109	52.8		μg/Kg-dry	1	2/26/2014 2:11:00 PM
Benzo(k)fluoranthene	90.7	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Benzo(a)pyrene	94.3	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Indeno(1,2,3-cd)pyrene	ND	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM

Qualifiers: B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

D Dilution was required

H Holding times for preparation or analysis exceeded

ND Not detected at the Reporting Limit



WO#: **1402225** Date Reported: **4/4/2014** 

Client: GeoEngineers, Inc Redm	ond			Collection	Date: 2	/21/2014 10:30:00 AM
Project: Rufus 2.0 Block 19						
Lab ID: 1402225-001				Matrix: So	bil	
Client Sample ID: B19-12-0.5-2						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons by EF	PA Method 8	270 (SIM)		Batcl	n ID: 670	5 Analyst: PH
Benzo(g,h,i)perylene	175	52.8		µg/Kg-dry	1	2/26/2014 2:11:00 PM
Surr: 2-Fluorobiphenyl	99.4	50.4-142		%REC	1	2/26/2014 2:11:00 PM
Surr: Terphenyl-d14 (surr)	96.4	48.8-157		%REC	1	2/26/2014 2:11:00 PM
Sample Moisture (Percent Moistur	<u>re)</u>			Batcl	n ID: R12	2723 Analyst: KZ
Percent Moisture	7.50			wt%	1	2/25/2014 4:30:31 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: 1402225 Date Reported: 4/4/2014

Client: G	GeoEngineers, Inc R	edmond			Collection	Date: 2/2	21/2014 11:10:00 A
Project: R	ufus 2.0 Block 19						
ab ID: 1	402225-003				Matrix: So	bil	
Client Sam	ple ID: B19-12-4.5-7	.5					
Analyses		Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarl	bon Identification by	NWTPH-HCID			Batcl	n ID: 6725	Analyst: BR
Gasoline		ND	24.4		mg/Kg-dry	1	2/27/2014 8:09:00 PM
Mineral Spi	irits	ND	36.6		mg/Kg-dry	1	2/27/2014 8:09:00 PM
Kerosene		ND	60.9		mg/Kg-dry	1	2/27/2014 8:09:00 PM
Diesel (Fue	el Oil)	ND	60.9		mg/Kg-dry	1	2/27/2014 8:09:00 PM
Heavy Oil		ND	122		mg/Kg-dry	1	2/27/2014 8:09:00 PM
Mineral Oil		ND	122		mg/Kg-dry	1	2/27/2014 8:09:00 PM
Surr: 2-F	Iuorobiphenyl	110	50-150		%REC	1	2/27/2014 8:09:00 PM
Surr: o-T	erphenyl	109	50-150		%REC	1	2/27/2014 8:09:00 PM
Polyarom	atic Hydrocarbons b	y EPA Method 8	270 (SIM)		Batcl	n ID: 7065	Analyst: PH
Naphthalen	ie	ND	63.1	Н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
2-Methylna		ND	63.1	Н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
1-Methylna	•	ND	63.1	Н	μg/Kg-dry	1	4/4/2014 12:09:00 AM
Acenaphthy	•	ND	63.1	Н	μg/Kg-dry	1	4/4/2014 12:09:00 AM
Acenaphthe		ND	63.1	Н	μg/Kg-dry	1	4/4/2014 12:09:00 AM
Fluorene		ND	63.1	Н	μg/Kg-dry	1	4/4/2014 12:09:00 AM
Phenanthre	ne	ND	63.1	н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
Anthracene		ND	63.1	Н	μg/Kg-dry	1	4/4/2014 12:09:00 AM
Fluoranther		ND	63.1	н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
Pyrene		ND	63.1	н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
Benz(a)anti	hracene	ND	63.1	н	µg/Kg dry µg/Kg-dry	1	4/4/2014 12:09:00 AM
Chrysene		ND	63.1	н	µg/Kg dry µg/Kg-dry	1	4/4/2014 12:09:00 AM
Benzo(b)flu	ioranthene	ND	63.1	н	μg/Kg-dry μg/Kg-dry	1	4/4/2014 12:09:00 AM
Benzo(k)flu		ND	63.1	Н	μg/Kg-dry μg/Kg-dry	1	4/4/2014 12:09:00 AM
		ND	63.1	Н		1	4/4/2014 12:09:00 AM
Benzo(a)py					µg/Kg-dry ug/Kg-dry		
	,3-cd)pyrene	ND	63.1	н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
( )	)anthracene	ND	63.1	н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
Benzo(g,h,i		ND	63.1	Н	µg/Kg-dry	1	4/4/2014 12:09:00 AM
		86.6	50.4-142	Н	%REC	1	4/4/2014 12:09:00 AM
Surr: Ter	rphenyl-d14 (surr)	80.2	48.8-157	Н	%REC	1	4/4/2014 12:09:00 AM
Sample M	loisture (Percent Moi	<u>isture)</u>			Batcl	n ID: R127	23 Analyst: KZ
Percent Mo	bisture	21.9			wt%	1	2/25/2014 4:30:31 PM
Qualifiers:	B Analyte detected in the	associated Method Bl	lank	D D	ilution was red	quired	
	E Value above quantitation	-		нн	lolding times f	or preparatio	n or analysis exceeded
	J Analyte detected below	quantitation limits		ND N	lot detected at	the Reportir	ig Limit

- Analyte detected below quantitation limits J
- RL Reporting Limit

- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

CLIENT: Ge	402225 eoEngineers, Inc. ufus 2.0 Block 19	- R	edmond						Diesel a	QC S and Heavy (	SUMMAI Dil by NW1		
Sample ID: MB-6795	Samp	Туре	MBLK			Units: mg/K	g	Prep Date	e: <b>2/26/20</b>	14	RunNo: 128	382	
Client ID: MBLKS	Batch	ID:	6795					Analysis Date	e: <b>2/27/20</b>	14	SeqNo: 257	929	
Analyte		l	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-Fluorobipheny	yl		23.0		20.00		115	50	150				
Surr: o-Terphenyl			22.8		20.00		114	50	150				
Sample ID: LCS-6795	Samp	Туре	LCS			Units: mg/K	g	Prep Date	e: <b>2/26/20</b>	14	RunNo: 128	382	
Client ID: LCSS	Batch	ID:	6795					Analysis Date	e: <b>2/27/20</b>	14	SeqNo: 257	/930	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			472	20.0	500.0	0	94.4	65	135				
Surr: 2-Fluorobipheny	yl		21.4		20.00		107	50	150				
Surr: o-Terphenyl			21.6		20.00		108	50	150				
Sample ID: 1402225-0	03ADUP Samp	Туре	DUP			Units: mg/K	g-dry	Prep Date	e: <b>2/26/20</b>	14	RunNo: 128	382	
Client ID: B19-12-4.5	-7.5 Batch	ID:	6795					Analysis Date	e: <b>2/27/20</b>	14	SeqNo: 257	7933	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			ND	24.1						0		30	
Heavy Oil			ND	60.3						0		30	
Surr: 2-Fluorobipheny	yl		26.3		24.13		109	50	150		0		
Surr: o-Terphenyl			26.1		24.13		108	50	150		0		

- Qualifiers:
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

Fremont

Analytical

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Work Order: CLIENT: Project:	1402225 GeoEnginee Rufus 2.0 Bl		Redmond						Hydroca	QC S	SUMMAI		
Sample ID: LCS-6	5725	SampType	: LCS			Units: mg/Kg		Prep Dat	e: <b>2/26/20</b>	14	RunNo: 128	344	
Client ID: LCSS		Batch ID:	6725					Analysis Dat	e: <b>2/27/20</b>	14	SeqNo: 256	960	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			472	50.0	500.0	0	94.4	65	135				
Surr: 2-Fluorobip	phenyl		21.4		20.00		107	50	150				
Surr: o-Terpheny	yl		21.6		20.00		108	50	150				
Sample ID: MB-67	725	SampType	: MBLK			Units: mg/Kg		Prep Dat	e: <b>2/26/20</b>	14	RunNo: 128	344	
Client ID: MBLK	s	Batch ID:	6725					Analysis Dat	e: <b>2/27/20</b>	14	SeqNo: 256	961	
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									
Heavy Oil Mineral Oil			ND ND	100 100									
	ohenyl				20.00		115	50	150				

Fremont

Analytical

В Analyte detected in the associated Method Blank Qualifiers:

- н Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- Dilution was required D
- Analyte detected below quantitation limits J
- Reporting Limit RL

- Е Value above quantitation range
- ND Not detected at the Reporting Limit
- s Spike recovery outside accepted recovery limits



### **Work Order:** 1402225

### CLIENT: GeoEngineers, Inc. - Redmond

### QC SUMMARY REPORT

Project: Rufus 2.0 Block 19

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-6705	SampType: LCS			Units: µg/Kg		Prep Date:	2/25/2014	RunNo: 127	741		
Client ID: LCSS	Batch ID: 6705					Analysis Date:	2/26/2014	SeqNo: 254	4612		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD	RPDLimit	Qual	
Japhthalene	993	50.0	1,000	0	99.3	61.6	125				
2-Methylnaphthalene	956	50.0	1,000	0	95.6	58.2	129				
-Methylnaphthalene	982	50.0	1,000	0	98.2	56.4	132				
Acenaphthylene	875	50.0	1,000	0	87.5	52.2	133				
Acenaphthene	870	50.0	1,000	0	87.0	54	131				
luorene	792	50.0	1,000	0	79.2	53.4	131				
Phenanthrene	1,010	50.0	1,000	0	101	55.6	128				
Anthracene	983	50.0	1,000	0	98.3	51	132				
Fluoranthene	889	50.0	1,000	0	88.9	48.4	134				
<sup>D</sup> yrene	895	50.0	1,000	0	89.5	48.6	135				
Benz(a)anthracene	734	50.0	1,000	0	73.4	41.9	136				
Chrysene	1,070	50.0	1,000	0	107	51.4	135				
Benzo(b)fluoranthene	625	50.0	1,000	0	62.5	39.7	137				
Benzo(k)fluoranthene	956	50.0	1,000	0	95.6	45.7	138				
Benzo(a)pyrene	857	50.0	1,000	0	85.7	45.3	135				
ndeno(1,2,3-cd)pyrene	783	50.0	1,000	0	78.3	45.4	137				
Dibenz(a,h)anthracene	616	50.0	1,000	0	61.6	45.8	134				
Benzo(g,h,i)perylene	868	50.0	1,000	0	86.8	49.3	134				
Surr: 2-Fluorobiphenyl	503		500.0		101	50.4	142				
Surr: Terphenyl-d14 (surr)	440		500.0		88.0	48.8	157				
Sample ID: 1402255-001ADUP	SampType: <b>DUP</b>			Units: µg/Kg-c	Iry	Prep Date:	2/25/2014	RunNo: 127	741		
Client ID: BATCH	Batch ID: 6705					Analysis Date:	2/26/2014	SeqNo: 254	4620		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD	RPDLimit	Qual	
Japhthalene	ND	53.6					0		30		
2-Methylnaphthalene	ND	53.6					0		30		
-Methylnaphthalene	ND	53.6					0		30		
Qualifiers: B Analyte detected in	the associated Method Blank		D Dilution wa	s required		E Value above quantitation range					
H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits						ND Not detected at the Report	rting Limit				
R RPD outside accept	ed recovery limits		RL Reporting	ine it			S Spike recovery outside ac				

Fremont
[Analytical]

Work Order:	1402225
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Project:

CLIENT:	GeoEngineers, Inc Redmond
Project:	Rufus 2.0 Block 19

### **QC SUMMARY REPORT**

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1402255-001ADUP	SampType	DUP			Units: µg/K	g-dry	Prep Da	te: 2/25/20	)14	RunNo: 127	741	
Client ID: BATCH	Batch ID:	6705					Analysis Da	te: 2/26/20	)14	SeqNo: 254	620	
Analyte	I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene		ND	53.6						0		30	
Acenaphthene		ND	53.6						0		30	
Fluorene		ND	53.6						0		30	
Phenanthrene		ND	53.6						0		30	
Anthracene		ND	53.6						0		30	
Fluoranthene		ND	53.6						0		30	
Pyrene		ND	53.6						0		30	
Benz(a)anthracene		ND	53.6						0		30	
Chrysene		ND	53.6						0		30	
Benzo(b)fluoranthene		ND	53.6						0		30	
Benzo(k)fluoranthene		ND	53.6						0		30	
Benzo(a)pyrene		ND	53.6						0		30	
Indeno(1,2,3-cd)pyrene		ND	53.6						0		30	
Dibenz(a,h)anthracene		ND	53.6						0		30	
Benzo(g,h,i)perylene		ND	53.6						0		30	
Surr: 2-Fluorobiphenyl		435		535.7		81.2	50.4	142		0		
Surr: Terphenyl-d14 (surr)		484		535.7		90.4	48.8	157		0		

Sample ID: 1402225-001AMS	SampType: <b>MS</b>			Units: µg/K	g-dry	Prep Da	te: <b>2/25/20</b>	14	RunNo: 127		
Client ID: B19-12-0.5-2	Batch ID: 6705			Analysis Date: 2/26/2014				SeqNo: 254622			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,040	52.9	1,058	45.66	93.8	42.9	138				
2-Methylnaphthalene	1,030	52.9	1,058	103.5	87.4	42.8	151				
1-Methylnaphthalene	1,100	52.9	1,058	71.81	96.9	41.6	148				
Acenaphthylene	1,170	52.9	1,058	89.51	102	32.6	160				
Acenaphthene	1,010	52.9	1,058	6.373	95.2	46.3	142				
Fluorene	934	52.9	1,058	0	88.2	43.4	153				
	the associated Method Blank	02.0	D Dilution wa		00.2			e above quantitation ra	inge		

н Holding times for preparation or analysis exceeded RPD outside accepted recovery limits

R

Analyte detected below quantitation limits J

Reporting Limit RL

ND Not detected at the Reporting Limit



#### Work Order: 1402225

#### CLIENT: GeoEngineers, Inc. - Redmond

### **QC SUMMARY REPORT**

Project: Rufus 2.0 Block 19 Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Phenathrene       1,280       52.9       1,058       89.26       113       45.5       140         Anthracene       1,090       52.9       1,058       36.59       99.7       32.6       160         Fluoranthene       1,250       52.9       1,058       66.43       112       44.6       161         Pyrene       1,370       52.9       1,058       102.4       90.0       57.5       169         Chrysene       1,110       52.9       1,058       102.4       90.0       57.5       169         Benzo(k)/fluoranthene       1,110       52.9       1,058       108.9       94.7       42.2       168         Benzo(k)/fluoranthene       1,110       52.9       1,058       0       138       41.1       165         Dibenz(a,h)anthracene       1,460       52.9       1,058       0	Sample ID: 1402225-001AMS	SampType: MS			Units: µg/Kg-o	dry	Prep Date	e: <b>2/25/20</b>	14	RunNo: 127	'41	
Phenanthrene         1,280         52.9         1,058         89.26         113         45.5         140           Anthracene         1,090         52.9         1,058         36.59         99.7         32.6         160           Fluoranthene         1,280         52.9         1,058         36.59         99.7         32.6         160           Prene         1,370         52.9         1,058         164.6         115         44.3         158           Benz(a)anthracene         1,060         52.9         1,058         102.4         90.0         57.5         169           Chrysene         1,110         52.9         1,058         102.4         90.0         57.5         169           Benzo(h)fluoranthene         1,110         52.9         1,058         102.4         91.0         45.2         146           Benzo(h)fluoranthene         1,400         52.9         1,058         90.74         95.9         48         161           Benzo(h)fluoranthene         1,430         52.9         1,058         0         135         38.1         166           Benzo(h,i)perytene         1,540         52.9         1,058         175.5         129         45.6         1	Client ID: B19-12-0.5-2	Batch ID: 6705					Analysis Date	e: <b>2/26/20</b>	14	SeqNo: 254622		
Anthracene       1,090       52.9       1,058       36.59       99.7       32.6       160         Fluoranthene       1,250       52.9       1,058       66.43       112       44.6       161         Pyrene       1,370       52.9       1,058       145.6       115       44.8       161         Benz(a)anthracene       1,060       52.9       1,058       102.4       90.0       57.5       169         Chysene       1,110       52.9       1,058       102.7       93.0       45.2       146         Benzo(b)/fluoranthene       1,110       52.9       1,058       108.9       94.7       43.4       171         Benzo(b)/fluoranthene       1,110       52.9       1,058       90.74       95.9       48       161         Benzo(b)/fluoranthene       1,400       52.9       1,058       0       135       38.1       166         Dibenz(a,h)anthracene       1,430       52.9       1,058       175.5       129       45.6       157         Sur:2-FLorobiphenyd-14 (sur)       567       529.2       95.1       54.8       162       41.42         Sur:2-FLorobiphenyd-14 (sur)       567       529.2       105       48.8	Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoranthene       1,250       52.9       1,058       66.43       112       44.6       161         Pyrene       1,370       52.9       1,058       145.6       115       48.3       158         Benz(a)anthracene       1,060       52.9       1,058       102.4       90.0       57.5       169         Chrysene       1,110       52.9       1,058       108.9       94.7       42.2       168         Benzo(k)/fluoranthene       1,110       52.9       1,058       90.74       93.9       48       161         Benzo(k)/fluoranthene       1,110       52.9       1,058       94.26       112       34.4       179         Indeno(1,2,3-cd)pyrene       1,460       52.9       1,058       0       138       41.1       165         Dibenz(a),hanthracene       1,440       52.9       1,058       0       138       166         Benzo(k)/fluoranthracene       1,540       52.9       1,058       175.5       129       45.6       157         Surr: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142       5eqNo: 25462         Surr: Terphenyl-d14 (surr)       F050       Surr: 4p/Kg       Prep Jate:       2/26/20	Phenanthrene	1,280	52.9	1,058	89.26	113	45.5	140				
Pyrene       1,370       52.9       1,058       145.6       115       48.3       158         Benz(a)lanthracene       1,060       52.9       1,058       102.4       90.0       57.5       169         Chrysene       1,110       52.9       1,058       102.7       93.0       45.2       146         Benz(b)lfuoranthene       1,110       52.9       1,058       90.74       95.9       48.8       161         Benz(b)lfuoranthene       1,110       52.9       1,058       90.74       95.9       48.8       161         Benz(b)lfuoranthene       1,200       52.9       1,058       90.74       95.9       48.8       161         Dibenz(a,h)anthracene       1,460       52.9       1,058       0       135       38.1       166         Benzo(b)linerytene       1,540       52.9       1,058       0       135       38.1       142         Surr: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142       567       5425       546         Analyte       Rexult       6705       SamgType:       MBLK       Vartifyenghthatene       ND       50.0       142       564       546       546       546	Anthracene	1,090	52.9	1,058	36.59	99.7	32.6	160				
Benz(a)anthracene       1,060       52.9       1,058       102.4       90.0       57.5       169         Chrysene       1,110       52.9       1,058       127.7       93.0       45.2       146         Benzo(b)Iluoranthene       1,110       52.9       1,058       1007.4       95.9       48.8       161         Benzo(a)pyrene       1,280       52.9       1,058       94.26       112       34.4       179         Indenci (1,2,3-cd)pyrene       1,460       52.9       1,058       0       138       41.1       165         Dibenza(b,1nithracene       1,460       52.9       1,058       0       138       41.1       165         Benzo(g),hi)perylene       1,540       52.9       1,058       0       138       142       149         Sur: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142       324.7       324       175         Sur: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142       324.7       324.7       324.7         Client ID: MBLKS       Batch ID: 6705       F05       F05       F12       Analyte       Regult       RPD       50.0       S0.0       S0.0	Fluoranthene	1,250	52.9	1,058	66.43	112	44.6	161				
Chrysene       1,110       52.9       1,058       127.7       93.0       45.2       146         Benzo(b)fluoranthene       1,110       52.9       1,058       108.9       94.7       42.2       168         Benzo(k)fluoranthene       1,110       52.9       1,058       90.74       95.9       48       161         Benzo(k)fluoranthene       1,280       52.9       1,058       90.74       95.9       48       161         Benzo(k)fluoranthene       1,280       52.9       1,058       90.74       95.9       48       161         Benzo(k)fluoranthene       1,280       52.9       1,058       90.74       95.9       48       161         Dibenz(a,h)anthracene       1,430       52.9       1,058       0       138       41.1       166         Benzo(k),h)perylene       1,540       52.9       1,058       175.5       129       45.6       157         Sur: 2-Fluorobiphenyl       503       529.2       105       48.8       157       127.4         Sur: 2-Fluorobiphenyl       567       529.2       105       48.8       157       129         Analyte       Result       Result       RL       SPK value       SPK Va	Pyrene	1,370	52.9	1,058	145.6	115	48.3	158				
Benzo(b)fluoranthene       1,110       52.9       1,058       108.9       94.7       42.2       168         Benzo(k)fluoranthene       1,110       52.9       1,058       90.74       95.9       48       161         Benzo(k)fluoranthene       1,280       52.9       1,058       94.26       112       34.4       179         Indeno(1,2,3-cd)pyrene       1,460       52.9       1,058       0       135       38.1       166         Benzo(k),ianthracene       1,430       52.9       1,058       0       135       38.1       166         Benzo(b,ianthracene       1,430       52.9       1,058       0       135       38.1       166         Benzo(b,ih)perylene       1,540       52.9       1,058       175.5       129       45.6       157         Surr: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142       SeqNo: 12741         Surr: 2-Fluorobiphenyl       503       529.2       105       48.8       157       SeqNo: 12741         Surr: 2-Fluorobiphenyl       503       529.2       105       48.8       157       SeqNo: 254626         Client ID:       MBLKS       Batch ID:       6705       Semolty Set	Benz(a)anthracene	1,060	52.9	1,058	102.4	90.0	57.5	169				
Benzok/filuoranthene       1,110       52.9       1,058       90.74       95.9       4.8       161         Benzok/a)pyrene       1,280       52.9       1,058       94.26       112       34.4       179         Indeno(1,2,3-cd)pyrene       1,460       52.9       1,058       0       138       41.1       165         Dibenz(a,h)anthracene       1,430       52.9       1,058       0       135       38.1       166         Benzo(g,h,h)perylene       1,540       52.9       1,058       175.5       129       45.6       157         Surr: 7 Erphenyl-d14 (surr)       503       529.2       95.1       50.4       142       SeqNo: 1274         Sample ID: MB-6705       SampType:       MBLK       Units: µg/Kg       Prep Date:       2/25/2014       RunNo: 1274         Client ID:       MBLKS       Batch ID:       6705       Frep Date:       2/26/2014       SeqNo: 254626         Naphthalene       ND       60.0       SeqNo: 254626       Frep Date:       2/26/2014       %RPD       RPDLimit       Qu         Naphthalene       ND       50.0       Sol       SeqNo: 254626       SeqNo: 254626       SeqNo: 254626       SeqNo: 254626       SeqNo: 254626       SeqNo:	Chrysene	1,110	52.9	1,058	127.7	93.0	45.2	146				
Benzo(a)pyrene       1,280       52.9       1,058       94.26       112       34.4       179         Indeno(1,2,3-cd)pyrene       1,460       52.9       1,058       0       138       41.1       165         Dibenz(a,h)anthracene       1,430       52.9       1,058       0       138       38.1       166         Benzo(g,h,i)perylene       1,540       52.9       1,058       0       135       38.1       166         Surr: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142       529.2       95.1       50.4       142         Surr: Terphenyl-d14 (surr)       557       529.2       95.1       50.4       142       529.014       RunNo: 12741         Client ID:       MBLKS       Batch ID: 6705       Cuntis: µg/Kg       Prep Date: 2/25/2014       SeqNo: 254626         Analysis Date:       2/26/2014       SeqNo: 254626       Analysis Date: 2/26/2014       SeqNo: 254626         Analyte       Result       RL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD R*PD R*PDLimit       Qu         Naphthalene       ND       50.0       -       -       -       -       -       -       - <t< td=""><td>Benzo(b)fluoranthene</td><td>1,110</td><td>52.9</td><td>1,058</td><td>108.9</td><td>94.7</td><td>42.2</td><td>168</td><td></td><td></td><td></td><td></td></t<>	Benzo(b)fluoranthene	1,110	52.9	1,058	108.9	94.7	42.2	168				
Indeno(1,2,3-cd)pyrene       1,460       52.9       1,058       0       138       41.1       165         Dibenz(a,h)anthracene       1,430       52.9       1,058       0       135       38.1       166         Benz(g,h,i)perylene       1,540       52.9       1,058       175.5       129       45.6       157         Surr: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142         Surr: Terphenyl-d14 (surr)       557       529.2       95.1       50.4       157         Sample ID:       MB-6705       SampType:       MBLK       Value       Value       Natysis Date:       2/25/2014       RunNo: 12741         Client ID:       MBLKS       Batch ID:       6705       SampType:       Natysis Date:       2/26/2014       SeqNo: 254626         Analyte       Result       RL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD R/Val       %RPD       RPDLimit       Qu         Naphthalene       ND       50.0	Benzo(k)fluoranthene	1,110	52.9	1,058	90.74	95.9	48	161				
Dibenz(a,h)anthracene       1,430       52.9       1,058       0       135       38.1       166         Benzo(g,h,i)perylene       1,540       52.9       1,058       175.5       129       45.6       157         Surr: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142       142         Surr: Terphenyl-d14 (surr)       557       529.2       105       48.8       157         SampType:       MBLK       Units:       µg/Kg       Prep Date:       2/25/2014       RunNo:       12741         Client ID:       MBLKS       Batch ID:       6705       Total       Analysis Date:       2/26/2014       SeqNo:       254626         Analyte       Result       RL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD Ref Val       %RPD       RPDLimit       Qu         Naphthalene       ND       50.0	Benzo(a)pyrene	1,280	52.9	1,058	94.26	112	34.4	179				
Benzo(g,h,i)pervlene         1,540         52.9         1,058         175.5         129         45.6         157           Surr: 2-Fluorobiphenyl         503         529.2         95.1         50.4         142           Surr: Terphenyl-d14 (surr)         557         529.2         105         48.8         157           Sample ID: MB-6705         SampType: MBLK         Units: µg/Kg         Prep Date: 2/25/2014         RunNo: 12741           Client ID: MBLKS         Batch ID: 6705         Sampt         Result         RL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         RPD Ref Val         %RPD         RPDLimit         Qu           Naphtalene         ND         50.0         So.0         S	Indeno(1,2,3-cd)pyrene	1,460	52.9	1,058	0	138	41.1	165				
Surr: 2-Fluorobiphenyl       503       529.2       95.1       50.4       142         Surr: Terphenyl-d14 (surr)       557       529.2       105       48.8       157         Sample ID:       MB-6705       SampType:       MBLK       Units:       µg/Kg       Prep Date:       2/25/2014       RunNo:       12741         Client ID:       MBLKS       Batch ID:       6705       Terp Sequence       2/26/2014       SeqNo:       254626         Analyte       Result       RL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD RPD RPDLimit       Qu         Naphthalene       ND       50.0	Dibenz(a,h)anthracene	1,430	52.9	1,058	0	135	38.1	166				
Surr: Terphenyl-d14 (surr)       557       529.2       105       48.8       157         Sample ID: MB-6705       SampType: MBLK       Units: µg/Kg       Prep Date: 2/25/2014       RunNo: 12741         Client ID: MBLKS       Batch ID: 6705       KR       KR       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD Ref Val       %RPD       RPDLimit       Qu         Naphthalene       ND       50.0	Benzo(g,h,i)perylene	1,540	52.9	1,058	175.5	129	45.6	157				
Sample ID:       MB-6705       SampType:       MBLK       Units:       µg/Kg       Prep Date:       2/25/2014       RunNo:       12741         Client ID:       MBLKS       Batch ID:       6705       Analysis Date:       2/26/2014       SeqNo:       254626         Analyte       Result       RL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD       RPD Limit       Qu         Naphthalene       ND       50.0	Surr: 2-Fluorobiphenyl	503		529.2		95.1	50.4	142				
Client ID:       MBLKS       Batch ID:       6705       Analysis Date:       2/26/2014       SeqNo:       254626         Analyte       Result       RL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       RPD Ref Val       %RPD       RPDLimit       Qu         Naphthalene       ND       50.0	Surr: Terphenyl-d14 (surr)	557		529.2		105	48.8	157				
AnalyteResultRLSPK valueSPK Ref Val%RECLowLimitHighLimitRPD Ref Val%RPDRPDLimitQuNaphthaleneND50.02-MethylnaphthaleneND50.01-MethylnaphthaleneND50.0AcenaphthyleneND50.0AcenaphtheneND50.0FluoreneND50.0PhenanthreneND50.0AnthraceneND50.0	Sample ID: MB-6705	SampType: MBLK			Units: µg/Kg		Prep Date	e: <b>2/25/20</b>	14	RunNo: 127	'41	
NaphthaleneND50.02-MethylnaphthaleneND50.01-MethylnaphthaleneND50.0AcenaphthyleneND50.0AcenaphtheneND50.0FluoreneND50.0PhenanthreneND50.0AnthraceneND50.0	Client ID: MBLKS	Batch ID: 6705					Analysis Date	e: <b>2/26/20</b>	14	SeqNo: 254	626	
YearND50.01-MethylnaphthaleneND50.0AcenaphthyleneND50.0AcenaphtheneND50.0FluoreneND50.0PhenanthreneND50.0AnthraceneND50.0	Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1-MethylnaphthaleneND50.0AcenaphthyleneND50.0AcenaphtheneND50.0FluoreneND50.0PhenanthreneND50.0AnthraceneND50.0	Naphthalene	ND	50.0									
AcenaphthyleneND50.0AcenaphtheneND50.0FluoreneND50.0PhenanthreneND50.0AnthraceneND50.0	2-Methylnaphthalene	ND	50.0									
AcenaphtheneND50.0FluoreneND50.0PhenanthreneND50.0AnthraceneND50.0	1-Methylnaphthalene	ND	50.0									
FluoreneND50.0PhenanthreneND50.0AnthraceneND50.0	Acenaphthylene	ND	50.0									
PhenanthreneND50.0AnthraceneND50.0	Acenaphthene	ND	50.0									
Anthracene ND 50.0	Fluorene	ND	50.0									
	Phenanthrene	ND	50.0									
Fluoranthene ND 50.0	Anthracene	ND	50.0									
	Fluoranthene	ND	50.0									
	H Holding times for p	reparation or analysis exceeded			tected below quantitation lir			ND Not d	etected at the Report			

R RPD outside accepted recovery limits

RL Reporting Limit

Fremont
Analytical

Work Order: CLIENT: Project:	1402225 GeoEngin Rufus 2.0	eers, Inc Redmond Block 19				Po	olyaromatic l	Hydro	-	SUMMAI y EPA Met		
Sample ID: MB-67	705	SampType: MBLK			Units: µg/Kg		Prep Date:	2/25/201	14	RunNo: 127	741	
Client ID: MBLK	(S	Batch ID: 6705					Analysis Date:	2/26/201	4	SeqNo: 254	1626	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit Hig	ghLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pyrene		ND	50.0									
Benz(a)anthracene	)	ND	50.0									
Chrysene		ND	50.0									
Benzo(b)fluoranthe	ene	ND	50.0									
Benzo(k)fluoranthe	ene	ND	50.0									
Benzo(a)pyrene		ND	50.0									
Indeno(1,2,3-cd)pyrene ND		50.0										
Dibenz(a,h)anthrac	cene	ND	50.0									
Benzo(g,h,i)peryler	ne	ND	50.0									
Surr: 2-Fluorobip	phenyl	569		500.0		114	50.4	142				
Surr: Terphenyl-	d14 (surr)	455		500.0		91.0	48.8	157				
Sample ID: MB-70	065	SampType: MBLK			Units: µg/Kg		Prep Date:	4/3/2014	1	RunNo: 134	118	
Client ID: MBLK	s	Batch ID: 7065					Analysis Date:	4/3/2014	ļ.	SeqNo: 270	)585	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit Hig	ghLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene		ND	50.0									
2-Methylnaphthaler	ne	ND	50.0									
1-Methylnaphthaler	ne	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	9	ND	50.0									

Qualifiers: B Analyte detected in the associated Method Blank

н

R

Chrysene

D Dilution was required

Reporting Limit

RL

- Holding times for preparation or analysis exceeded
- RPD outside accepted recovery limits

J Analyte detected below quantitation limits

- E Value above quantitation range
- ND Not detected at the Reporting Limit

6

50.0

ND

<b>STATUT</b>	Fremont
	Analytical

Work	Order:	1402225
VUIN	order.	1402225

Project:

CLIENT: GeoEngineers, Inc. - Redmond

Rufus 2.0 Block 19

## QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-7065	SampType: <b>MBLK</b>			Units: µg/Kg		Prep Da	te: 4/3/201	4	RunNo: 134	18	
Client ID: MBLKS	Batch ID: 7065					Analysis Da	te: 4/3/201	4	SeqNo: 270	)585	
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	385		500.0		77.1	50.4	142				
Surr: Terphenyl-d14 (surr)	358		500.0		71.7	48.8	157				

Sample ID: LCS-7065	SampType: LCS			Units: µg/Kg		Prep Dat	e: 4/3/2014		RunNo: <b>134</b>	18	
Client ID: LCSS	Batch ID: 7065					Analysis Dat	e: <b>4/3/2014</b>		SeqNo: 270	586	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RF	PD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	770	50.0	1,000	0	77.0	61.6	125				
2-Methylnaphthalene	883	50.0	1,000	0	88.3	58.2	129				
1-Methylnaphthalene	791	50.0	1,000	0	79.1	56.4	132				
Acenaphthylene	822	50.0	1,000	0	82.2	52.2	133				
Acenaphthene	770	50.0	1,000	0	77.0	54	131				
Fluorene	768	50.0	1,000	0	76.8	53.4	131				
Phenanthrene	760	50.0	1,000	0	76.0	55.6	128				
Anthracene	765	50.0	1,000	0	76.5	51	132				
Fluoranthene	744	50.0	1,000	0	74.4	48.4	134				
Pyrene	744	50.0	1,000	0	74.4	48.6	135				
Benz(a)anthracene	709	50.0	1,000	0	70.9	41.9	136				
Chrysene	853	50.0	1,000	0	85.3	51.4	135				
Benzo(b)fluoranthene	732	50.0	1,000	0	73.2	39.7	137				
Benzo(k)fluoranthene	702	50.0	1,000	0	70.2	45.7	138				
Benzo(a)pyrene	687	50.0	1,000	0	68.7	45.3	135				

Qualifiers: B Analyte detected in the associated Method Blank

н

D Dilution was required

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

Holding times for preparation or analysis exceeded

RL Reporting Limit

E Value above quantitation range

ND Not detected at the Reporting Limit

Fremont
Analytical

Work Order: 1402225

Benzo(k)fluoranthene

Indeno(1,2,3-cd)pyrene

Dibenz(a,h)anthracene

R

Benzo(g,h,i)perylene

Benzo(a)pyrene

CLIENT:	GeoEn	GeoEngineers, Inc Redmond								
Project:	Rufus 2	Rufus 2.0 Block 19								
Sample ID: LCS	-7065	SampType: LCS								
Client ID: LCS	S	Batch ID: 7065								
Analyte		Result	RL	SPK value						
Indeno(1,2,3-cd)	pyrene	579	50.0	1,000						
Dibenz(a,h)anthr	acene	610	50.0	1,000						

### **QC SUMMARY REPORT**

### Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Project: Rulus 2.0 E	SIOCK 19						•	2	•	<u> </u>		•
Sample ID: LCS-7065	SampType	e: LCS			Units: µg/K	g	Prep Da	te: 4/3/201	4	RunNo: 134	¥18	
Client ID: LCSS	Batch ID:	7065					Analysis Da	te: 4/3/201	4	SeqNo: 270	)586	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene		579	50.0	1,000	0	57.9	45.4	137				
Dibenz(a,h)anthracene		610	50.0	1,000	0	61.0	45.8	134				
Benzo(g,h,i)perylene		587	50.0	1,000	0	58.7	49.3	134				
Surr: 2-Fluorobiphenyl		410		500.0		82.0	50.4	142				
Surr: Terphenyl-d14 (surr)		364		500.0		72.7	48.8	157				
Sample ID: 1404019-001ADUP	SampType: DUP Units: µg/Kg-dry Prep Date: 4/3/2014			4	RunNo: <b>13418</b>							
Client ID: BATCH	Batch ID:	7065					Analysis Da	te: 4/4/201	4	SeqNo: 270	)589	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene		ND	53.2						0		30	
2-Methylnaphthalene		ND	53.2						0		30	
1-Methylnaphthalene		ND	53.2						0		30	
Acenaphthylene		ND	53.2						0		30	
Acenaphthene		ND	53.2						0		30	
Fluorene		ND	53.2						0		30	
Phenanthrene		ND	53.2						0		30	
Anthracene		ND	53.2						0		30	
Fluoranthene		ND	53.2						0		30	
Pyrene		ND	53.2						0		30	
Benz(a)anthracene		ND	53.2						0		30	
Chrysene		ND	53.2						0		30	
Benzo(b)fluoranthene		ND	53.2						0		30	

ND

ND

ND

ND

ND

53.2

53.2

53.2

53.2

53.2

RL

Reporting Limit

Analyte detected below quantitation limits J

Е Value above quantitation range

0

0

0

0

0

Spike recovery outside accepted recovery limits

ND Not detected at the Reporting Limit

s

RPD outside accepted recovery limits

30

30

30

30

30

D Dilution was required

	nalytical										
Work Order:1402225CLIENT:GeoEngineProject:Rufus 2.0	eers, Inc Redmond Block 19				Ро	lyaromat	ic Hydro	QC S	SUMMA y EPA Met		-
Sample ID: 1404019-001ADUP	SampType: <b>DUP</b>			Units: µg/K	g-dry	Prep Da	te: 4/3/201	4	RunNo: <b>134</b>	18	
Client ID: BATCH	Batch ID: 7065					Analysis Da	te: 4/4/201	4	SeqNo: 270	589	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	418		532.0		78.6	50.4	142		0		
Surr: Terphenyl-d14 (surr)	430		532.0		80.9	48.8	157		0		
Sample ID: 1404019-002AMS SampType: MS				Units: µg/K	g-dry	Prep Da	te: 4/3/201	4	RunNo: 13418		
Client ID: BATCH	Batch ID: 7065					Analysis Date: 4/4/2014			SeqNo: 270591		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	973	54.2	1,084	156.4	75.3	42.9	138				
2-Methylnaphthalene	1,050	54.2	1,084	53.18	92.4	42.8	151				
1-Methylnaphthalene	980	54.2	1,084	68.09	84.2	41.6	148				
Acenaphthylene	906	54.2	1,084	0	83.6	32.6	160				
Acenaphthene	1,020	54.2	1,084	179.7	77.8	46.3	142				
Fluorene	969	54.2	1,084	119.3	78.4	43.4	153				
Phenanthrene	1,100	54.2	1,084	273.6	75.8	45.5	140				
Anthracene	912	54.2	1,084	56.28	78.9	32.6	160				
Fluoranthene	959	54.2	1,084	129.6	76.6	44.6	161				
Pyrene	908	54.2	1,084	84.99	75.9	48.3	158				
Benz(a)anthracene	819	54.2	1,084	17.70	73.9	57.5	169				
Chrysene	939	54.2	1,084	23.24	84.5	45.2	146				
Benzo(b)fluoranthene	889	54.2	1,084	7.460	81.3	42.2	168				
Benzo(k)fluoranthene	803	54.2	1,084	7.534	73.4	48	161				
Benzo(a)pyrene	824	54.2	1,084	7.672	75.4	34.4	179				
Indeno(1,2,3-cd)pyrene	695	54.2	1,084	0	64.1	41.1	165				
Dibenz(a,h)anthracene	732	54.2	1,084	0	67.6	38.1	166				
Benzo(g,h,i)perylene	672	54.2	1,084	0	62.0	45.6	157				
Surr: 2-Fluorobiphenyl	437		541.9		80.7	50.4	142				
Surr: Terphenyl-d14 (surr)	432		541.9		79.7	48.8	157				

#### В Analyte detected in the associated Method Blank Qualifiers:

R

Fremont

D Dilution was required

Analyte detected below quantitation limits J

Е Value above quantitation range

- н Holding times for preparation or analysis exceeded RPD outside accepted recovery limits
- RL Reporting Limit

ND Not detected at the Reporting Limit s Spike recovery outside accepted recovery limits



## Sample Log-In Check List

С	lient Name:	GEI1	Work O	der Number:	1402225		
Lo	ogged by:	Chelsea Ward	Date Re	ceived:	2/21/201	4 3:12:00 PM	
Cha	ain of Cust	ody					
1.	Is Chain of Cu	ustody complete?	Yes	$\checkmark$	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>Clier</u>	<u>t</u>			
Log	<u>ı In</u>						
3.	Coolers are p	resent?	Yes	$\checkmark$	No 🗌	NA 🗌	
4.	Shipping cont	ainer/cooler in good condition?	Yes	$\checkmark$	No 🗌		
5.		s intact on shipping container/cooler?	Yes		No 🗌	Not Required 🗹	
6.	Was an attem	npt made to cool the samples?	Yes		No 🗌		
7.	Were all coole	ers received at a temperature of $>0^{\circ}$ C to $10.0^{\circ}$ C	Yes		No 🗌		
8.	Sample(s) in	proper container(s)?	Yes		No 🗌		
9.	Sufficient san	nple volume for indicated test(s)?	Yes		No 🗌		
10.	Are samples	properly preserved?	Yes	$\checkmark$	No 🗌		
11.	Was preserva	tive added to bottles?	Yes		No 🗹	NA 🗌	
12.	Is the headsp	ace in the VOA vials?	Yes		No 🗌	NA 🗹	
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes	$\checkmark$	No 🗌		
14.	Does paperwo	ork match bottle labels?	Yes	$\checkmark$	No 🗌		
15.	Are matrices	correctly identified on Chain of Custody?	Yes		No 🗌		
		t analyses were requested?	Yes	$\checkmark$	No 🗌		
17.	Were all holdi	ing times able to be met?	Yes	$\checkmark$	No 🗌		
Spe	ecial Handl	ing (if applicable)					
		tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹	
	Person I	Notified: Da	te:				
	By Who	m: Via	a: 🗌 eMa	il 🗌 Phon	e 🗌 Fax	In Person	
	Regardi	ng:					
	Client In	structions:					
19.	Additional ren	narks:					

#### Item Information

Item #	Temp ⁰C	Condition			
Cooler	8.5	Good			
Sample	7.9	Good			

Reviewed/Date	Received	Relinquished	Received	Relinquished	Received	Relinquished								1819-12	819-12-4.5-	1819-12-	319-12-	Lab ID S	Sampled by: NATHAN S		RUFUS 2.0	20443+ - 0001-19	Company:		Anapylool u
-					- lu	KR	Signature							-7.5-10	4.5 - 7.5	2-4.5	0.5-2	Sample Identification	SOLOMON	Į,	BLOCK 19	PI-19		14648 NE 95th Street * Redmond, WA 99052 Phone: (425) 863-3681 * www.onsite-env.com	UnSite Environmental Inc.
							0							1	-		2/21/4	Date Sampled	E	1	CTPH-	2 Days	Same Day	0	T
Reviewed/Date					FAI	GEI	Company							1120	1110	1050	1030	Time Sampled	(other)		Standard (7 Days) (TPH analysis 5 Days)	ys.	e Day	(in working days) (Check One)	
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DEAD!

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Reviewed/Dece	Recover	Refinquished	Received	Petinguished	Received	Relarquistren			1819-12	819-12-	1819-12-	319-12-	Lab ID S		1	PERACT Manager	20-1-19	Company:	-	AMA OnSite
				1	W	KK	Signature		-7.5-10	4.5 - 7.5	2-4.5	0.5-2	Sample Identification	Solomon	Smith	BLOCK 19	PI-19		Anti-pical Laberatory Testing Streeue 146-88 NE 65th Street + Redmond, WA 98052 Phone: (425) 180-0881 + www.onsite-erv.com	OnSite Environmental Inc.
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Reviewed/Date					FAI	GEI	Company		1120	1110	1050	1030	Time Sampled	(omer)		(TPH analysis 5 Days)	25		(In working days)	Cha
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					2/21/14	2/2	Date			Ē	-	-	NWTP	H Gx/E	BTEX				Laboratory Number:	Isto
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Prost Number Cab RP 20-1-10-1-19 Jessica PUTUS 2.4 Helenquisters Thread of the second states UNIVERSAL Patronation Pleasewed Telling .......... **DIAMPRONE** NATHAN 819-12-4.5-7.5 B19-12-BI9-12-0.5-1819-12-7.5-10 OnSite Environmental Inc. 14548 NE 2545 Street • Recmond, WA setter There: 5254 983-3891 • even anality drivecom THE DATE ARTIGUES HIS ROUTE Smith SOLOMOL Sample Identification N BLOCK ۱ 4.0 2 â Data Passager Level H ... Level W 2 21 4 Sampled (TBH unique & Days) 1 P Days Eate 3 Sarres Day 7 Company (in working strys) FAL BEI 「ないかいまたい」とな Kit-ock Onet 1030 Tione Samplud 5 10 1050 Chain of Custody (sauch \_ 3Days C - Day 8 Mabrix 1. Nomber of Containers NWTPH-HOLL × × Laboratory Number: Electronic Casta Deinversional (EDGas 2/2/14 WATPH ON BTEX Unite 2 21 14 WD-Helliw NWTPH-Dr 15:12 slouisles \$260C Tana 15:11 Halagorgied volation #7400 Somiki di Milas 82700-Si M balth tow-layed PAI-laa Conception and the second ender (X) THE ROTORS M GRA Steel @Add per Unis Braun 2 day fall of Lots  $\times$ × Î. 11 TELES RURA star Special Instructions addud 0 apt Organizachiczania Permittidus 60848 N Ogenwerterspricess Hest closes 2,7700, State 13 Chibinated Acid Harbinitis 8151A 5 Total ROBA Metals, MTCA Metalspirole 20 TC: P Metals R HEM toll and groatery 1884A 25.14 (Page -10  $\overline{\mathbf{t}}_{\mathcal{L}}$ 9:00 am ÷ % Motham



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

**GeoEngineers** Jessica Smith 600 Stewart Street, Suite 1700 Seattle, WA 98101

RE: Rufus 2.0 Block 19 Lab ID: 1403183

March 19, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 8 sample(s) on 3/14/2014 for the analyses presented in the following report.

### Hydrocarbon Identification by NWTPH-HCID 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,

CC: Nate Solomon



CLIENT: Project: Lab Order:	GeoEngineers Rufus 2.0 Block 19 1403183	Work Order Sample Summary							
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received						
1403183-001	TP1-2	03/14/2014 1:10 PM	03/14/2014 4:21 PM						
1403183-002	TP1-4	03/14/2014 1:15 PM	03/14/2014 4:21 PM						
1403183-003	TP1-6	03/14/2014 1:20 PM	03/14/2014 4:21 PM						
1403183-004	TP2-2	03/14/2014 1:30 PM	03/14/2014 4:21 PM						
1403183-005	TP2-4	03/14/2014 1:45 PM	03/14/2014 4:21 PM						
1403183-006	TP3-2	03/14/2014 2:05 PM	03/14/2014 4:21 PM						
1403183-007	TP3-4	03/14/2014 2:20 PM	03/14/2014 4:21 PM						
1403183-008	TP3-6	03/14/2014 2:40 PM	03/14/2014 4:21 PM						



Case Narrative

Date: 3/19/2014

CLIENT:GeoEngineersProject:Rufus 2.0 Block 19

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.



WO#: **1403183** Date Reported: **3/19/2014** 

Client: GeoEngineers		Collection Date: 3/14/2014 1:10:00 PM							
Project: Rufus 2.0 Block 19									
Lab ID: 1403183-001		Matrix: Soil							
Client Sample ID: TP1-2									
Analyses	Result	RL	Qual	Units	DF	Date Analyzed			
Hydrocarbon Identification by N	WTPH-HCID			Batch	n ID: 6901	Analyst: EM			
Gasoline	ND	26.2		mg/Kg-dry	1	3/18/2014 3:15:00 PM			
Mineral Spirits	ND	39.2		mg/Kg-dry	1	3/18/2014 3:15:00 PM			
Kerosene	ND	65.4		mg/Kg-dry	1	3/18/2014 3:15:00 PM			
Diesel (Fuel Oil)	ND	65.4		mg/Kg-dry	1	3/18/2014 3:15:00 PM			
Heavy Oil	ND	131		mg/Kg-dry	1	3/18/2014 3:15:00 PM			
Mineral Oil	ND	131		mg/Kg-dry	1	3/18/2014 3:15:00 PM			
Surr: 2-Fluorobiphenyl	104	50-150		%REC	1	3/18/2014 3:15:00 PM			
Surr: o-Terphenyl	105	50-150		%REC	1	3/18/2014 3:15:00 PM			
Sample Moisture (Percent Moist	ure)			Batch	n ID: R131	02 Analyst: KZ			
Percent Moisture	27.8			wt%	1	3/18/2014 11:30:19 AM			

Qualifiers:	В	Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: **1403183** Date Reported: **3/19/2014** 

Client: GeoEngineers			Collection Date: 3/14/2014 1:45:00 PM							
Project: Rufus 2.0 Block 19										
Lab ID: 1403183-005				Matrix: So	bil					
Client Sample ID: TP2-4										
Analyses	Result	RL	Qual	Units	DF	Date Analyzed				
Polyaromatic Hydrocarbons by E	PA Method 8	270 (SIM)		Batch	n ID: 6905	Analyst: PH				
<u> , </u>										
Naphthalene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
2-Methylnaphthalene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
1-Methylnaphthalene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Acenaphthylene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Acenaphthene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Fluorene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Phenanthrene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Anthracene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Fluoranthene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Pyrene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Benz(a)anthracene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Chrysene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Benzo(b)fluoranthene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Benzo(k)fluoranthene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Benzo(a)pyrene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Indeno(1,2,3-cd)pyrene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Dibenz(a,h)anthracene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Benzo(g,h,i)perylene	ND	62.4		µg/Kg-dry	1	3/19/2014 12:51:00 PM				
Surr: 2-Fluorobiphenyl	77.1	50.4-142		%REC	1	3/19/2014 12:51:00 PM				
Surr: Terphenyl-d14 (surr)	94.0	48.8-157		%REC	1	3/19/2014 12:51:00 PM				
Sample Moisture (Percent Moistu	<u>ure)</u>			Batch	n ID: R131	02 Analyst: KZ				
Percent Moisture	26.9			wt%	1	3/18/2014 11:30:19 AM				

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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



WO#: **1403183** Date Reported: **3/19/2014** 

Client: GeoEngineers		Collection Date: 3/14/2014 2:40:00 PM							
Project: Rufus 2.0 Block 19									
Lab ID: 1403183-008		Matrix: Soil							
Client Sample ID: TP3-6									
Analyses	Result	RL	Qual	Units	DF	Date Analyzed			
Hydrocarbon Identification by N	WTPH-HCID			Batch	n ID: 6901	Analyst: EM			
Gasoline	ND	26.3		mg/Kg-dry	1	3/18/2014 4:16:00 PM			
Mineral Spirits	ND	39.5		mg/Kg-dry	1	3/18/2014 4:16:00 PM			
Kerosene	ND	65.8		mg/Kg-dry	1	3/18/2014 4:16:00 PM			
Diesel (Fuel Oil)	ND	65.8		mg/Kg-dry	1	3/18/2014 4:16:00 PM			
Heavy Oil	ND	132		mg/Kg-dry	1	3/18/2014 4:16:00 PM			
Mineral Oil	ND	132		mg/Kg-dry	1	3/18/2014 4:16:00 PM			
Surr: 2-Fluorobiphenyl	105	50-150		%REC	1	3/18/2014 4:16:00 PM			
Surr: o-Terphenyl	106	50-150		%REC	1	3/18/2014 4:16:00 PM			
Sample Moisture (Percent Moist	ure)			Batch	n ID: R131	02 Analyst: KZ			
Percent Moisture	26.5			wt%	1	3/18/2014 11:30:19 AM			

Qualifiers:	В	Analyte detected in the associated Method Blank	

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit

CLIENT:	1403183 GeoEngineers Rufus 2.0 Block 19						F	łydroca	QC S Irbon Identi	SUMMAF		
Project: Sample ID: LCS-690					Units: mg/Kg			e: 3/18/20		- RunNo: <b>131</b>		
Client ID: LCSS	Batch II	ype: <b>LCS</b> D: <b>6901</b>			Units. Ing/kg		Analysis Date			SeqNo: 263		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)		484	50.0	500.0	0	96.9	65	135				
Surr: 2-Fluorobiph	enyl	28.3		20.00		141	50	150				
Surr: o-Terphenyl		23.3		20.00		116	50	150				
Sample ID: MB-690	1 SampT	pe: MBLK			Units: mg/Kg		Prep Date	e: 3/18/20	14	RunNo: 131	16	
Client ID: MBLKS	Batch II	D: 6901					Analysis Date	e: 3/18/20	14	SeqNo: 263	247	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
		ND	20.0									
Gasoline			=0.0									
		ND	30.0									
Mineral Spirits												
Mineral Spirits Kerosene		ND	30.0									
Mineral Spirits Kerosene Diesel (Fuel Oil)		ND ND	30.0 50.0									
Mineral Spirits Kerosene Diesel (Fuel Oil) Heavy Oil		ND ND ND	30.0 50.0 50.0									
Gasoline Mineral Spirits Kerosene Diesel (Fuel Oil) Heavy Oil Mineral Oil Surr: 2-Fluorobiphe	enyl	ND ND ND ND	30.0 50.0 50.0 100	20.00		105	50	150				

Qualifiers: B Analyte detected in the associated Method Blank

Fremont

Analytical

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits

E Value above quantitation range

ND Not detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

RL Reporting Limit



	03183 eoEngineers						• - •	SUMMARY REP	-		
	Ifus 2.0 Block 19				Ро	lyaromat	ic Hydrocarbons by	y EPA Method 8270	) (SIM		
Sample ID: MB-6905	SampType: MBLK			Units: µg/Kg		Prep Da	te: 3/18/2014	RunNo: 13136			
Client ID: MBLKS	Batch ID: 6905					Analysis Da	te: 3/19/2014	SeqNo: 263871			
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-Fluorobipheny	407		500.0		81.5	50.4	142				
Surr: Terphenyl-d14 (	surr) 465		500.0		92.9	48.8	157				
Sample ID: LCS-6905	SampType: LCS			Units: µg/Kg		Prep Da	te: 3/18/2014	RunNo: 13136			
Client ID: LCSS	Batch ID: 6905					Analysis Da	te: 3/19/2014	SeqNo: 263872			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual		
Naphthalene	827	50.0	1,000	0	82.7	61.6	125				
2-Methylnaphthalene	859	50.0	1,000	0	85.9	58.2	129				
1-Methylnaphthalene	793	50.0	1,000	0	79.3	56.4	132				
Qualifiers: B Ana	yte detected in the associated Method Blank		D Dilution wa	s required			E Value above quantitation ra	ange			
H Hold	ing 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	₋imit		S Spike recovery outside accepted recovery limits					



Rufus 2.0 Block 19

Work Order:

CLIENT:

Project:

1403183		
GeoEngineers		

### **QC SUMMARY REPORT**

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-6905	SampType: LCS			Units: µg/Kg		Prep Date	e: <b>3/18/201</b> 4	4	RunNo: 131	36	
Client ID: LCSS	Batch ID: 6905					Analysis Date	e: <b>3/19/201</b> 4	4	SeqNo: 263	872	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	813	50.0	1,000	0	81.3	52.2	133				
Acenaphthene	835	50.0	1,000	0	83.5	54	131				
Fluorene	824	50.0	1,000	0	82.4	53.4	131				
Phenanthrene	835	50.0	1,000	0	83.5	55.6	128				
Anthracene	829	50.0	1,000	0	82.9	51	132				
Fluoranthene	828	50.0	1,000	0	82.8	48.4	134				
Pyrene	821	50.0	1,000	0	82.1	48.6	135				
Benz(a)anthracene	812	50.0	1,000	0	81.2	41.9	136				
Chrysene	847	50.0	1,000	0	84.7	51.4	135				
Benzo(b)fluoranthene	868	50.0	1,000	0	86.8	39.7	137				
Benzo(k)fluoranthene	826	50.0	1,000	0	82.6	45.7	138				
Benzo(a)pyrene	734	50.0	1,000	0	73.4	45.3	135				
Indeno(1,2,3-cd)pyrene	699	50.0	1,000	0	69.9	45.4	137				
Dibenz(a,h)anthracene	689	50.0	1,000	0	68.9	45.8	134				
Benzo(g,h,i)perylene	851	50.0	1,000	0	85.1	49.3	134				
Surr: 2-Fluorobiphenyl	392		500.0		78.4	50.4	142				
Surr: Terphenyl-d14 (surr)	436		500.0		87.2	48.8	157				
Sample ID: 1403175-002ADUP	SampType: <b>DUP</b>			Units: µg/Kg·	-dry	Prep Date	e: <b>3/18/201</b> 4	4	RunNo: 131	36	
Client ID: BATCH	Batch ID: 6905					Analysis Date	e: <b>3/19/201</b> 4	4	SeqNo: 263	879	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Naphthalene	ND	49.7	0	30
2-Methylnaphthalene	ND	49.7	0	30
1-Methylnaphthalene	ND	49.7	0	30
Acenaphthylene	ND	49.7	0	30
Acenaphthene	ND	49.7	0	30
Fluorene	ND	49.7	0	30
Qualifiers: B Analyte detected in the ass	ociated Method Blank	D Dilution was required	E Value above quantitation range	

н Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

R

Analyte detected below quantitation limits J

> RL Reporting Limit

ND Not detected at the Reporting Limit



Work Order: CLIENT:	1403183	010								QC S	SUMMAI	RY REF	PORT
	GeoEngine						Ро	Ivaromati	c Hvdro	ocarbons by	v EPA Met	hod 8270	) (SIM)
Project:	Rufus 2.0 E	SIOCK 19						- <b>j</b>					()
Sample ID: 140317	75-002ADUP	SampType	DUP			Units: µg/	Kg-dry	Prep Date	e: <b>3/18/20</b>	14	RunNo: 131	36	
Client ID: BATCH	4	Batch ID:	6905					Analysis Date	e: <b>3/19/20</b>	14	SeqNo: 263	8879	
Analyte		l	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene			ND	49.7						0		30	
Anthracene			ND	49.7						0		30	
Fluoranthene			ND	49.7						0		30	
Pyrene			ND	49.7						0		30	
Benz(a)anthracene			ND	49.7						0		30	
Chrysene			ND	49.7						0		30	
Benzo(b)fluoranthe	ne		ND	49.7						0		30	
Benzo(k)fluoranther	ne		ND	49.7						0		30	
Benzo(a)pyrene			ND	49.7						0		30	
Indeno(1,2,3-cd)pyr	ene		ND	49.7						0		30	
Dibenz(a,h)anthrace	ene		ND	49.7						0		30	
Benzo(g,h,i)perylen	e		ND	49.7						0		30	
Surr: 2-Fluorobip	henyl		387		497.1		77.8	50.4	142		0		
Surr: Terphenyl-o	d14 (surr)		469		497.1		94.4	48.8	157		0		
Sample ID: 140317	75-002AMS	SampType	MS			Units: µg/	Kg-dry	Prep Date	e: <b>3/18/20</b>	14	RunNo: 131	36	
Client ID: BATCH	4	Batch ID:	6905					Analysis Date	e: <b>3/19/20</b>	14	SeqNo: 263	3880	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene			631	47.4	947.3	0	66.6	42.9	138				
2-Methylnaphthalen	e		739	47.4	947.3	0	78.0	42.8	151				
1-Methylnaphthalen			689	47.4	947.3	0	72.7	41.6	148				
Acenaphthylene			754	47.4	947.3	0	79.6	32.6	160				
Acenaphthene			769	47.4	947.3	0	81.2	46.3	142				

Qualifiers: B Analyte detected in the associated Method Blank

н

R

Fluorene

Phenanthrene

Anthracene

Fluoranthene

- D Dilution was required
- J Analyte detected below quantitation limits

RL Reporting Limit

947.3

947.3

947.3

947.3

784

738

763

766

Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

47.4

47.4

47.4

47.4

E Value above quantitation range

153

140

160

161

ND Not detected at the Reporting Limit

ng Limit

0

0

0

0

82.7

77.9

80.6

80.8

43.4

45.5

32.6

44.6



### Work Order: 1403183

Project:

CLIENT: GeoEngineers

Rufus 2.0 Block 19

## QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1403175-002AMS Client ID: BATCH	SampType: <b>MS</b> Batch ID: <b>6905</b>			Units: µg/Kg	g-dry	Prep Da Analysis Da	te: 3/18/20		RunNo: <b>13</b> 1 SegNo: <b>26</b> 3		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit		RPD Ref Val	%RPD	RPDLimit	Qual
Analyte	Result	NL.	SI IN Value	SI KIKEI VAI	/orceo	LOWLINI	riigii∟iiiit		701KI D		Quai
Pyrene	753	47.4	947.3	0	79.5	48.3	158				
Benz(a)anthracene	782	47.4	947.3	0	82.6	57.5	169				
Chrysene	765	47.4	947.3	0	80.8	45.2	146				
Benzo(b)fluoranthene	730	47.4	947.3	0	77.0	42.2	168				
Benzo(k)fluoranthene	806	47.4	947.3	0	85.1	48	161				
Benzo(a)pyrene	766	47.4	947.3	0	80.8	34.4	179				
Indeno(1,2,3-cd)pyrene	798	47.4	947.3	0	84.3	41.1	165				
Dibenz(a,h)anthracene	796	47.4	947.3	0	84.0	38.1	166				
Benzo(g,h,i)perylene	894	47.4	947.3	0	94.4	45.6	157				
Surr: 2-Fluorobiphenyl	344		473.6		72.6	50.4	142				
Surr: Terphenyl-d14 (surr)	414		473.6		87.5	48.8	157				

#### Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

D Dilution was required

J Analyte detected below quantitation limits

RL Reporting Limit

E Value above quantitation range

ND Not detected at the Reporting Limit



## Sample Log-In Check List

Client N	Name:	GEI	Work O	der Number:	1403183		
Logged	l by:	Clare Griggs	Date Re	ceived:	3/14/201	4 4:21:00 PM	
Chain o	of Custo	dy					
1. Is Ch	hain of Cu	stody complete?	Yes	$\checkmark$	No 🗌	Not Present	
2. How	was the s	ample delivered?	<u>Clier</u>	<u>t</u>			
Log In							
	ers are pre	esent?	Yes		No 🗌	NA 🗌	
J. 000							
4. Shipp	ping conta	iner/cooler in good condition?	Yes	$\checkmark$	No 🗌		
5. Custo	ody seals	intact on shipping container/cooler?	Yes		No 🗌	Not Required	
<b>C</b> \\/a=		at made to each the complet?	Yes		No 🗌		
b. was	an attemp	ot made to cool the samples?	Yes		No 🗌	NA	
7. Were	e all coole	rs received at a temperature of >0°C to 10.0°C	Yes		No 🗹	NA	
		Sample	es receive	d straight fro	om field.		
8. Sam	ple(s) in p	roper container(s)?	Yes	$\checkmark$	No 🗌		
9. Suffic	icient sam	ple volume for indicated test(s)?	Yes	$\checkmark$	No 🗌		
10. Are s	samples p	roperly preserved?	Yes	$\checkmark$	No 🗌		
11. Was	s preservat	ive added to bottles?	Yes		No 🗹	NA	
			Vee			NA 🗖	
		ice in the VOA vials?	Yes				
-		s containers arrive in good condition(unbroken)?	Yes Yes		No 🗌		
14. Does	s paperwo	rk match bottle labels?	165				
15. Are n	matrices c	orrectly identified on Chain of Custody?	Yes		No 🗌		
		analyses were requested?	Yes	$\checkmark$	No 🗌		
17. Were	e all holdir	ng times able to be met?	Yes	$\checkmark$	No 🗌		
Snacial	Handli	ng (if applicable)					
		ified of all discrepancies with this order?	Yes		No 🗌	NA 🗖	
			-				
	Person N		!				
	By Whom		eMa	il 🗌 Phone	e 🗌 Fax	In Person	
	Regardin						
		tructions:					
19. Addit	tional rem	arks:					

#### Item Information

Item #	Temp ⁰C	Condition
Cooler	9.7	Good
Sample	11.8	

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Distribution: White - Lab, Yellow - File, Plak - Originator

TAT-> SameDay^ NextDayn 2 Day 3 Day STD	Jasterfilme	110	Received			DetaTime		Relinquished
190-	210/14 11.21	N/m	* decemptor		1621	3.14.14	promety	- WATE SOI
3/17/14 by Chars Brown		Frank bit and several see optim	unt presents se Anu	Disposal by Lab (A fee may		Return to Client	Q	Sample Disposal:
ecial Remarks	Mitrate+Nitrite	Flaunide	de D-Phosphate	e Gromide	eide Sulfate	Nitrite Chloride	Nitrate	****Anions (Circle):
Pb So Se Sr Sn Ti U V Zh	CO CE CU FN HE K ME MIN MO NA NI	AL NACE RINCO CO I	Individual	tanta TAL	Priority Pollutarits	-5 ACRA-5	Circle): MTCA-5	** Metals Analysis (Circle):
								Ш
					-			
		XIII		1-	1440	1-	0	* TPD- 4
					14:20			1 TP3-4
					HOS		-	6 TP3- 2
		X			shel		-	5 TP2 - 4
				0	1320			4 TP2- 2
				-	1320		a	3 TP1- 6
					Iais			2 TP1-4
				SOIL	Olar HF	3.141	2	1 TP2 - 2
Communex/Depth			100 00 000 000 000 000 000 000 000 000	Sample Type DMaria)*	de Sasayle Time	Sample		Sample Name
Waste Water	Drinking Water, GW = Ground Water, WW	St = Julid. W = Water, DW = Orinking Water,	P = Product, 5 = Soll, 5D = Sedment, St = Julid.	oduct, 5 = Soll		nis, B. Bulk, D	Nir, AQ = Aqueo	*Matrit Codes: A + Air, AC = Aqueous, B = Bulk, D = Other,
20434-001-19	U6/NE	OBULAINERPS (Soud	INTHREE	Fax: JAS		3		Reports To (PM):
L	NATE SOLOMO	Collected by:		offel:	n.	DEATTING	A30	City, State, Zip
PLOCK 19	120	Project Name:		1	20 51	STEWARD	Gel	Client:
	Laboratory Project Na (Internal).	3.14.14	Date: 3.1		95790 7178	Tel: 206-352-3790 Fax: 206-352-7178	Ŗ	3600 Fremont Ave N. Seattle, WA \$8103
412102					Analytical	Anal		
Chain of Custody Record	Cha				h	emo		ALC I
								CONTRACTOR DE LA CONTRACTOR



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

**GeoEngineers, Inc. - Redmond** Jessica Smith 8410 154th Ave. NE Redmond, Washington 98052

RE: Rufus Block 19 Lab ID: 1404053

April 09, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 21 sample(s) on 4/4/2014 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,

MGA

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers, Inc Redmond Rufus Block 19 1404053	Work Order Sample Summary						
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received					
1404053-001	TP-4-2.0	04/04/2014 11:17 AM	04/04/2014 5:17 PM					
1404053-002	TP-4-4.0	04/04/2014 11:23 AM	04/04/2014 5:17 PM					
1404053-003	TP-4-6.0	04/04/2014 11:25 AM	04/04/2014 5:17 PM					
1404053-004	TP-4-8.0	04/04/2014 11:26 AM	04/04/2014 5:17 PM					
1404053-005	TP-5-2.0	04/04/2014 11:37 AM	04/04/2014 5:17 PM					
1404053-006	TP-5-4.0	04/04/2014 11:39 AM	04/04/2014 5:17 PM					
1404053-007	TP-5-6.0	04/04/2014 11:43 AM	04/04/2014 5:17 PM					
1404053-008	TP-5-8.0	04/04/2014 11:44 AM	04/04/2014 5:17 PM					
1404053-009	TP-5-10.0	04/04/2014 11:49 AM	04/04/2014 5:17 PM					
1404053-010	TP-6-2.0	04/04/2014 12:27 PM	04/04/2014 5:17 PM					
1404053-011	TP-6-4.0	04/04/2014 12:32 PM	04/04/2014 5:17 PM					
1404053-012	TP-6-6.0	04/04/2014 12:35 PM	04/04/2014 5:17 PM					
1404053-013	TP-6-8.0	04/04/2014 12:37 PM	04/04/2014 5:17 PM					
1404053-014	TP-7-2.0	04/04/2014 12:42 PM	04/04/2014 5:17 PM					
1404053-015	TP-7-4.0	04/04/2014 12:45 PM	04/04/2014 5:17 PM					
1404053-016	TP-7-6.0	04/04/2014 12:47 PM	04/04/2014 5:17 PM					
1404053-017	TP-7-8.0	04/04/2014 12:48 PM	04/04/2014 5:17 PM					
1404053-018	TP-8-2.0	04/04/2014 2:25 PM	04/04/2014 5:17 PM					
1404053-019	TP-8-4.0	04/04/2014 2:26 PM	04/04/2014 5:17 PM					
1404053-020	TP-8-6.0	04/04/2014 2:28 PM	04/04/2014 5:17 PM					
1404053-021	EX-8-8.0	04/04/2014 2:30 PM	04/04/2014 5:17 PM					



**Case Narrative** 

WO#: **1404053** Date: **4/9/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Rufus Block 19

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.



WO#: 1404053 Date Reported: 4/9/2014

<b>Client:</b> GeoEngineers, Inc R <b>Project:</b> Rufus Block 19	edmond			Collection	Date: 4/4	4/2014 11:17:00 AM
Lab ID: 1404053-001 Client Sample ID: TP-4-2.0				Matrix: So	bil	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons b	y EPA Method 8	<u>270 (SIM)</u>		Batch	n ID: 7090	Analyst: PH
Naphthalene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
2-Methylnaphthalene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
1-Methylnaphthalene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Acenaphthylene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Acenaphthene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Fluorene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Phenanthrene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Anthracene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Fluoranthene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Pyrene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Benz(a)anthracene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Chrysene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Benzo(b)fluoranthene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Benzo(k)fluoranthene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Benzo(a)pyrene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Indeno(1,2,3-cd)pyrene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Dibenz(a,h)anthracene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Benzo(g,h,i)perylene	ND	61.4		µg/Kg-dry	1	4/8/2014 12:12:00 PM
Surr: 2-Fluorobiphenyl	107	50.4-142		%REC	1	4/8/2014 12:12:00 PM
Surr: Terphenyl-d14 (surr)	105	48.8-157		%REC	1	4/8/2014 12:12:00 PM
Sample Moisture (Percent Moi	sture)			Batch	n ID: R134	53 Analyst: AK
Percent Moisture	21.7			wt%	1	4/7/2014 4:32:56 PM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was require
	Е	Value above quantitation range	Н	Holding times for pr
	J	Analyte detected below quantitation limits	ND	Not detected at the

RL Reporting Limit

- red
- preparation or analysis exceeded
- e Reporting Limit
- S Spike recovery outside accepted recovery limits



WO#: **1404053** Date Reported: **4/9/2014** 

Client: GeoEngineers, Inc Project: Rufus Block 19	Redmond			Collection	Date: 4/4	/2014 11:37:00 AM
Lab ID: 1404053-005 Client Sample ID: TP-5-2.0				Matrix: So	il	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NM	/TPH-Dx/Dx Ext.			Batch	n ID: 7092	Analyst: TN
Diesel (Fuel Oil)	ND	23.3		mg/Kg-dry	1	4/7/2014 11:09:00 PM
Heavy Oil	183	58.3		mg/Kg-dry	1	4/7/2014 11:09:00 PM
Surr: 2-Fluorobiphenyl	67.3	50-150		%REC	1	4/7/2014 11:09:00 PM
Surr: o-Terphenyl	74.0	50-150		%REC	1	4/7/2014 11:09:00 PM
Polyaromatic Hydrocarbons	s by EPA Method 8	270 (SIM)		Batch	n ID: 7090	Analyst: PH
Naphthalene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
2-Methylnaphthalene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
1-Methylnaphthalene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Acenaphthylene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Acenaphthene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Fluorene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Phenanthrene	99.0	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Anthracene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Fluoranthene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Pyrene	92.6	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Benz(a)anthracene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Chrysene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Benzo(b)fluoranthene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Benzo(k)fluoranthene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Benzo(a)pyrene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Indeno(1,2,3-cd)pyrene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Dibenz(a,h)anthracene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Benzo(g,h,i)perylene	ND	60.5		µg/Kg-dry	1	4/8/2014 1:03:00 PM
Surr: 2-Fluorobiphenyl	89.5	50.4-142		%REC	1	4/8/2014 1:03:00 PM
Surr: Terphenyl-d14 (surr)	113	48.8-157		%REC	1	4/8/2014 1:03:00 PM
Sample Moisture (Percent M	<u>loisture)</u>			Batch	n ID: R134	53 Analyst: AK
Percent Moisture	20.9			wt%	1	4/7/2014 4:32:56 PM

Qualifiers: B

E Value above quantitation range

J Analyte detected below quantitation limits

Analyte detected in the associated Method Blank

RL Reporting Limit

D Dilution was required

H Holding times for preparation or analysis exceeded

ND Not detected at the Reporting Limit



WO#: **1404053** Date Reported: **4/9/2014** 

Client: GeoEngineers, Inc Redmo Project: Rufus Block 19	ond			Collection	Date: 4/4	4/2014 11:49:00 AM
Lab ID: 1404053-009 Client Sample ID: TP-5-10.0				Matrix: So	bil	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-D	x/Dx Ext.			Batch	n ID: 7092	Analyst: TN
Diesel (Fuel Oil)	ND	24.7		mg/Kg-dry	1	4/7/2014 10:12:00 PM
Heavy Oil	ND	61.9		mg/Kg-dry	1	4/7/2014 10:12:00 PM
Surr: 2-Fluorobiphenyl	67.3	50-150		%REC	1	4/7/2014 10:12:00 PM
Surr: o-Terphenyl	68.3	50-150		%REC	1	4/7/2014 10:12:00 PM
Polyaromatic Hydrocarbons by EF	A Method 8	270 (SIM)		Batch	n ID: 7090	Analyst: PH
Naphthalene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
2-Methylnaphthalene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
1-Methylnaphthalene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Acenaphthylene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Acenaphthene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Fluorene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Phenanthrene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Anthracene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Fluoranthene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Pyrene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Benz(a)anthracene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Chrysene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Benzo(b)fluoranthene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Benzo(k)fluoranthene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Benzo(a)pyrene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Indeno(1,2,3-cd)pyrene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Dibenz(a,h)anthracene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Benzo(g,h,i)perylene	ND	62.7		µg/Kg-dry	1	4/8/2014 3:08:00 PM
Surr: 2-Fluorobiphenyl	75.0	50.4-142		%REC	1	4/8/2014 3:08:00 PM
Surr: Terphenyl-d14 (surr)	92.4	48.8-157		%REC	1	4/8/2014 3:08:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	n ID: R134	153 Analyst: AK
Percent Moisture	22.9			wt%	1	4/7/2014 4:32:56 PM

 Qualifiers:
 B
 Analyte detected in the associated Method Blank

 E
 Value above quantitation range

E Value above quantitation rangeJ Analyte detected below quantitation lir

J Analyte detected below quantitation limits RL Reporting Limit D Dilution was required

H Holding times for preparation or analysis exceeded

ND Not detected at the Reporting Limit



WO#: **1404053** Date Reported: **4/9/2014** 

Client: GeoEngineers, Inc Redmond Project: Rufus Block 19			Collection Date: 4/4/2014 12:27:00 PM			
Lab ID: 1404053-010				Matrix: Sc	bil	
Client Sample ID: TP-6-2.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons b	y EPA Method 8	270 (SIM)		Batch	n ID: 7090	Analyst: PH
Naphthalene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
2-Methylnaphthalene	ND	63.4		μg/Kg-dry	1	4/8/2014 3:34:00 PM
1-Methylnaphthalene	ND	63.4		μg/Kg-dry	1	4/8/2014 3:34:00 PM
Acenaphthylene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Acenaphthene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Fluorene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Phenanthrene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Anthracene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Fluoranthene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Pyrene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Benz(a)anthracene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Chrysene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Benzo(b)fluoranthene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Benzo(k)fluoranthene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Benzo(a)pyrene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Indeno(1,2,3-cd)pyrene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Dibenz(a,h)anthracene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Benzo(g,h,i)perylene	ND	63.4		µg/Kg-dry	1	4/8/2014 3:34:00 PM
Surr: 2-Fluorobiphenyl	91.9	50.4-142		%REC	1	4/8/2014 3:34:00 PM
Surr: Terphenyl-d14 (surr)	115	48.8-157		%REC	1	4/8/2014 3:34:00 PM
Sample Moisture (Percent Moi	<u>sture)</u>			Batch	n ID: R134	53 Analyst: AK
Percent Moisture	24.7			wt%	1	4/7/2014 4:32:56 PM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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


WO#: **1404053** Date Reported: **4/9/2014** 

<b>Client:</b> GeoEngineers, Inc Ro <b>Project:</b> Rufus Block 19	edmond			Collection	Date: 4/4	l/2014 12:42:00 PM
Lab ID: 1404053-014				Matrix: Sc	bil	
Client Sample ID: TP-7-2.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polyaromatic Hydrocarbons b	y EPA Method 8	270 (SIM)		Batch	n ID: 7090	Analyst: PH
	ND	00.0				
Naphthalene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
2-Methylnaphthalene	ND	63.3 63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
1-Methylnaphthalene	ND ND	63.3 63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Acenaphthylene		63.3 63.3		µg/Kg-dry ug/Kg_dry	1	4/8/2014 3:59:00 PM
Acenaphthene	ND ND			µg/Kg-dry	1	4/8/2014 3:59:00 PM
Fluorene		63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Phenanthrene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Anthracene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Fluoranthene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Pyrene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Benz(a)anthracene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Chrysene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Benzo(b)fluoranthene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Benzo(k)fluoranthene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Benzo(a)pyrene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Indeno(1,2,3-cd)pyrene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Dibenz(a,h)anthracene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Benzo(g,h,i)perylene	ND	63.3		µg/Kg-dry	1	4/8/2014 3:59:00 PM
Surr: 2-Fluorobiphenyl	79.1	50.4-142		%REC	1	4/8/2014 3:59:00 PM
Surr: Terphenyl-d14 (surr)	100	48.8-157		%REC	1	4/8/2014 3:59:00 PM
Sample Moisture (Percent Moi	<u>sture)</u>			Batch	n ID: R134	53 Analyst: AK
Percent Moisture	24.5			wt%	1	4/7/2014 4:32:56 PM

Qualifiers:	в	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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



WO#: 1404053 Date Reported: 4/9/2014

Client: GeoEngineers, Inc Project: Rufus Block 19	Redmond			Collection	Date: 4/4	/2014 2:25:00 PM
Lab ID: 1404053-018 Client Sample ID: TP-8-2.0				Matrix: So	il	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	/TPH-Dx/Dx Ext.			Batch	n ID: 7092	Analyst: TN
Diesel (Fuel Oil)	ND	22.8		mg/Kg-dry	1	4/7/2014 10:40:00 PM
Heavy Oil	ND	56.9		mg/Kg-dry	1	4/7/2014 10:40:00 PM
Surr: 2-Fluorobiphenyl	73.5	50-150		%REC	1	4/7/2014 10:40:00 PM
Surr: o-Terphenyl	71.7	50-150		%REC	1	4/7/2014 10:40:00 PM
Polyaromatic Hydrocarbons	s by EPA Method 8	<u>3270 (SIM)</u>		Batch	n ID: 7090	Analyst: PH
Naphthalene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
2-Methylnaphthalene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
1-Methylnaphthalene	ND	59.5		μg/Kg-dry	1	4/8/2014 4:24:00 PM
Acenaphthylene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Acenaphthene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Fluorene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Phenanthrene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Anthracene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Fluoranthene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Pyrene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Benz(a)anthracene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Chrysene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Benzo(b)fluoranthene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Benzo(k)fluoranthene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Benzo(a)pyrene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Indeno(1,2,3-cd)pyrene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Dibenz(a,h)anthracene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Benzo(g,h,i)perylene	ND	59.5		µg/Kg-dry	1	4/8/2014 4:24:00 PM
Surr: 2-Fluorobiphenyl	92.8	50.4-142		%REC	1	4/8/2014 4:24:00 PM
Surr: Terphenyl-d14 (surr)	121	48.8-157		%REC	1	4/8/2014 4:24:00 PM
Sample Moisture (Percent N	<u>loisture)</u>			Batch	n ID: R134	53 Analyst: AK
Percent Moisture	20.3			wt%	1	4/7/2014 4:32:56 PM

Qualifiers: Analyte detected in the associated Method Blank В Е

- Value above quantitation range
- J Analyte detected below quantitation limits
- RL Reporting Limit

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

# Work Order: 1404053 CLIENT: GeoEngineers, Inc. - Redmond Project: Rufus Block 19 Sample ID: 1404059-003ADUP SampType: DUP

## **QC SUMMARY REPORT**

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

_												
Sample ID: 1404059-003ADUP	SampType	DUP			Units: mg/Kg-	dry	Prep Date	e: <b>4/7/201</b> 4	4	RunNo: 134	166	
Client ID: BATCH	Batch ID:	7092					Analysis Date	e: <b>4/8/201</b>	4	SeqNo: 272	2062	
Analyte	ł	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)		28.1	20.7						12.21	78.8	30	
Heavy Oil		123	51.8						121.0	1.86	30	
Surr: 2-Fluorobiphenyl		15.7		20.72		75.6	50	150		0		
Surr: o-Terphenyl		14.9		20.72		72.1	50	150		0		
Sample ID: LCS-7092	SampType	LCS			Units: mg/Kg		Prep Date	e: <b>4/7/201</b>	4	RunNo: 134	166	
Client ID: LCSS	Batch ID:	7092					Analysis Date	e: <b>4/7/201</b>	4	SeqNo: 272	2070	
Analyte	ł	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qua
Diesel (Fuel Oil)		473	20.0	500.0	0	94.7	65	135				
Surr: 2-Fluorobiphenyl		12.4		20.00		62.2	50	150				
Surr: o-Terphenyl		12.7		20.00		63.4	50	150				
Sample ID: MB-7092	SampType	MBLK			Units: mg/Kg		Prep Date	e: <b>4/7/201</b> 4	4	RunNo: 134	166	
Client ID: MBLKS	Batch ID:	7092					Analysis Date	e: <b>4/7/201</b>	4	SeqNo: 272	2071	
Analyte	I	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		14.4		20.00		71.8	50	150				
Surr: o-Terphenyl		14.6		20.00		73.1	50	150				

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Fremont
[Analytical]

Work Order:	1404053
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CLIENT: GeoEngineers, Inc. - Redmond

## Project: Rufus Block 19

## QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: MB-7090	SampType: MBLK			Units: µg/Kg		Prep Da	te: <b>4/7/20</b> °	14	RunNo: 134	80	
Client ID: MBLKS	Batch ID: 7090					Analysis Da	te: 4/8/201	14	SeqNo: 272	214	
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									
<sup>D</sup> yrene	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									
ndeno(1,2,3-cd)pyrene	ND	50.0									
Dibenz(a,h)anthracene	ND	50.0									
3enzo(g,h,i)perylene	ND	50.0									
Surr: 2-Fluorobiphenyl	417		500.0		83.3	50.4	142				
Surr: Terphenyl-d14 (surr)	437		500.0		87.5	48.8	157				
Sample ID: LCS-7090	SampType: LCS			Units: µg/Kg		Prep Da	te: <b>4/7/20</b> ′	14	RunNo: 134	80	
Client ID: LCSS	Batch ID: 7090					Analysis Da	te: 4/8/201	14	SeqNo: 272	215	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	1,010	50.0	1,000	0	101	61.6	125				
2-Methylnaphthalene	1,040	50.0	1,000	0	104	58.2	129				
1-Methylnaphthalene	1,000	50.0	1,000	0	100	56.4	132				
Qualifiers: B Analyte detected	in the associated Method Blank		D Dilution wa	as required			E Valu	e above quantitation ra	ange		
	preparation or analysis exceeded		J Analyte de	tected below quantitation lir	nits		ND Not	detected at the Report	ting Limit		
R RPD outside acce	epted recovery limits		RL Reporting	Limit			S Spik	e recovery outside acc	cepted recovery limit	s	
									,		



### Work Order: 1404053

#### CLIENT: GeoEngineers, Inc. - Redmond

## **QC SUMMARY REPORT**

Project:

Rufus Block 19

## Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: LCS-7090	SampType: LCS			Units: µg/Kg		Prep Date	4/7/2014	ļ	RunNo: 134	80	
Client ID: LCSS	Batch ID: 7090					Analysis Date	4/8/2014	ļ	SeqNo: 272	215	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acenaphthylene	1,040	50.0	1,000	0	104	52.2	133				
Acenaphthene	1,030	50.0	1,000	0	103	54	131				
Fluorene	1,020	50.0	1,000	0	102	53.4	131				
Phenanthrene	1,040	50.0	1,000	0	104	55.6	128				
Anthracene	1,060	50.0	1,000	0	106	51	132				
Fluoranthene	1,030	50.0	1,000	0	103	48.4	134				
Pyrene	1,030	50.0	1,000	0	103	48.6	135				
Benz(a)anthracene	1,040	50.0	1,000	0	104	41.9	136				
Chrysene	1,080	50.0	1,000	0	108	51.4	135				
Benzo(b)fluoranthene	1,060	50.0	1,000	0	106	39.7	137				
Benzo(k)fluoranthene	1,020	50.0	1,000	0	102	45.7	138				
Benzo(a)pyrene	995	50.0	1,000	0	99.5	45.3	135				
Indeno(1,2,3-cd)pyrene	952	50.0	1,000	0	95.2	45.4	137				
Dibenz(a,h)anthracene	947	50.0	1,000	0	94.7	45.8	134				
Benzo(g,h,i)perylene	940	50.0	1,000	0	94.0	49.3	134				
Surr: 2-Fluorobiphenyl	471		500.0		94.2	50.4	142				
Surr: Terphenyl-d14 (surr)	494		500.0		98.8	48.8	157				
Sample ID: 1404053-001ADUP	SampType: <b>DUP</b>			Units: µg/Kg-a	Iry	Prep Date	4/7/2014		RunNo: <b>13</b> 4	80	

Client ID:	TP-4	-2.0	Batch ID: 7	7090							Analysis Da	te: 4/8	8/201	4	SeqNo: 272	217	
Analyte			Res	sult	RL	SPK	value	SPK Ref	Val	%REC	LowLimit	HighL	imit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	е			ND	62.3									0		30	
2-Methylnap	ohthal	ene		ND	62.3									0		30	
1-Methylnap	ohthal	ene		ND	62.3									0		30	
Acenaphthy	lene			ND	62.3									0		30	
Acenaphthe	ene			ND	62.3									0		30	
Fluorene				ND	62.3									0		30	
Qualifiers:	В	Ana	alyte detected in the associated Method	Blank		DD	ilution wa	as required				Е	Value	above quantitation rar	nge		
	н	Hol	lding times for preparation or analysis ex	xceeded		J A	nalyte de	tected below of	uantitation lim	its		ND	Not de	etected at the Reportir	ig Limit		
	R	RPI	D outside accepted recovery limits			RL R	eporting	Limit				S	Spike	recovery outside acce	pted recovery limit	S	



#### Work Order: 1404053

CLIENT: GeoEngineers, Inc. - Redmond

#### **Project:** Rufus Block 19

## **QC SUMMARY REPORT**

#### Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: 1404053-001ADUP	SampType: <b>DUP</b>			Units: µg/K	(g-dry	Prep Da	te: 4/7/201	4	RunNo: <b>134</b>	80	
Client ID: TP-4-2.0	Batch ID: 7090					Analysis Da	te: 4/8/201	4	SeqNo: 272	217	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phenanthrene	ND	62.3						0		30	
Anthracene	ND	62.3						0		30	
Fluoranthene	ND	62.3						0		30	
Pyrene	ND	62.3						0		30	
Benz(a)anthracene	ND	62.3						0		30	
Chrysene	ND	62.3						0		30	
Benzo(b)fluoranthene	ND	62.3						0		30	
Benzo(k)fluoranthene	ND	62.3						0		30	
Benzo(a)pyrene	ND	62.3						0		30	
Indeno(1,2,3-cd)pyrene	ND	62.3						0		30	
Dibenz(a,h)anthracene	ND	62.3						0		30	
Benzo(g,h,i)perylene	ND	62.3						0		30	
Surr: 2-Fluorobiphenyl	682		622.6		110	50.4	142		0		
Surr: Terphenyl-d14 (surr)	637		622.6		102	48.8	157		0		
Sample ID: 1404053-005AMS	SampType: <b>MS</b>			Units: µg/k	(g-dry	Prep Da	te: 4/7/201	4	RunNo: 134	80	
Client ID: TP-5-2.0	Batch ID: 7090					Analysis Da	te: 4/8/201	4	SeqNo: 272	219	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qua
Naphthalene	1,030	60.3	1,205	16.00	83.9	42.9	138				
2-Methylnaphthalene	1,220	60.3	1,205	53.84	97.1	42.8	151				
1-Methylnaphthalene	1,160	60.3	1,205	49.30	92.3	41.6	148				
Acenaphthylene	1,200	60.3	1,205	50.06	95.4	32.6	160				
Acenaphthene	1,150	60.3	1,205	7.542	94.8	46.3	142				
Fluorene	1,170	60.3	1,205	26.19	94.6	43.4	153				

Analyte detected in the associated Method Blank В Qualifiers:

Phenanthrene

Anthracene

Fluoranthene

R

- Dilution was required D
- Analyte detected below quantitation limits J

98.97

47.53

59.30

93.5

97.7

97.9

45.5

32.6

44.6

Value above quantitation range Е

140

160

161

н Holding times for preparation or analysis exceeded RPD outside accepted recovery limits

1,230

1,230

1,240

60.3

60.3

60.3

RL Reporting Limit

1,205

1,205

1,205

ND Not detected at the Reporting Limit S Spike recovery outside accepted recovery limits

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#### **Work Order:** 1404053

### CLIENT: GeoEngineers, Inc. - Redmond

#### Project: Rufus Block 19

## QC SUMMARY REPORT

## Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID: <b>1404053-005AMS</b> Client ID: <b>TP-5-2.0</b>	SampType: <b>MS</b> Batch ID: <b>7090</b>			Units: µg/K	g-dry	Prep Da Analysis Da			RunNo: <b>13</b> 4 SegNo: <b>27</b> 2		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit		%RPD	RPDLimit	Qual
Analyte	Result	RL	SFK value	SFK Kei Vai	%REC	LOWLINII	HIGHTINI	RFD Rei Vai	%RFD	KFDLIIIIII	Quai
Pyrene	1,250	60.3	1,205	92.62	96.1	48.3	158				
Benz(a)anthracene	1,280	60.3	1,205	41.88	103	57.5	169				
Chrysene	1,210	60.3	1,205	42.78	96.8	45.2	146				
Benzo(b)fluoranthene	1,340	60.3	1,205	27.54	109	42.2	168				
Benzo(k)fluoranthene	1,440	60.3	1,205	32.05	116	48	161				
Benzo(a)pyrene	1,520	60.3	1,205	38.84	123	34.4	179				
Indeno(1,2,3-cd)pyrene	1,520	60.3	1,205	22.19	124	41.1	165				
Dibenz(a,h)anthracene	1,560	60.3	1,205	7.869	129	38.1	166				
Benzo(g,h,i)perylene	1,520	60.3	1,205	34.67	124	45.6	157				
Surr: 2-Fluorobiphenyl	520		602.7		86.3	50.4	142				
Surr: Terphenyl-d14 (surr)	627		602.7		104	48.8	157				

#### Qualifiers: B Analyte detected in the associated Method Blank

- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



## Sample Log-In Check List

C	lient Name:	GEI1	Work Order Numb	er: 1404053		
Lo	ogged by:	Chelsea Ward	Date Received:	4/4/2014 5	:17:00 PM	
Cha	ain of Cust	ody				
1.	Is Chain of Cu	ustody complete?	Yes 🔽	No 🗌	Not Present	
2.	How was the	sample delivered?	Client			
Log	ı In					
	Coolers are p	resent?	Yes	No 🗹		
0.			ples received strai			
4.	Shipping cont	ainer/cooler in good condition?	Yes 🗹	No 🗌		
5.		s intact on shipping container/cooler?	Yes	No 🗌	Not Required	
6.	Was an attem	npt made to cool the samples?	Yes	No 🗌	NA 🗹	
7.	Were all coole	ers 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 san	nple volume for indicated test(s)?	Yes 🗹	No 🗌		
10.	Are samples	properly preserved?	Yes 🗹	No 🗌		
11.	Was preserva	tive added to bottles?	Yes	No 🗹	NA 🗌	
12.	Is the headsp	ace in the VOA vials?	Yes	No 🗌	NA 🔽	
		es containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌		
14.	Does paperwo	ork match bottle labels?	Yes 🗹	No 🗌		
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🗹	No 🗌		
		t analyses were requested?	Yes 🗹	No 🗌		
17.	Were all hold	ing times able to be met?	Yes 🗹	No 🗌		
Spe	cial Handl	in <u>g (if applicable)</u>				
		tified of all discrepancies with this order?	Yes	No 🗌	NA 🗹	
	Person I	Notified: Date:				
	By Who			one 🗌 Fax 🗌	In Person	
	Regardi					
	_	structions:				
19	Additional ren	narks:				

#### Item Information

Item #	Temp ⁰C	Condition
Sample	16.6	

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Distribution: White - Lab, Yellow - File, Pink - Originator

TAT-> SameDay^ NextDay^ 2 Day 3 Day STD *Wease coardinate with the lab in advance	Date/Title 1 1 1 1 1	Accived		office/time 1	Attilinguished
	Date/Time HIUN + 777	)	110	U/4/Ju	" Control
		ana retained after 36 da	Disposal by Lab (A log may be	10 00	
al Remarks	direction .	Fluoride	Sulfate Bromide	Nitzite Chloride	***Anions (Circle): Nitrate h
Pb Sb Se Sr Sn Ti Ti U V Zn	Co Cr Cu Fe Hg K Mg Mn Mo Na Ni I	Individual: Ag Al As B Ba Be Ca Cd o	TAL	5 RCRA-8	**Metals Analysis (Circle): MTCA-5
			N 427	4	10-2-0-7 m
			149		"TP-5-10.0
			1144		* TP-5-8.0
			143		, TP-5-6.0
			1139		TP-5-4.0
			1137		TP-5.2.0
			1126		+ TP-4-8.0
			1125		+ TP-4-6.0
			1123 1		, TP-4-4.0
			C FIII	4/4/4	TP-4-2.0
Comments/Depth		25 (53) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5	Sample Sample Time (Maarba)* 40	Sample	Sample Name
Waste Water	ing Water, GW = Ground	Sediment, SL= Solid, W=Watter, DW=1	Other, P + Product, S = Sail, SD -	s, B=Bulk, O=C	*Matria Codes: A = Air, AQ = Aqueous, B = Bulk, D = Other, P = Product, S = Sait,
	1.14	Email:	the Fax:	a Smith	Reports To (PM): JESICO
A.	Chins Brown	Collected by:	Tel:		City, State, Zip
19	Rufus Block 19	Project Name:	ers	GenEngineers	client: Geos
* 3	Laboratory Project No (internal):	4/4/14	90 78 Date:	Tel: 206-352-3790 Fax: 206-352-7178	3600 Fremont Ave N. T Seattle, WA 98103 F
12/10/0			JINT A	ः सार्य प्रयोगस्त।	
Chain of Custody Record	Chai			remont	

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oPlease coordinate with the lab in advance			×					X
TAT-> SameDay^ NextDay^ 2 Day 3 Day STD	Date/Thine	01	Received			Date/Time		Relinquished
	CHIMIN 1717	i pi p	* AC		ELA	HHHH	Poor	* Clock
		Disposal by tab (A fee may be assessed if samples are retained one: 30 days.)	www.increases.org/increases	al by Lab (A lee	Dispos	Return to Client	0	Sample Disposal:
Special Remarks:	Nitrate+Nitrite	Fluoride	de O-Phosphate	te Bromide	de Sulfate	Nitrite Chlorese	: Nitrate	*** Anions (Circle):
i Pb Sb Se Sr Sn Ti Ti U V Zn	Co Cr Cu Fe Hg K Mg Mn Mn Na Ni	Al As B Ba Be Ca Ed	individual: Ag Al As B	dants TAL	Priority Pollutants	4-5 RCRA-8	(Circle): MTCA-5	**Metals Analysis (Circle):
				4	1425	4	-6.0	In TP-S
					1426		40	· 72-8-
					1425		2.0	*TP-8-
					1245		6.0	2-E-LL
					124 <del>]</del>		6.0	. TP.7-
				-	1245		040	-t-ALS
					1242		2.0	1P-7-
					17.37		0.8.0	= TP-6-
				1	1235	1.1.	0-6-0	2 TP-6-1
		-		S	1232	4 H H	4.0	1 TP-6-4
Comments/Depth		5 6 6 6 6 6 6 6 6 6 6 6 6 6	14 13 1 4 19 19 19 19 19 19 19 19 19 19 19 19 19	Sample Type (Matrix)*	Sample	Sample		Sample Name
- Waste Water	ing Water, GW = Ground	Mathix Codes: A = Air, AQ = Aqueous, B = Bulk, D = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW =	SD = Sediment, 51	aduct, 5 = 500	Other, P = Pr	ous, B = Buik, D =	= Air, AQ = Aquei	*Matrix Codes: A
		Email:		Fax:	Junith	60	Ness!	Reports To (PM): JESSICA
57	Chris Brown	Collected by:		Tel:		2	1	City, State, Zip
04 19	Kutus Block	Project Name:			Syaa	GeoEngineers	600	Client: Address:
8 30H0H	Laboratory Project No (internol):	1	Date: 4/4/14		90	Tel: 206-352-3790 Fax: 206-352-7178	Ave N. 8103	3600 Fremont Ave N. Seattle, WA 98103
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	Boow Date/Time   THT Received (Amore are retained after 30 days.)	Sample Dispesal: Relignmed
Special Remarks:	Nitrate Nitrite Chloride Sulfate Bromisin O-Phosphare Fluoride Nitrate-Nitrite	le):
i Pb Sb Se Śi Sin Ti Ti U V Zn	MTCA-5 RCRA-8 Priority Pollutants TAL Individual- Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Min Mo Na Ni	10 •• Metals Analysis (Circle):
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		10 a
		Lu -
	C CEHI HILLIN C CE	1 TX-0-0-0
Comments/Liepin	LAND LAND LAND LAND WINNING	2 2 2
	Sample Sample True Carter 100 CF 100	Sample Name
Waste Water	P = Product, S = Soil, SD = Sediment, SL = Solid	*Matrix Codes: A = Air,
57	Collected by: CLANIS of	City, State, Zip
4 19	cation: SPATIC	Client: Address:
- 30 CCULUL	103 Fax: 206-352-3790 Date: 444444	3600 Fremont Ave N. Seattle, WA 98103
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Chain of Custody Record	Fremont	
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			the way he suested if ramp	Usposal by Lab (/	Return to Client	Disposel	Same
	Varite	•	Bromide O-Phosphate	Sulfate	Nitrale Chloride	*** Anions (Circle): wtrate	*** A.
Mo Na Ni Pb Sb Se Se Se Ti Ti U V Zm	CY CU SE HE K ME MA	hoofwatwat: Ag Al As B Ba Ba Ca Ca Ca Ca	TAL Individual: A	Prioral Polititants	RERA-8	"Metals Analysis (Circle): MTCA-S	Me
			_	1425 V	4	1P-8-6-0	10
				1426		5-8-40	10
		8		1425		p-8-2-0	Å
				1245		P-7-8-0	4
				1247		P.7-6.0	H
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		8		1242		P-7-2-0	Ĥ
				1737		P.6-8.0	1
						P-6-6.0	2
	_			1232 5	HH	rP-6-4.0	1
Converserts/Death			10000000000000000000000000000000000000	Sarrupie Sarrupie Time (Maarra)*	Sargel	Sample Name	San
Water, WW - Waste Water	GW - Ground	inter, D	<ul> <li>Solit, SD = Sediment,</li> </ul>	Other, P = Product, 5	ous, Beduk, Do	"Matrix Codes: A = AP, AQ = Aqueous, B = Bulk, D = Other, P = Product, 3 = Soc. SD = Sediment,	*Ma
	Project No:	Ernall:		Shrith m	ica Sw	Reports To (PM) JESSICA	R
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ck 19	Rufus Block	Project Name:		Syaa	GeoEngineers	client: Geo	2 2
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**GeoEngineers, Inc. - Redmond** Jessica Smith 8410 154th Ave. NE Redmond, Washington 98052

RE: Rufus Block 19 Lab ID: 1404070

April 10, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 6 sample(s) on 4/8/2014 for the analyses presented in the following report.

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

MGA

Michael Dee Sr. Chemist / Principal



GeoEngineers, Inc Redmond Rufus Block 19 1404070	Work Order S	Sample Summary
Client Sample ID	Date/Time Collected	Date/Time Received
PCS-1-10.0	04/08/2014 2:08 PM	04/08/2014 5:15 PM
EX-1-12.0	04/08/2014 2:31 PM	04/08/2014 5:15 PM
EX-2-10.0	04/08/2014 2:32 PM	04/08/2014 5:15 PM
EX-3-10.0	04/08/2014 2:33 PM	04/08/2014 5:15 PM
EX-4-10.0	04/08/2014 2:34 PM	04/08/2014 5:15 PM
EX-5-10.0	04/08/2014 2:35 PM	04/08/2014 5:15 PM
	Rufus Block 19 1404070 Client Sample ID PCS-1-10.0 EX-1-12.0 EX-2-10.0 EX-3-10.0 EX-3-10.0 EX-4-10.0	Rufus Block 19 1404070         Date/Time Collected           PCS-1-10.0         04/08/2014 2:08 PM           EX-1-12.0         04/08/2014 2:31 PM           EX-2-10.0         04/08/2014 2:32 PM           EX-3-10.0         04/08/2014 2:33 PM           EX-4-10.0         04/08/2014 2:34 PM



**Case Narrative** 

WO#: **1404070** Date: **4/10/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Rufus Block 19

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.



WO#: **1404070** Date Reported: **4/10/2014** 

Client: GeoEngineers, Inc Redn Project: Rufus Block 19	nond			Collection	Date: 4/8	3/2014 2:08:00 PM
Lab ID: 1404070-001				Matrix: Sc	oil	
Client Sample ID: PCS-1-10.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-	Dx/Dx Ext.			Batch	n ID: 7112	Analyst: BR
Diesel (Fuel Oil)	308	27.2		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Heavy Oil	3,530	68.0		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Surr: 2-Fluorobiphenyl	66.6	50-150		%REC	1	4/9/2014 7:06:00 AM
Surr: o-Terphenyl	69.3	50-150		%REC	1	4/9/2014 7:06:00 AM
Hydrocarbon Identification by NV	TPH-HCID			Batch	n ID: 7100	Analyst: TN
Gasoline	ND	27.2		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Mineral Spirits	ND	40.8		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Kerosene	ND	68.0		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Diesel (Fuel Oil)	DETECT	68.0		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Heavy Oil	DETECT	136		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Mineral Oil	ND	136		mg/Kg-dry	1	4/9/2014 7:06:00 AM
Surr: 2-Fluorobiphenyl	66.6	50-150		%REC	1	4/9/2014 7:06:00 AM
Surr: o-Terphenyl	69.3	50-150		%REC	1	4/9/2014 7:06:00 AM
Sample Moisture (Percent Moistu	<u>re)</u>			Batch	n ID: R134	86 Analyst: KZ
Percent Moisture	31.8			wt%	1	4/9/2014 8:53:37 AM

Qualifiers:	В	Analyte detected in the associated Method Blank
	Е	Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: **1404070** Date Reported: **4/10/2014** 

Client: GeoEngineers, Inc Redr	mond			Collection	Date: 4/8	3/2014 2:31:00 PM
Project: Rufus Block 19						
Lab ID: 1404070-002				Matrix: Sc	oil	
Client Sample ID: EX-1-12.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-	Dx/Dx Ext.			Batch	n ID: 7105	Analyst: TN
Diesel (Fuel Oil)	ND	22.6		mg/Kg-dry	1	4/9/2014 4:02:00 PM
Heavy Oil	ND	56.6		mg/Kg-dry	1	4/9/2014 4:02:00 PM
Surr: 2-Fluorobiphenyl	129	50-150		%REC	1	4/9/2014 4:02:00 PM
Surr: o-Terphenyl	118	50-150		%REC	1	4/9/2014 4:02:00 PM
Sample Moisture (Percent Moistu	ure)			Batch	n ID: R134	97 Analyst: AK
Percent Moisture	18.9			wt%	1	4/9/2014 5:30:00 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: **1404070** Date Reported: **4/10/2014** 

Client: GeoEngineers, Inc Redm	ond			Collection	Date: 4/8	3/2014 2:32:00 PM
Project: Rufus Block 19						
Lab ID: 1404070-003				Matrix: Sc	oil	
Client Sample ID: EX-2-10.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-I	Dx/Dx Ext.			Batch	n ID: 7105	Analyst: TN
Diesel (Fuel Oil)	ND	24.4		mg/Kg-dry	1	4/9/2014 4:30:00 PM
Heavy Oil	ND	61.0		mg/Kg-dry	1	4/9/2014 4:30:00 PM
Surr: 2-Fluorobiphenyl	71.3	50-150		%REC	1	4/9/2014 4:30:00 PM
Surr: o-Terphenyl	65.6	50-150		%REC	1	4/9/2014 4:30:00 PM
Sample Moisture (Percent Moistu	re)			Batch	n ID: R134	97 Analyst: AK
Percent Moisture	20.0			wt%	1	4/9/2014 5:30:00 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded

ND Not detected at the Reporting Limit



WO#: **1404070** Date Reported: **4/10/2014** 

Client: GeoEngineers, Inc Redm	iond			Collection	Date: 4/8	3/2014 2:33:00 PM
Project: Rufus Block 19						
Lab ID: 1404070-004				Matrix: Sc	bil	
Client Sample ID: EX-3-10.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-I	Dx/Dx Ext.			Batch	n ID: 7105	Analyst: TN
Diesel (Fuel Oil)	ND	23.7		mg/Kg-dry	1	4/9/2014 4:59:00 PM
Heavy Oil	ND	59.2		mg/Kg-dry	1	4/9/2014 4:59:00 PM
Surr: 2-Fluorobiphenyl	71.5	50-150		%REC	1	4/9/2014 4:59:00 PM
Surr: o-Terphenyl	64.0	50-150		%REC	1	4/9/2014 4:59:00 PM
Sample Moisture (Percent Moistur	<u>re)</u>			Batch	n ID: R134	97 Analyst: AK
Percent Moisture	20.4			wt%	1	4/9/2014 5:30:00 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: **1404070** Date Reported: **4/10/2014** 

Client: GeoEngineers, Inc Redn	nond			Collection	Date: 4/8	3/2014 2:34:00 PM
Project: Rufus Block 19						
Lab ID: 1404070-005				Matrix: Sc	oil	
Client Sample ID: EX-4-10.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-	Dx/Dx Ext.			Batch	n ID: 7105	Analyst: TN
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	4/9/2014 5:27:00 PM
Heavy Oil	ND	58.5		mg/Kg-dry	1	4/9/2014 5:27:00 PM
Surr: 2-Fluorobiphenyl	96.8	50-150		%REC	1	4/9/2014 5:27:00 PM
Surr: o-Terphenyl	90.5	50-150		%REC	1	4/9/2014 5:27:00 PM
Sample Moisture (Percent Moistu	ire)			Batch	n ID: R134	97 Analyst: AK
Percent Moisture	20.6			wt%	1	4/9/2014 5:30:00 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: **1404070** Date Reported: **4/10/2014** 

Client: GeoEngineers, Inc Redm	iond			Collection	Date: 4/8	3/2014 2:35:00 PM
Project: Rufus Block 19						
Lab ID: 1404070-006				Matrix: Sc	oil	
Client Sample ID: EX-5-10.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-I	Dx/Dx Ext.			Batch	n ID: 7105	Analyst: TN
Diesel (Fuel Oil)	ND	23.4		mg/Kg-dry	1	4/9/2014 5:55:00 PM
Heavy Oil	ND	58.5		mg/Kg-dry	1	4/9/2014 5:55:00 PM
Surr: 2-Fluorobiphenyl	72.5	50-150		%REC	1	4/9/2014 5:55:00 PM
Surr: o-Terphenyl	67.0	50-150		%REC	1	4/9/2014 5:55:00 PM
Sample Moisture (Percent Moistur	re)			Batch	n ID: R134	97 Analyst: AK
Percent Moisture	19.7			wt%	1	4/9/2014 5:30:00 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded

ND Not detected at the Reporting Limit

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Analytical

Work Order:	1404070									20	SUMMA		PORT
CLIENT:	GeoEngine		edmond						Diesel a	nd Heavy (			-
Project:	Rufus Block	: 19							Diesera	ind neavy v			
Sample ID: 14040	70-001ADUP	SampType	: DUP			Units: mg/Kg	J-dry	Prep Dat	e: 4/8/201	4	RunNo: 134	95	
Client ID: PCS-1	-10.0	Batch ID:	7112					Analysis Dat	te: <b>4/9/201</b>	4	SeqNo: 272	458	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			449	26.7						307.8	37.4	30	R
Heavy Oil			4,330	66.7						3,533	20.2	30	
Surr: 2-Fluorobip	bhenyl		18.8		26.70		70.5	50	150		0		
Surr: o-Terpheny	/l		19.5		26.70		73.2	50	150		0		
NOTES:													
R - High RPD no	oted for Diesel.												
Sample ID: LCS-7	112	SampType	: LCS			Units: mg/Kg	I	Prep Dat	e: <b>4/8/201</b>	4	RunNo: 134	95	
Client ID: LCSS		Batch ID:	7112					Analysis Dat	e: <b>4/9/201</b>	4	SeqNo: 272	2463	
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	95.1	65	135				
Surr: 2-Fluorobip	bhenyl		12.7		20.00		63.7	50	150				
Surr: o-Terpheny	/l		12.9		20.00		64.5	50	150				
Sample ID: MB-71	12	SampType	BLK			Units: mg/Kg	1	Prep Dat	e: <b>4/8/201</b>	4	RunNo: 134	95	
Client ID: MBLK	S	Batch ID:	7112					Analysis Dat	te: <b>4/9/201</b>	4	SeqNo: 272	2464	
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-Fluorobip	bhenyl		14.5		20.00		72.6	50	150				
Surr: o-Terpheny	•		14.4		20.00		72.0	50	150				

Qualifiers:

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- B Analyte detected in the associated Method Blank
- D Dilution was required
- Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Work Order: CLIENT: Project:	1404070 GeoEngine Rufus Block	-	edmond						Diesel a	QC S and Heavy (	SUMMAI Oil by NW1		-
Sample ID: 140407	0-006ADUP	SampType	: DUP			Units: mg/Kg-	dry	Prep Date	e: <b>4/9/201</b>	4	RunNo: 135	05	
Client ID: EX-5-1	0.0	Batch ID:	7105					Analysis Date	e: <b>4/9/201</b>	4	SeqNo: 272	600	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			ND	23.3						0		30	
Heavy Oil			ND	58.4						0		30	
Surr: 2-Fluorobipl	nenyl		17.0		23.35		72.9	50	150		0		
Surr: o-Terphenyl			15.4		23.35		66.1	50	150		0		
Sample ID: LCS-71	05	SampType	E LCS			Units: mg/Kg		Prep Date	e: <b>4/9/201</b>	4	RunNo: 135	05	
Client ID: LCSS		Batch ID:	7105					Analysis Date	e: <b>4/9/201</b>	4	SeqNo: 272	619	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			446	20.0	500.0	0	89.2	65	135				
Surr: 2-Fluorobipl	henyl		24.1		20.00		121	50	150				
Surr: o-Terphenyl			22.8		20.00		114	50	150				
Sample ID: MB-710	)5	SampType	: MBLK			Units: mg/Kg		Prep Date	e: <b>4/9/201</b>	4	RunNo: 135	05	
Client ID: MBLKS	3	Batch ID:	7105					Analysis Date	e: <b>4/9/201</b>	4	SeqNo: 272	620	
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-Fluorobipl	nenyl		25.2		20.00		126	50	150				
Surr: o-Terphenyl			23.7		20.00		119	50	150				



- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

<b>SKALA</b>	Fremont
	[Analytical]

Work Order: CLIENT: Project:	1404070 GeoEnginee Rufus Block	ers, Inc Re 19	dmond					I	Hydrocar	•	SUMMAF		-
Sample ID: LCS710	00	SampType:	LCS			Units: mg/Kg		Prep Dat	e: <b>4/9/2014</b>		RunNo: 134	87	
Client ID: LCSS		Batch ID:	7100					Analysis Dat	e: 4/9/2014		SeqNo: 272	363	
Analyte		Re	esult	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-Fluorobipł	henyl		12.7		20.00		63.7	50	150				
Surr: o-Terphenyl	I		12.9		20.00		64.5	50	150				
Sample ID: MB710	0	SampType:	MBLK			Units: mg/Kg		Prep Dat	e: <b>4/9/2014</b>		RunNo: 134	.87	
Client ID: MBLKS	S	Batch ID:	7100					Analysis Dat	e: <b>4/9/2014</b>		SeqNo: 272	364	
Analyte		Re	esult	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									
Mineral Oil Surr: 2-Fluorobipl	henyl		ND 14.5	100	20.00		72.6	50	150				

Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



## Sample Log-In Check List

Client Name: GEI1		Work Order Numb	per: 1404070		
Logged by: Chel	sea Ward	Date Received:	4/8/2014 5	:15:00 PM	
Chain of Custody					
1. Is Chain of Custody	complete?	Yes 🔽	No 🗌	Not Present	
2. How was the sample	e delivered?	<u>Client</u>			
<u>Log In</u>					
3. Coolers are present	?	Yes	No 🔽		
	Sampl	les received straight	t from field.		
4. Shipping container/	cooler in good condition?	Yes 🗹	No 🗌		
5. Custody seals intact	t on shipping container/cooler?	Yes	No 🗌	Not Required 🗹	
6. Was an attempt ma	de to cool the samples?	Yes	No 🗌	NA 🔽	
7. Were all coolers rec	eived 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 vo	plume for indicated test(s)?	Yes 🗹	No 🗌		
10. Are samples proper	ly preserved?	Yes 🗹	No 🗌		
11. Was preservative ad	dded to bottles?	Yes	No 🗹	NA 🗌	
12. Is the headspace in	the VOA vials?	Yes	No 🗌	NA 🔽	
13. Did all samples con	tainers arrive in good condition(unbroken)?	Yes 🗹	No 🗌		
14. Does paperwork ma	tch bottle labels?	Yes 🗹	No 🗌		
15. Are matrices correc	tly identified on Chain of Custody?	Yes 🖌	No 🗌		
16. Is it clear what analy		Yes 🗹	No 🗌		
17. Were all holding tim	nes able to be met?	Yes 🗹	No 🗌		
Special Handling (	if applicable)				
	of all discrepancies with this order?	Yes	No 🗌	NA 🔽	
Person Notifie	d: Date	:			
By Whom:	Via:	eMail Ph	one 🗌 Fax 🗌	In Person	
Regarding: Client Instructi					
19. Additional remarks:					

Item Information

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Termont Ave N. Tel: 206-352-7178 Date: 4/8/14 Project No (Internet) e, WA 98103 Fax: 206-352-7178 Date: 4/8/14 Project Name: 4/8/14 Pro			*Matrix Codes: A = Air, AQ = Aqueous, B = Bui
Fremont Ave N. Tel: 206-352-3790 e, WA 98103 Fax: 206-352-7178 Date: 4/6/14 Page: 4 e, WA 98103 Fax: 206-352-7178 Date: 4/6/14 Page: 4 c, WA 98103 Location: 200-4116	Project No: 10424 . COL		*Matrix Codes: A = Air, AQ = Aqueous, B = Bul
Fremont Ave N. Tel: 206-352-3790 e, WA 98103 Fax: 206-352-7178 Date: 4/8/14 Page: 1 Gentiumediate Statement Project Name: 248-18	IS Project No: 10434 .001 GW = Ground Water, WW = Waste Water		City, State, Zip Reports To (PM): UESSico *Matrix Codes: A = Air, AQ = Aqueous, B = Bul
Tel: 206-352-7178         Date: 4/8/14         Page: 1	Broject No: 10434-001		Address: City, State, Zip Reports To (PM): UPSSico "Matrix Codes: A = Air, AQ = Aqueous, B = Bul
Amalytical Analytical N. Tel: 206-352-3790 N. Tel: 206-352-3790	Bortile Project No: 10434.001 GW = Ground Water, WW = Waste Water		Client: Address: City, State, Zip Reports To (PM): UESSing of "Matrix Codes: A = Air, AQ = Aqueous, B = Bul
Laboratory Project No (internal)	Res-Block 19 Control Block 19 Project No: 10434-001 GW = Ground Water, WW = Waxte Water		Client:
	Res-Block 19 Conflict project No: 10434-001 GW = Ground Water, WW = Waste Water		3600 Fremont Ave N. Tel: 206- Seattle, WA 98103 Fax: 206- Client: Seattle, WA 98103 Fax: 206- Address: Address: City, State, Zip Reports To (PM): UPSS 100 C "Matrix Codes: A = Air, AQ = Aqueous, B = Bul
	oject No (Internol): 404070 Res-Block 19 Cortfilt DS Project No: 10434.001 GW = Ground Water, WW = Waxte Water		3600 Fremont Ave N. Tel: 206-3 Seattle, WA 98103 Fax: 206- Client: Address: City, State, Zip Reports To (PM): UESSIG Matrix Codes: A = Air, AQ = Aqueous, B = Bul
	oject No (internol): 404070 ALS-Block 19 Sortille Project No: 10434-001 GW = Ground Water, WW = Waste Water		3600 Fremont Ave N. Tel: 206-3 Seattle, WA 98103 Fax: 206- Client: Cater State Address: City, State, Zip Reports To (PM): UESSING Reports To (PM): UESSING Matrix Codes: A = Air, AQ = Aqueous, B = Bul

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rement Ave N. Tel: 206-352-3730 VIX 982.03 Fax: 206-352-7178 nave 4/8/14 Project Name: Rufes- CODENG INVERSS nave 4/8/14 Project Name: Rufes- No. 20 Inverses Inve	ins, zip Tet Reject Name: Sport[1]	Tell Collected by: LAANIS		Son HSH HOS S HOS	Same Same Same Same Same Same Same Same	C H31 King King King King King King King King	Normal     Normal     Normal     Normal     Normal     Normal       Norm	HCSSIC	A Jun the Face	Email: Sedemant. St = Exted. W = Water.	GW = Smand
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	Mark     No     Control     Control       Short Mar     Fin     Called and Called	No.         Collector lar.         Intell         In	Check Unit         Text	NCRAN INVENTIVATION TO A LINGWARK' NO. N.	ACRAN INTERIN/Palavanta TAL Andreast Ng Al AS No	WORKAR INVENTIVATION TO A LANDWARK' NO ALL NO RE ALCOLOGIC CHITRE NO ALL NO ALL NO BAS SESSION TO	ACRAAB Invitantly Prolocanda Tat. And/watan <sup>6</sup> Ng Al Job K Ba Bio Cat Cat tas Cr Cu Tre tig: E Mg Mr. Ndo Na Ni mb Sub Sub Sub Sub Sub Sub Sub Sub Sub Su	le): NEULIS	Clearide	hate Fluoride	G-PRURE
	March     Free     Free     Control for the first dive       1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1       1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1     1       1     1     1     1     1     1     1     1     1 <td< th=""><th>Yet     Cellected ler     CALL       sense, 0 = 000m, 1 = 1 = 200, 50 = 300mmen, 2 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 1000, 100 = 1000, 1000, 100 = 1000, 1000, 100 = 1000, 1000, 100 = 1000, 10000, 10000, 1000, 1000, 10000, 1000, 1000, 1000, 10000, 1000, 1000</th><th>Construction     Finance     Finance&lt;</th><td>NCMAR INTERINFRANKING INTERING INCLUSION IN INCLUSION IN ALL INCLUSION INCLUSION IN ALL INCLUSION INCLUSIO</td><td>VICAN     Marchine     Marchine       NORAN     Marchine     Marchine</td><td>VCRA8     Midelity Patribuants     Tot.     And Mark Ng, Ni As is a for for for for the rise is Min. No Ni Ni No Sis is 5 5 ni Ti Ti V Z       NCRA8     Midelity Patribuants     Tot.     And Mark Ng, Ni As is is for for for the rise is Min. No Ni Ni No Sis is 5 5 ni Ti Ti V Z       NCRA8     Midelity Patribuants     Tot.     And Mark Ng, Ni As is is for for for the rise in Min. No Ni Ni No Sis is 5 5 ni Ti Ti V Z</td><td>MCRA4 Miterity Palakanana TAL Andrekana<sup>6</sup> Ng Al Ang N Al Bas Go Cal Cas Cr Ve tig K Mis Min No Nu Ri No Sub Se Sis Al TI TI U V Z McRA4 Miterity Palakanana TAL Andrekana<sup>6</sup> Ng Al Ang N Al Bas Bas Co Cal Cas Cr Ve tig K Mis Min No Nu Ri No Sub Se Sis Al TI TI U V Z</td><td>Attenti:</td><td></td><td>spin en mise</td><td>T</td></td<>	Yet     Cellected ler     CALL       sense, 0 = 000m, 1 = 1 = 200, 50 = 300mmen, 2 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 100 = 1000, 1000, 100 = 1000, 1000, 100 = 1000, 1000, 100 = 1000, 1000, 100 = 1000, 10000, 10000, 1000, 1000, 10000, 1000, 1000, 1000, 10000, 1000, 1000	Construction     Finance     Finance<	NCMAR INTERINFRANKING INTERING INCLUSION IN INCLUSION IN ALL INCLUSION INCLUSION IN ALL INCLUSION INCLUSIO	VICAN     Marchine     Marchine       NORAN     Marchine     Marchine	VCRA8     Midelity Patribuants     Tot.     And Mark Ng, Ni As is a for for for for the rise is Min. No Ni Ni No Sis is 5 5 ni Ti Ti V Z       NCRA8     Midelity Patribuants     Tot.     And Mark Ng, Ni As is is for for for the rise is Min. No Ni Ni No Sis is 5 5 ni Ti Ti V Z       NCRA8     Midelity Patribuants     Tot.     And Mark Ng, Ni As is is for for for the rise in Min. No Ni Ni No Sis is 5 5 ni Ti Ti V Z	MCRA4 Miterity Palakanana TAL Andrekana <sup>6</sup> Ng Al Ang N Al Bas Go Cal Cas Cr Ve tig K Mis Min No Nu Ri No Sub Se Sis Al TI TI U V Z McRA4 Miterity Palakanana TAL Andrekana <sup>6</sup> Ng Al Ang N Al Bas Bas Co Cal Cas Cr Ve tig K Mis Min No Nu Ri No Sub Se Sis Al TI TI U V Z	Attenti:		spin en mise	T
	Image: Second	B         The	March (CD)     Own (Ch, Free     Ensure     Ensure     Ensure     Ensure     Ensure     Comparison     Compar	IO.O     IH33       IO.O     IH34       IO.O     III.       III.     III.       III.     III.       III.     III.       III.     III.       III.     III. <t< td=""><td>NO.O     IH3H     X       -NO.O     J     J35       -NO.O     J35     J       -NO.O     NO.N     No.N       -NO.O     NO.N       -NO.O     NO.N   <td>-10.0 V 435 V V V V V V V V V V V V V V V V V V V</td><td>ski (Circle): MTCA-3 NCRA-8 Mientry Palukanta TAL kedhekant Ng N N N N N N N N N N N N N N N N N N</td><td>0.14</td><td></td><td>alart</td><td></td></td></t<>	NO.O     IH3H     X       -NO.O     J     J35       -NO.O     J35     J       -NO.O     NO.N     No.N       -NO.O     NO.N       -NO.O     NO.N <td>-10.0 V 435 V V V V V V V V V V V V V V V V V V V</td> <td>ski (Circle): MTCA-3 NCRA-8 Mientry Palukanta TAL kedhekant Ng N N N N N N N N N N N N N N N N N N</td> <td>0.14</td> <td></td> <td>alart</td> <td></td>	-10.0 V 435 V V V V V V V V V V V V V V V V V V V	ski (Circle): MTCA-3 NCRA-8 Mientry Palukanta TAL kedhekant Ng N N N N N N N N N N N N N N N N N N	0.14		alart	
				X-3-10-0     1433     1434     X       X-5-10-0     1434     X     X       X-5-10-0     435     435     X       X-5-10-0     435     1434     X       X-5-10-0     435     1434     X       X-5-10-0     435     1435     X       X-5-10-0     435     X     X       X-5-10-0     435     X     X       X-5-10-0     435     X     X       X-5-10-0     435     X     X       X-5-10-0     1435     X     X       X-5-10-0     1435     X     X       X-5-10-0     1435     X     X       X-5-10-0     1435     X     X       X-6-10-10     1435     X     X       X-6-10-10     1416     X     X </td <td>X-4-10.0 J H3H H3H X X K K K K K K K K K K K K K K K K K</td> <td>A-5-10.0 V 435 V V V V V V V V V V V V V V V V V V V</td> <td>Analysis (Circle): MICA'S MCANB Mignity Palanents TAL Kedwalan' Ng Al A's B As G C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature Notifie Subare Reveals O Prospense Rusade Not cu te Ng C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature Notifie Subare Rusade Not cu te Ng C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature Notifie Subare Rusade Not cu te Ng C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Not cu te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Not cu te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Subare Rusade Not cu te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Subare Rusade Not cu te Ng M A Ng</td> <td>10001 HODE~</td> <td>4</td> <td>T</td> <td></td>	X-4-10.0 J H3H H3H X X K K K K K K K K K K K K K K K K K	A-5-10.0 V 435 V V V V V V V V V V V V V V V V V V V	Analysis (Circle): MICA'S MCANB Mignity Palanents TAL Kedwalan' Ng Al A's B As G C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature Notifie Subare Reveals O Prospense Rusade Not cu te Ng C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature Notifie Subare Rusade Not cu te Ng C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature Notifie Subare Rusade Not cu te Ng C Li Co C u Te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Not cu te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Not cu te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Subare Rusade Not cu te Ng M A No Na Ni No Sub Se Si Si TI TI U V 2 one (Circle): Nature O Circle Subare Rusade Subare Rusade Not cu te Ng M A Ng	10001 HODE~	4	T	

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

**GeoEngineers, Inc. - Redmond** Jessica Smith 8410 154th Ave. NE Redmond, Washington 98052

#### RE: Rufus 2.0 - Block 19 Lab ID: 1404084

April 14, 2014

#### Attention Jessica Smith:

Fremont Analytical, Inc. received 5 sample(s) on 4/9/2014 for the analyses presented in the following report.

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

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers, Inc Redmond Rufus 2.0 - Block 19 1404084	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1404084-001	PCS-2-3.0	04/09/2014 2:15 PM	04/09/2014 4:29 PM
1404084-002	PCS-3-4.0	04/09/2014 2:45 PM	04/09/2014 4:29 PM
1404084-003	EX-6-4.5	04/09/2014 2:20 PM	04/09/2014 4:29 PM
1404084-004	EX-7-4.5	04/09/2014 2:25 PM	04/09/2014 4:29 PM
1404084-005	EX-8-4.5	04/09/2014 2:30 PM	04/09/2014 4:29 PM



**Case Narrative** 

WO#: **1404084** Date: **4/14/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Rufus 2.0 - Block 19

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.



WO#: **1404084** Date Reported: **4/14/2014** 

#### CLIENT: GeoEngineers, Inc. - Redmond

Project: Rufus 2.0 - Block 19

Lab ID: 1404084-001 Client Sample ID: PCS-2-3.0	Collection Matrix: So		/9/2014 2:15:00 PM			
Analyses	Result	RL C	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-I	Dx/Dx Ext.			Batch	ID: 7130	) Analyst: BR
Diesel (Fuel Oil)	10,000	23.4		mg/Kg-dry	1	4/10/2014 5:53:00 AM
Heavy Oil	ND	58.4		mg/Kg-dry	1	4/10/2014 5:53:00 AM
Surr: 2-Fluorobiphenyl	164	50-150	S	%REC	1	4/10/2014 5:53:00 AM
Surr: o-Terphenyl	121	50-150		%REC	1	4/10/2014 5:53:00 AM
NOTES:						

S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Hydrocarbon Identification	by NWTPH-HCID			Batch	ID: 71	11	Analyst: TN
Gasoline	ND	23.4		mg/Kg-dry	1	4/10	)/2014 5:53:00 AM
Mineral Spirits	ND	35.0		mg/Kg-dry	1	4/10	/2014 5:53:00 AM
Kerosene	ND	58.4		mg/Kg-dry	1	4/10	/2014 5:53:00 AM
Diesel (Fuel Oil)	DETECT	58.4		mg/Kg-dry	1	4/10	/2014 5:53:00 AM
Heavy Oil	ND	117		mg/Kg-dry	1	4/10	/2014 5:53:00 AM
Mineral Oil	ND	117		mg/Kg-dry	1	4/10	/2014 5:53:00 AM
Surr: 2-Fluorobiphenyl	164	50-150	S	%REC	1	4/10	)/2014 5:53:00 AM
Surr: o-Terphenyl	121	50-150		%REC	1	4/10	/2014 5:53:00 AM

#### NOTES:

S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Sample Moisture (Percent Moisture)		Batch	ID: R1	3502 Analyst: KZ
Percent Moisture	15.9	wt%	1	4/10/2014 8:40:54 AM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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



WO#: 1404084 Date Reported: 4/14/2014

#### CLIENT: GeoEngineers, Inc. - Redmond

Project: Rufus 2.0 - Block 19

Lab ID: 1404084-003 Client Sample ID: EX-6-4.5		Collection Date: 4/9/2014 2:20:00 Pl Matrix: Soil			
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-	Dx/Dx Ext.		Batch	ID: 713	Analyst: BR
Diesel (Fuel Oil)	ND	26.5	mg/Kg-dry	1	4/13/2014 8:19:00 PM
Heavy Oil	ND	66.4	mg/Kg-dry	1	4/13/2014 8:19:00 PM
Surr: 2-Fluorobiphenyl	97.8	50-150	%REC	1	4/13/2014 8:19:00 PM
Surr: o-Terphenyl	98.4	50-150	%REC	1	4/13/2014 8:19:00 PM
Sample Moisture (Percent Moistu	<u>ıre)</u>		Batch	ID: R1	3541 Analyst: AK
Percent Moisture	26.9		wt%	1	4/11/2014 12:00:35 PM

Lab ID:	1404084-004
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Lab ID:         1404084-004         Collection Date:         4/9/201           Client Sample ID:         EX-7-4.5         Matrix:         Soil					4/9/2014 2:25:00 PM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH	I-Dx/Dx Ext.		Batch	n ID: 71	34 Analyst: BR
Diesel (Fuel Oil)	ND	24.0	mg/Kg-dry	1	4/13/2014 8:48:00 PM
Heavy Oil	ND	60.0	mg/Kg-dry	1	4/13/2014 8:48:00 PM
Surr: 2-Fluorobiphenyl	103	50-150	%REC	1	4/13/2014 8:48:00 PM

Surr: o-Terphenyl	98.8	50-150	%REC	1	4/13/2	014 8:48:00 PM
Sample Moisture (Percent Moisture)			Batch	ID: R	13541	Analyst: AK
Percent Moisture	22.1		wt%	1	4/11/2	014 12:00:35 PM

Qualifiers: B	В	Analyte detected in the associated Method Blank	D	Dilution was required
E	E	Value above quantitation range	Н	Holding times for preparation or analysis exceeded
J	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	٢L	Reporting Limit	S	Spike recovery outside accepted recovery limits



WO#: **1404084** Date Reported: **4/14/2014** 

## CLIENT: GeoEngineers, Inc. - Redmond

Project: Rufus 2.0 - Block 19

Lab ID:         1404084-005         Collection Date:         4/9/2014 2:30           Client Sample ID:         EX-8-4.5         Matrix:         Soil					
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTP	H-Dx/Dx Ext.		Batch	n ID: 71	34 Analyst: BR
Diesel (Fuel Oil)	ND	26.7	mg/Kg-dry	1	4/13/2014 9:16:00 PM
Heavy Oil	ND	66.7	mg/Kg-dry	1	4/13/2014 9:16:00 PM
Surr: 2-Fluorobiphenyl	100	50-150	%REC	1	4/13/2014 9:16:00 PM
Surr: o-Terphenyl	97.3	50-150	%REC	1	4/13/2014 9:16:00 PM
Sample Moisture (Percent Moi	<u>sture)</u>		Batch	ID: R	13541 Analyst: AK
Percent Moisture	25.3		wt%	1	4/11/2014 12:00:35 PM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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: CLIENT: Project:	1404084 GeoEnginee Rufus 2.0 - I	-	edmond						Diesel a	QC S and Heavy (	SUMMAI Dil by NW1		
Sample ID: LCS-7130		SampType: LCS			Units: mg/Kg		٢g	Prep Date: 4/9/2014		RunNo: 13538			
Client ID: LCSS		Batch ID:	7130					Analysis Da	te: 4/10/20	14	SeqNo: 273	3240	
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			21.5		20.00		107	50	150				
Surr: o-Terphenyl			21.8		20.00		109	50	150				
Sample ID: MB-71	30	SampType	: MBLK			Units: mg/k	٢g	Prep Da	te: 4/9/201	4	RunNo: 13	538	
Client ID: MBLK	S Batch ID: <b>7130</b>						Analysis Date: 4/10/2014		SeqNo: 273241				
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			23.2		20.00		116	50	150				
Surr: o-Terphenyl			23.5		20.00		117	50	150				
Sample ID: 140408	mple ID: 1404084-001ADUP		: DUP			Units: mg/Kg-dry		Prep Date: 4/9/2014		RunNo: <b>13538</b>			
Client ID: PCS-2-	-3.0	Batch ID:	7130					Analysis Date: 4/10/2014		SeqNo: 273242			
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			7,490	23.3						10,030	29.0	30	
Heavy Oil			ND	58.2						0		30	
Surr: 2-Fluorobiphenyl			35.1		23.29		151	50	150		0		S
Surr: o-Terphenyl NOTES:			28.5		23.29		122	50	150		0		

S - High surrogate recovery attributed to TPH interference. The method is in control as indicated by the Method Blank (MB) & Laboratory Control Sample (LCS).

Qualifiers:

н

- D Dilution was required
- Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- s Spike recovery outside accepted recovery limits


Work Order: CLIENT: Project:	1404084 GeoEngine Rufus 2.0 -	-	Redmond						Diesel a	QC S and Heavy (	SUMMAI Dil by NW1		
Sample ID: 14041	05-004ADUP	SampType	e: DUP			Units: <b>mg/Kg</b> ·	dry	Prep Dat	te: 4/11/20	)14	RunNo: 13	559	
Client ID: BATCI	н	Batch ID:	7134					Analysis Dat	te: 4/14/20	)14	SeqNo: 273	3819	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			1,550	18.2						1,403	10.2	30	
Heavy Oil			ND	45.6						0		30	
Surr: 2-Fluorobip	•		19.4		18.23		107	50	150		0		
Surr: o-Terpheny	h		18.1		18.23		99.4	50	150		0		
Sample ID: LCS-7	134	SampType	E LCS			Units: mg/Kg		Prep Dat	te: 4/11/20	)14	RunNo: 13	559	
Client ID: LCSS		Batch ID:	7134					Analysis Dat	te: 4/13/20	)14	SeqNo: 273	3836	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			506	20.0	500.0	0	101	65	135				
Surr: 2-Fluorobip	henyl		21.4		20.00		107	50	150				
Surr: o-Terpheny	h		25.0		20.00		125	50	150				
Sample ID: MB-71	34	SampType	: MBLK			Units: mg/Kg		Prep Dat	te: 4/11/20	)14	RunNo: 13	559	
Client ID: MBLK	s	Batch ID:	7134					Analysis Dat	te: 4/13/20	014	SeqNo: 273	3837	
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-Fluorobip	henyl		19.3		20.00		96.5	50	150				
Surr: o-Terpheny	/I		19.2		20.00		96.2	50	150				

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



Work Order: CLIENT: Project:	1404084 GeoEngineer Rufus 2.0 - B		Redmond						Hydrocart	-	SUMMAF		
Sample ID: LCS-71	111	SampType	E LCS			Units: mg/Kg		Prep Dat	ie: <b>4/9/2014</b>		RunNo: 135	513	
Client ID: LCSS		Batch ID:	7111					Analysis Dat	e: <b>4/10/2014</b>	Ļ	SeqNo: 272	721	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit R	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			478	50.0	500.0	0	95.6	65	135				
Surr: 2-Fluorobip	henyl		21.5		20.00		107	50	150				
Surr: o-Terpheny	4		21.8		20.00		109	50	150				
Sample ID: MB-71	11	SampType	: MBLK			Units: mg/Kg		Prep Dat	e: <b>4/9/2014</b>		RunNo: 135	613	
Client ID: MBLKS	S	Batch ID:	7111					Analysis Dat	e: 4/10/2014	l .	SeqNo: 272	2722	
Analyte	S		7111 Result	RL	SPK value	SPK Ref Val	%REC	-	e: <b>4/10/2014</b> HighLimit R		SeqNo: 272 %RPD	RPDLimit	Qual
	S			RL 20.0	SPK value	SPK Ref Val	%REC	-					Qual
Analyte	S		Result		SPK value	SPK Ref Val	%REC	-					Qual
Analyte Gasoline	S		Result ND	20.0	SPK value	SPK Ref Val	%REC	-					Qual
Analyte Gasoline Mineral Spirits	S		Result ND ND	20.0 30.0	SPK value	SPK Ref Val	%REC	-					Qual
Analyte Gasoline Mineral Spirits Kerosene	S		Result ND ND ND	20.0 30.0 50.0	SPK value	SPK Ref Val	%REC	-					Qual
Analyte Gasoline Mineral Spirits Kerosene Diesel (Fuel Oil)	S		Result ND ND ND ND	20.0 30.0 50.0 50.0	SPK value	SPK Ref Val	%REC	-					Qual
Analyte Gasoline Mineral Spirits Kerosene Diesel (Fuel Oil) Heavy Oil	-		Result ND ND ND ND ND	20.0 30.0 50.0 50.0 100	SPK value 20.00	SPK Ref Val	%REC	-					Qual

Qualifiers:

В

- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

Fremont

Analytical

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



## Sample Log-In Check List

CI	ient Name:	GEI1	Work Or	der Number:	1404084	4	
Lo	ogged by:	Chelsea Ward	Date Re	ceived:	4/9/2014	4 4:29:00 PM	
Cha	in of Custo	ody					
1.	Is Chain of Cu	ustody complete?	Yes	$\checkmark$	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>Clien</u>	<u>t</u>			
Log	In						
_	Coolers are p	resent?	Yes		No 🗌		
5.	0001010 0. 0 p.						
4.	Shipping cont	ainer/cooler in good condition?	Yes	$\checkmark$	No 🗌		
5.	Custody seals	intact on shipping container/cooler?	Yes		No 🗌	Not Required	
e	Was an attom	int made to cool the samples?	Yes		No 🗌		
ΰ.		pt made to cool the samples?	162	<b>.</b>			
7.	Were all coole	ers received at a temperature of >0°C to 10.0°C	Yes		No 🔽	NA 🗌	
		Sampl	les receive	d straight fr	om field.		
8.	Sample(s) in p	proper container(s)?	Yes	$\checkmark$	No 🗌		
9.	Sufficient sam	nple volume for indicated test(s)?	Yes	$\checkmark$	No 🗌		
10.	Are samples p	properly preserved?	Yes	$\checkmark$	No 🗌		
11.	Was preserva	tive added to bottles?	Yes		No 🗹	NA 🗌	
10	Is the headen	ace in the VOA vials?	Yes		No 🗌	NA 🗹	
		es containers arrive in good condition(unbroken)?	Yes		No 🗌		
		ork match bottle labels?	Yes		No 🗌		
17.				-			
15.	Are matrices of	correctly identified on Chain of Custody?	Yes		No 🗌		
16.	Is it clear wha	t analyses were requested?	Yes	$\checkmark$	No 🗌		
17.	Were all holdi	ng times able to be met?	Yes	$\checkmark$	No 🗌		
Spe	cial Handl	ing (if applicable)					
		tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹	
	Person I		e:				
	By Who			il 🗌 Phone	e 🗌 Fax	In Person	
	Regardir	7					
	-	structions:					
10	Additional rem						

#### Item Information

Item #	Temp ⁰C	Condition
Cooler	7.3	Good
Sample	15.4	

* Refillquishde	Kellingsished	Sample Disposal:	***Anions (Circle): Nitrate	**Metals Analysis (Circle):	10	æ	0	2	6	5 EX-8-4.5	4 EX-7-4.5	3 EX-6-4.5	285-3-4.0	1905-2-9.0		5	Reports To (PM):	City, State, Zip	Address:	Seattle, WA 98103	3600 Fremont Ave N.		
Date/Time	Date/Time	Return to Client	Nitrite Chloride	MTCA-5 RCRA-8						t				49.14	5ample Date	- B	ESSICA SWITH		GEO ENGINEERS	Fax: 206-352-7178	Tel: 206-352-3790	GIIOI	5
	16:29	Disposal by L	e Sulfate	Priority Pollutants						1430	148	-1420	HS	1415	Imple	P = Pro	Fax:	Tel:	8	78	90		in the second
Rec	Rec	Disposal by Lab (A fee may be usessed if samples are relatined after 30 days )	Bromide	TAL						*				Sole	mple trix)*	5 = Soil,				Date:			
Received	Received OL	essed if samples are ret	O-Phosphate	Individual: Ag Al As B Ba Be Ca											14/1/	SD = Sedment, SL = Solid, W = Water,			l	414-14			
	0,	ained after 30 days }	Fluoride N							*	8	X	×		25 26 26 26 26 26 26 26 26 26 26	d, W = Water, D	Fmailt	Collected by:	Project Name: Location:	l			
TDate/Time	pare/Time		Nitrate+Nitrite	Cá Ca Cr Cu Fe												W = Drinking Wate			KUF	Pager	Laboratory		
1	9/14 11029			Hg K Mg Mn											1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DW = Drinking Water, GW = Ground Water, WW = Waste Water	P	11	1252.0-		Laboratory Project No (internal):		
	29		Spe	Mo Na Ni Pb S												ater, WW = Wast	minert No.	obomon	BLOCK	of	L	-	Chain
TAT-> SameDay^ NextDay^ 2 Day 3 Day STD			Special Remarks:	Pb Sb Se Sr Sn Ti Ti U V						Ondt	HOLD	Houd	HOLD	Same Day	Comments/Depth	Water, WW = Waste Water	2121-22		612		404084		Chain of Custody Record
^ 2 Day 3 Day STD				Zn											a poto	1	ī					1	v Record

Distribution: White - Lab Yellow - File, Pink - Originator

Antestrishon C	TO T	Sample Disposal:	***Anions (Circle):	10 ***Metals Analysis (Circle):	4	26-	3	is.	EX-8-4	* EX-7-4	1 Ex- 6- 4.5	285-3-4.0	· 905-2-98	Sample Name	"Matra Lodes A = Ali,	Reports To (PM):	City, State, Zip	Client: Address	3600 Fremont Ave N. Seattle, WA 98103	
		0	Nurate N	dej: MICA-5					is	4.5	5	ò	CA.		AQ = Aquecos, B = Balk,	Jessica		GEO E	×	
inter subs	4.9.14	🗆 Resum to Client	Withte Chiande	HCRA-B					4			-	494	Samele	Badak, Quo	A SMITH		ENGINEERS	Tel: 206-352-3790 Fax: 206-352-7178	emon
	110:29	Dispos	de Sulfate	Priviley Polisiants					1430	1425	·Hze	王	EIS	Sample	Q = Other, # = Product,	TH		S	78	<b>A</b>
	29	et by Lab (A tee	te Brunide	Aunts TAL					-	-			SOL	sample Type (Matrix)*	duct, 5 = Spil,	Fatt	Tell			
avia des	Recover	may be also odd if i sent	de O-Phosphate	indudus.										455 107 1050 107 107 107 107 107 107	SD = Sectionard,				Date: 1. 7. 14	
1	04	Cosposed by Lab (A fee pass be associd if semples are refaired ofter 30 days	ate Fluoride	An Al As B Ba Be					¥	8	X	×	×		SI = Solid, W = Water,	Emaili	Collected by:	Project Name: Location:	F	
A Paster A	1 Decime		Ndrate4N0001	ta ca ta ta											tar. DW - Dresking Water,		d by:	Vame R	Page	Loba
100	-41alin		4	Cu Fe Ha t t										100 100 - 00 - 00 - 00 - 00 - 00 - 00 -			ATE O	Seria J		(aboratory Froject No (internal):
	1629			Mg Mn Mo Na											GW = Ground Water, WN	Project No	Soborior	EO- B		(internal)
1A1 -> SameDayn NextDay* 2 Day 3 Day STD			Special Remarks;	Na Ni Ph Sh Se 10 Sn Ti Ti U V		HIDIH CU	Quant D:	13 Add Anal	Chat	Houo	HOLD	0-10H	SAME DAL	Common	WWW = Water Water	Project No: 20434-001-	0.1	BLOCK 19	8	HOHDRY A
Day* 2 Day 3 Day ST				N ZN		¢	CIEX	Jahusis					2	Commente/Ueguti		01-19				dy Necon

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	por atalis 11.20	Completion of the second	No 20	C) IN THE REAL OF	16-29	Contract of the		1 Concentration
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Ma Au wert is sets of the total and the tota	Co Cr Co He reg & Mg Ann Me Au 70		industrial Al	TAL TAL	Hyurey Policianti	scan li	NICLE	Metals Anulysis (Circle):
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& Add Analusis				-		-		
Ant		Ø		*	1430	e		EX-0-45
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Commercealization			2000 2000 2000 2000 2000 2000 2000 200	Sende Tro-	Securitie	Sampli		Sample Name
	2W - Denking Water, GW - Ground Water, WW		Sit & principal Link	N = SA	Ditter, F. Product,	- 2	<ul> <li>Aqueous</li> </ul>	F
20121-001-19		Ernal		Fac		Serie	PSSICA	Reports To (PRV)
Ľ	Ante Sobono.	Collected by:		Tel:				City, Mate, Lip
BLOCK 19	RUEUS J.O- BI	Project Name: Location:			8	ENGINEERS	GEO EA	Chent:
A Hachogy a	(лволтану йгонаст та (невунаб): Рада:		· · · · · · · · ·	Date	10	Tel: 206-352-3790 Fax: 206-352-7178	Tel: Fac	Seattle, WA 38103
Chain of Custody Record	Cha					remont	Ø	



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

**GeoEngineers, Inc. - Redmond** Jessica Smith 8410 154th Ave. NE Redmond, Washington 98052

#### RE: Rufus 2.0 - Block 19 Lab ID: 1404100

April 14, 2014

#### Attention Jessica Smith:

Fremont Analytical, Inc. received 2 sample(s) on 4/10/2014 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,

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers, Inc Redmond Rufus 2.0 - Block 19 1404100	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1404100-001	EX-9-5.0	04/10/2014 10:45 AM	04/10/2014 1:50 PM
1404100-002	EX-10-5.0	04/10/2014 10:50 AM	04/10/2014 1:50 PM



**Case Narrative** 

WO#: **1404100** Date: **4/14/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Rufus 2.0 - Block 19

I. SAMPLE RECEIPT:

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

#### II. GENERAL REPORTING COMMENTS:

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

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

#### **III. ANALYSES AND EXCEPTIONS:**

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



# **Analytical Report**

WO#: **1404100** Date Reported: **4/14/2014** 

### CLIENT: GeoEngineers, Inc. - Redmond

Project: Rufus 2.0 - Block 19

Lab ID: 1404100-001 Client Sample ID: EX-9-5.0			Collection Matrix: So	2 4101	4/10/2014 10:45:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTP	H-Dx/Dx Ext.		Batch	ID: 713	4 Analyst: BR
Diesel (Fuel Oil)	ND	24.7	mg/Kg-dry	1	4/13/2014 9:44:00 PM
Heavy Oil	ND	61.7	mg/Kg-dry	1	4/13/2014 9:44:00 PM
Surr: 2-Fluorobiphenyl	101	50-150	%REC	1	4/13/2014 9:44:00 PM
Surr: o-Terphenyl	100	50-150	%REC	1	4/13/2014 9:44:00 PM
Sample Moisture (Percent Mois	sture)		Batch	ID: R13	541 Analyst: AK
Percent Moisture	25.6		wt%	1	4/11/2014 12:00:35 PM

Client Sample ID: EX-10-5.0

**Collection Date:** 4/10/2014 10:50:00 AM **Matrix:** Soil

Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	TPH-Dx/Dx Ext.		Batch	ID: 71	134 Analyst: BR
Diesel (Fuel Oil)	ND	26.0	mg/Kg-dry	1	4/13/2014 10:13:00 PM
Heavy Oil	ND	65.0	mg/Kg-dry	1	4/13/2014 10:13:00 PM
Surr: 2-Fluorobiphenyl	99.0	50-150	%REC	1	4/13/2014 10:13:00 PM
Surr: o-Terphenyl	95.7	50-150	%REC	1	4/13/2014 10:13:00 PM
Sample Moisture (Percent M	<u>loisture)</u>		Batch	ID: R	13541 Analyst: AK
Percent Moisture	26.0		wt%	1	4/11/2014 12:00:35 PM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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: CLIENT: Project:	1404100 GeoEngine Rufus 2.0 -		edmond						Diesel a	QC S and Heavy (	SUMMAI Dil by NW1		
Sample ID: 140410	5-004ADUP	SampType	: DUP			Units: mg/Kg-	dry	Prep Dat	e: <b>4/11/20</b>	14	RunNo: 13	559	
Client ID: BATCH	I	Batch ID:	7134					Analysis Dat	e: <b>4/14/20</b>	14	SeqNo: 273	3819	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			1,550	18.2						1,403	10.2	30	
Heavy Oil			ND	45.6						0		30	
Surr: 2-Fluorobiph	henyl		19.4		18.23		107	50	150		0		
Surr: o-Terphenyl			18.1		18.23		99.4	50	150		0		
Sample ID: LCS-71	34	SampType	: LCS			Units: mg/Kg		Prep Dat	e: <b>4/11/20</b>	14	RunNo: 13	559	
Client ID: LCSS		Batch ID:	7134					Analysis Dat	e: <b>4/13/20</b>	14	SeqNo: 273	3836	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			506	20.0	500.0	0	101	65	135				
Surr: 2-Fluorobiph	henyl		21.4		20.00		107	50	150				
Surr: o-Terphenyl			25.0		20.00		125	50	150				
Sample ID: MB-713	34	SampType	: MBLK			Units: mg/Kg		Prep Dat	e: 4/11/20	14	RunNo: 13	559	
Client ID: MBLKS	6	Batch ID:	7134					Analysis Dat	e: <b>4/13/20</b>	14	SeqNo: 273	3837	
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-Fluorobiph	henyl		19.3		20.00		96.5	50	150				
Surr: o-Terphenyl			19.2		20.00		96.2	50	150				



Qualifiers:

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



## Sample Log-In Check List

С	lient Name:	GEI1	Work O	der Number:	1404100	0	
L	ogged by:	Chelsea Ward	Date Re	ceived:	4/10/201	14 1:50:00 PM	
Cha	ain of Cust	ody					
1.	Is Chain of Cu	ustody complete?	Yes	$\checkmark$	No 🗌	Not Present	
2.	How was the	sample delivered?	Clier	<u>it</u>			
Loc	ı In						
-	Coolers are p	resent?	Yes	$\checkmark$	No 🗌		
				_	_		
4.	Shipping cont	ainer/cooler in good condition?	Yes		No 🗌	_	
5.	Custody seals	intact on shipping container/cooler?	Yes		No 🗌	Not Required 🗹	
6.	Was an atterr	npt made to cool the samples?	Yes		No 🗌		
7.	Were all coole	ers received at a temperature of >0°C to 10.0°C	Yes		No 🗌		
8.	Sample(s) in [	proper container(s)?	Yes		No 🗌		
9.	Sufficient sam	nple volume for indicated test(s)?	Yes	$\checkmark$	No 🗌		
10	Are samples p	properly preserved?	Yes	$\checkmark$	No 🗌		
11	Was preserva	tive added to bottles?	Yes		No 🗹	NA 🗌	
12	Is the headsp	ace in the VOA vials?	Yes		No 🗌	NA 🔽	
13	Did all sample	es containers arrive in good condition(unbroken)?	Yes	$\checkmark$	No 🗌		
14	Does paperwo	ork match bottle labels?	Yes		No 🗌		
15	Are matrices	correctly identified on Chain of Custody?	Yes		No 🗌		
		t analyses were requested?	Yes		No 🗌		
17	Were all holdi	ing times able to be met?	Yes	$\checkmark$	No 🗌		
Spe	ecial Handl	ing (if applicable)					
		tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹	
	Person I	Notified: Date	e:				
	By Who	m: Via:	eMa	il 🗌 Phone	e 🗌 Fax	In Person	
	Regardii	ng:					
	Client In	structions:					
19.	Regardii	ng: structions:	∐ eMa	il 📋 Phone	e 📋 Fax	└ In Person	

#### Item Information

Item #	Temp ⁰C	Condition
Cooler	4.9	Good
Sample	6.6	Good

Reinqüishted 🔶 ×	x Last R CL	Sample Disposal;	***Anions (Circle): Nitrate	*• Metals Analysis (Circle):	30	0, 00,	4	£	0 4	2 EX-10-5.0	1 EXA-6.0	Sample Name	"Matrix Codes: A = Air, AQ = A	Reports To (PM):	City, State, Zip	Address:	e, WA 9810		
Date/Time	Date/Time 4.10.14	Return to Client	Nitrite Chloride	MTCA-5 RCRA-8 P						4.10.14	4.IOH	Sample Date	AQ = Aqueous, B= Bulk, O = Other,	JESSICA SMITH		GEO FAGINISERS	Fax: 206-352-7178	Tel 10 C C C C C C C C C C C C C C C C C C	emon
	13 50	Disposit by La	Sulfate	Priority Pollutants		-				1050 5016	1045 501-	Sample Sample Type Time (Matrix)*	P = Product,	Fax:	Tel:			(N11)	at
Recented UV 1	× (NM MX 4/10	Disposal hy Lab (A rise may be assessed in samulae any retained after 30 days.)	Bromide O-Phosphate Huoride Nit	TAL Individual Ag Al As B Ba Be Ca Cd						×	×	25-05-05-05-05-05-05-05-05-05-05-05-05-05	S=Soil, SD=Sediment, SL=Soild, W=Water, DW	Email: NSOLO	Collected by:	Project Name: Location:	Date: 4.10.14		
LDate/Time	14 13SD		Nitrate+Nitrite	Co Cr Cu Fe Hg K Mg Mn Mo Na Ni							-		W = Water, DW = Drivking Water, GW = Ground Water, WW = 1	2	6.	SEATTLE WA	Page:	Laboratory Project No (internal):	Chai
TAT -> SameDay^ NextDay^ 2 Day 3 Day STD			Special Remarks:	Ph Sb Se Sr Sn Tr W L V Zn						HOLD	HOLD	Commissity/Depth	WW = Waste Water	20434-001-19		BLOCK- 19	of I	404100	Chain of Custody Record

Chain of Custody Record     Custody		TAT ~ Semeclary* NextDay* 2 Day 3 Day STD *Means counterers with the last at advance	OuterTime	11 01 CH	Netwo		THE .	Date/Time		C Participantes
Image: Note: Image:			014 1350	1/2 XU/ 1/	* ( )	5		4.10	1	3 7 My
Image: State       Image: State <th< th=""><th></th><th></th><th></th><th>a damana are respectively the 30 styr.)</th><th>A les muy be assessed</th><th>Disposal by Lab</th><th></th><th>🔲 Return ta C</th><th></th><th>Sauturale Disposal:</th></th<>				a damana are respectively the 30 styr.)	A les muy be assessed	Disposal by Lab		🔲 Return ta C		Sauturale Disposal:
Image: Note:		Scecial Remarks		Flucinde	E.	Sulfale	Ollunde			*** Anions (Circle)
Summaria       Intervention       Interventintervention		A T L U US IS AS US US	CO CI CU FF HE S ME MIN MU	Ag Al As % % Be Ca		ty Pollutants			t (Cincle):	** Metals Analysis
Chain of Custody Record     In a de 20.319						-	_			10
Image: Non-State State     Encontrol     Instance State     Instance S							-			3
Chain of Custody Record     Service Market Record Record Record     Service Market Record Record Record Record     Service Market Record										50
Chain of Custody Record     Second Arek     Tel. 2003/200     Tel.										2
Chain of Custody Record     Section 2019     Section										61
Sector Area       Tel: 308/33/30       Date: 410 H       Tel: 308/33/30       Date: 508/33/30       Date: 508/33/30 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>25</td>										25
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International     International       M.     Tel: 206-352-3730     Date: 4, 10, 14     International       A.     Tel: 206-352-3730     Date: 4, 10, 14     Page: 1       BED FAGINDEERS     Date: 4, 10, 14     Project Name: 20, 5, 2, 0       GED FAGINDEERS     Tel: 10, 14     Project Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Project Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Project Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Project Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Project Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 2, 0       Jacobis     Tel: 10, 14     Normal Name: 20, 5, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10		Commentationers	18 18 18 18 18		4					Sample Name
Ternant Ave N. Tel: 206-352-3730 , WA 98103 Fini: 206-352-3738 Date: 4, 10 H Project Name: 1 ater, Zip Tel: Collected by: NATE SOLA series (PM): JESSICA SULTIN: Fax: Enait NSOLOANON/BCODEXSUMPLICES		N = Warte Water	W - Drinking Water, GW - Ground Water, WV	ment, SL=Solie, W=Water, D			fin G + other,			"Marra Codes: A
Fremont Ave N. Tel: 206-352-5730 , WA 98103 Fou: 206-352-7738 Date: 4, 10 H Project Name: Cuterooth Fou: 206-352-7738 Date: 4, 10 H Project Name: Cuterooth Project Name: Cute		20484-001-19	ONLON BCODENSI NEREBOJECT NO	Email NSOL		Fan	1174			Report To (PI
Ternant Ave N. Tel: 206-352-3730 , WA 98103 Fini: 206-352-3728 Date: 4.10 H Project Name: 1 GED GAGINDERS. 10 SEATTLE		Ë.	1 1	Collected by:		Tet			1	City, State, Zip
Temont Ave N. Tel: 206-352-3730 , WA 98103 Fini: 205-352-7178 Date: 4.10 H Page 1		LOCK	SEATLE W	Project Name			EKS	D PARTINE	Later	Address
remont A FIGURATION K. Tel. 206-352-3790 Laharman Project No Internet		0	Page	4.10.14	10		352-7178	Fau: 205	20180	Seattk, WA
		1404100	Laborativery Project No Emilernal):			1	352-3790	Tel: 206	Ave N.	3600 Sremon
						EI A	THURSDAY			
		ain of Custody Record	Ch				Ş	DR	ų	金星



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

**GeoEngineers, Inc. - Redmond** Jessica Smith 8410 154th Ave. NE Redmond, Washington 98052

RE: Rufus Block 19 Lab ID: 1404145

April 17, 2014

#### Attention Jessica Smith:

Fremont Analytical, Inc. received 1 sample(s) on 4/15/2014 for the analyses presented in the following report.

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

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers, Inc Redmond Rufus Block 19 1404145	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1404145-001	PCS-4	04/15/2014 1:00 PM	04/15/2014 4:30 PM



**Case Narrative** 

WO#: **1404145** Date: **4/17/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Rufus Block 19

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.



# **Analytical Report**

WO#: **1404145** Date Reported: **4/17/2014** 

Client: GeoEngineers, Inc Project: Rufus Block 19	Redmond			Collection	Date: 4	/15/2014 1:00:00 PM
Lab ID: 1404145-001 Client Sample ID: PCS-4				Matrix: So	bil	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	PH-Dx/Dx Ext.			Batch	n ID: 716	6 Analyst: BR
Diesel (Fuel Oil)	20,700	511	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Heavy Oil	3,320	1,280	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Surr: 2-Fluorobiphenyl	102	50-150	D	%REC	20	4/16/2014 5:07:00 AM
Surr: o-Terphenyl	99.8	50-150	D	%REC	20	4/16/2014 5:07:00 AM
Hydrocarbon Identification b	<u>y NWTPH-HCID</u>			Batch	n ID: 715	7 Analyst: BR
Gasoline	ND	511	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Mineral Spirits	ND	766	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Kerosene	ND	1,280	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Diesel (Fuel Oil)	DETECT	1,280	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Heavy Oil	DETECT	2,550	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Mineral Oil	ND	2,550	D	mg/Kg-dry	20	4/16/2014 5:07:00 AM
Surr: 2-Fluorobiphenyl	102	50-150	D	%REC	20	4/16/2014 5:07:00 AM
Surr: o-Terphenyl	99.8	50-150	D	%REC	20	4/16/2014 5:07:00 AM
Sample Moisture (Percent Mo	<u>oisture)</u>			Batch	n ID: R1	3599 Analyst: KAS
Percent Moisture	28.6			wt%	1	4/15/2014 4:47:03 PM

 Qualifiers:
 B
 Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded

ND Not detected at the Reporting Limit

S Spike recovery outside accepted recovery limits



Work Order: 1	1404145									2.00	SUMMAF	RYRFP	OR.
CLIENT:	GeoEngineer	s, Inc Re	edmond							•			-
Project:	Rufus Block 1	19							Diesel a	nd Heavy (	Dil by NWT	PH-Dx/D	x Ext
Sample ID: 1404145-	5-001ADUP	SampType:	DUP			Units: mg/Kg-	-dry	Prep Dat	e: 4/15/20	14	RunNo: 136	631	
Client ID: PCS-4		Batch ID:	7166					Analysis Dat	e: <b>4/16/20</b>	14	SeqNo: 275	5178	
Analyte		R	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)		13	3,800	519						20,710	39.8	30	DR
Heavy Oil		1	1,960	1,300						3,324	51.6	30	DR
Surr: 2-Fluorobiphe	ienyl		522		519.2		101	50	150		0		D
Surr: o-Terphenyl			515		519.2		99.1	50	150		0		D
NOTES:	to our option of a con	mala inhaman	anaitre Fran	atonding pr	aduat in the or	oil. The method is in	control co	indicated by t	halaharata	n Control Comp			
K - HIGH KED due i	io suspected san	inple innomog	eneny. Free	stanuing pr			control as	indicated by t		ry control Samp	le (LCS).		
		· -											
Sample ID: LCS-716	66	SampType:	LCS			Units: mg/Kg		Prep Dat	e: <b>4/15/20</b>	14	RunNo: 136	531	
	66	SampType: Batch ID:	LCS 7166			Units: mg/Kg		Prep Dat Analysis Dat			RunNo: <b>136</b> SeqNo: <b>275</b>	-	
Client ID: LCSS	66	Batch ID:		RL	SPK value	Units: mg/Kg SPK Ref Val	%REC	Analysis Dat	e: <b>4/16/20</b>			-	Qual
Sample ID: LCS-716 Client ID: LCSS Analyte Diesel (Fuel Oil)	66	Batch ID:	7166	RL 20.0	SPK value 500.0			Analysis Dat	e: <b>4/16/20</b>	14	SeqNo: 275	5183	Qual
Client ID: LCSS Analyte		Batch ID:	7166 Result			SPK Ref Val	%REC	Analysis Dat	e: <b>4/16/20</b> HighLimit	14	SeqNo: 275	5183	Qual
Client ID: LCSS Analyte Diesel (Fuel Oil)		Batch ID:	<b>7166</b> Result 499		500.0	SPK Ref Val	%REC 99.8	Analysis Dat LowLimit 65	e: <b>4/16/20</b> HighLimit 135	14	SeqNo: 275	5183	Qual
Client ID: LCSS Analyte Diesel (Fuel Oil) Surr: 2-Fluorobiphe Surr: o-Terphenyl	ienyl	Batch ID:	7166 Result 499 19.3 19.6		500.0 20.00	SPK Ref Val	%REC 99.8 96.6 98.0	Analysis Dat LowLimit 65 50 50	e: <b>4/16/20</b> HighLimit 135 150	14 RPD Ref Val	SeqNo: 275	rPDLimit	Qual
Client ID: LCSS Analyte Diesel (Fuel Oil) Surr: 2-Fluorobiphe	ienyl 6	Batch ID:	7166 Result 499 19.3 19.6		500.0 20.00	SPK Ref Val	%REC 99.8 96.6 98.0	Analysis Dat LowLimit 65 50 50	e: 4/16/20 HighLimit 135 150 150 e: 4/15/20	14 RPD Ref Val	SeqNo: 275 %RPD	3183 RPDLimit	Qual
Client ID: LCSS Analyte Diesel (Fuel Oil) Surr: 2-Fluorobiphe Surr: o-Terphenyl Sample ID: MB-7166 Client ID: MBLKS	ienyl 6	Batch ID: R SampType: Batch ID:	7166 Result 499 19.3 19.6 MBLK		500.0 20.00	SPK Ref Val	%REC 99.8 96.6 98.0	Analysis Dat LowLimit 65 50 50 Prep Dat Analysis Dat	e: 4/16/20 HighLimit 135 150 150 e: 4/15/20 e: 4/16/20	14 RPD Ref Val	SeqNo: 275 %RPD RunNo: 136	3183 RPDLimit	
Client ID: LCSS Analyte Diesel (Fuel Oil) Surr: 2-Fluorobiphe Surr: o-Terphenyl Sample ID: MB-7166 Client ID: MBLKS Analyte	ienyl 6	Batch ID: R SampType: Batch ID:	7166 Result 499 19.3 19.6 MBLK 7166	20.0	500.0 20.00 20.00	SPK Ref Val 0 Units: mg/Kg	%REC 99.8 96.6 98.0	Analysis Dat LowLimit 65 50 50 Prep Dat Analysis Dat	e: 4/16/20 HighLimit 135 150 150 e: 4/15/20 e: 4/16/20	14 RPD Ref Val 14 14	SeqNo: 275 %RPD RunNo: 136 SeqNo: 275	331 5183 RPDLimit	
Client ID: LCSS Analyte Diesel (Fuel Oil) Surr: 2-Fluorobiphe Surr: o-Terphenyl Sample ID: MB-7166	ienyl 6	Batch ID: R SampType: Batch ID:	7166 Result 499 19.3 19.6 MBLK 7166 Result	20.0 RL	500.0 20.00 20.00	SPK Ref Val 0 Units: mg/Kg	%REC 99.8 96.6 98.0	Analysis Dat LowLimit 65 50 50 Prep Dat Analysis Dat	e: 4/16/20 HighLimit 135 150 150 e: 4/15/20 e: 4/16/20	14 RPD Ref Val 14 14	SeqNo: 275 %RPD RunNo: 136 SeqNo: 275	331 5183 RPDLimit	Qual
Client ID: LCSS Analyte Diesel (Fuel Oil) Surr: 2-Fluorobiphe Surr: o-Terphenyl Sample ID: MB-7166 Client ID: MBLKS Analyte Diesel (Fuel Oil)	enyl 6	Batch ID: R SampType: Batch ID:	7166 Result 499 19.3 19.6 MBLK 7166 Result ND	20.0 RL 20.0	500.0 20.00 20.00	SPK Ref Val 0 Units: mg/Kg	%REC 99.8 96.6 98.0	Analysis Dat LowLimit 65 50 50 Prep Dat Analysis Dat	e: 4/16/20 HighLimit 135 150 150 e: 4/15/20 e: 4/16/20	14 RPD Ref Val 14 14	SeqNo: 275 %RPD RunNo: 136 SeqNo: 275	331 5183 RPDLimit	

Qualifiers:

В

- Analyte detected in the associated Method Blank
- н Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- Analyte detected below quantitation limits J
- RL Reporting Limit

- Е Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Work Order:	1404145									2 20	SUMMAF		ORT
CLIENT:	GeoEngin	eers, Inc R	Redmond							-			
Project:	Rufus Blo	ck 19							Hydroca	rbon Ident	ification by	NWTPH	I-HCID
Sample ID: LCS-7	157	SampType	E: LCS			Units: mg/Kg	I	Prep Dat	e: 4/15/20	14	RunNo: 136	10	
Client ID: LCSS		Batch ID:	7157					Analysis Dat	e: 4/16/20	14	SeqNo: 274	830	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			507	50.0	500.0	0	101	65	135				
Surr: 2-Fluorobip	ohenyl		19.3		20.00		96.6	50	150				
Surr: o-Terpheny	yl		19.6		20.00		98.0	50	150				
Sample ID: MB-71	157	SampType	e: MBLK			Units: mg/Kg		Prep Dat	e: <b>4/15/20</b>	14	RunNo: 136	10	
Client ID: MBLK	S	Batch ID:	7157					Analysis Dat	e: 4/16/20	14	SeqNo: 274	831	
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									
			ND	50.0									
Kerosene			ND	00.0									
			ND	50.0									
Kerosene													
Kerosene Diesel (Fuel Oil)			ND	50.0									
Kerosene Diesel (Fuel Oil) Heavy Oil	bhenyl		ND ND	50.0 100	20.00		98.0	50	150				



Fremont

Analytical

Qualifiers: B

Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

D Dilution was required

J Analyte detected below quantitation limits

RL Reporting Limit

E Value above quantitation range

ND Not detected at the Reporting Limit

S Spike recovery outside accepted recovery limits



## Sample Log-In Check List

С	lient Name:	GEI1	Work Order Numbe	er: 1404145		
Lo	ogged by:	Chelsea Ward	Date Received:	4/15/201	4 4:30:00 PM	
Cha	ain of Cust	ody				
1.	Is Chain of Cu	ustody complete?	Yes 🔽	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>Client</u>			
Log	<u>, In</u>					
-	Coolers are p	resent?	Yes	No 🗹		
		Sample	e received straight f	from field		
4.	Shipping cont	ainer/cooler in good condition?	Yes 🗹	No 🗌		
5.	Custody seals	s intact on shipping container/cooler?	Yes	No 🗌	Not Required 🗹	
6.	Was an attem	npt made to cool the samples?	Yes	No 🗌	NA 🔽	
7.	Were all coole	ers 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 sam	nple volume for indicated test(s)?	Yes 🗹	No 🗌		
10.	Are samples p	properly preserved?	Yes 🗹	No 🗌		
11.	Was preserva	tive added to bottles?	Yes	No 🗹	NA 🗌	
12.	Is the headsp	ace in the VOA vials?	Yes	No 🗌	NA 🔽	
		es containers arrive in good condition(unbroken)?	Yes 🖌	No 🗌		
14.	Does paperwo	ork match bottle labels?	Yes 🗹	No 🗌		
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌		
		t analyses were requested?	Yes 🔽	No 🗌		
17.	Were all holdi	ing times able to be met?	Yes 🗹	No 🗌		
<u>Sp</u> e	ecial Handl	ing (if applicable)				
-		tified of all discrepancies with this order?	Yes	No 🗌	NA 🗹	
	Person I	Notified: Date:				
	By Who		,	ne 🗌 Fax	In Person	
	Regardi	,				
	Client In	istructions:				
19	Additional ren	narks:				

Item Information

Reipqtilibod Add Add Add Add Add Add Add Add Add Ad	Sample Disposal:	*** Anions (Circle): n	10 **Metals Analysis (Circle): MTCA-5	140	60 - 14J	ion iu	n 12 (	2	4-5-4	Sample Name	*Matrix Codes: A = Air,	Reports To (PM):	City, State, Zip	Client:	3600 Fremont Ave N. Seattle, WA 98103	
Doe	C Retur	Nitrate Nitrite	de): MTCA-5								AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil,	essica		CooFu	, s	remo
UI5/14	Return to Client	Chloride	RCRA-8 Pric					4	2154	Sample Date	= Bulk, O = Othe	Switc		Syaanibr	Tel: 206-352-3790 Fax: 206-352-7178	
15/14 1300	Disposal by Lab	Suifate	Priority Pollutants	-					IZN) S	Sample Time (Matrix)*	, P = Product, S	Fax:	Tel:	S		
Received	(A lee may be aspess	Bromide (D-	TAL Individ							192	= Soil, SD = Sedi				Date:	
A	Disposal by Lab (A tee may be appeared annuals are retained after 30 days.)	O-Phosphate F	Individual: Ag Al As						×		SD = Sediment, SL = Solid, W = Water,				415/14	
TAA	ed after 3D days, {	Fluoride Nitra	8 Ba Be Ca Cd						-			Email:	Collected by:	Project Name:		
Pate/Tinte		Nitrate+Nitrice	Co Cr Cu Fe I							4/62/51 13	DW = Drinking Water, GW		chis	Pufi	Page:	
103			He K Mg Min K						_	100 (0) (0) (0) (0) (0) (0) (0) (0) (0) (	= Ground	+	X ROLL	15 B	Page:	
Avi Ro		Spec	Mo Na Ni Pb Sb Se								ter, WW = Waste Water	Project No: 70%	ETT	ork-io		Ciali
TAY > SameDay" NextDay" 2 Day		Special Remarks;	Se Sr Sn Ti Ti								Water	434-00		1.	CLILOL	
TAY SameDay NextDay 2 Day 3 Day 5TD			U V Zn						100 million (100 m	Comments/Depth	1.1	1-19				
3 Day STD													1			

Distribution: White - Lab. Yellow - File, Pink - Originator

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

**GeoEngineers, Inc. - Redmond** Jessica Smith 8410 154th Ave. NE Redmond, Washington 98052

RE: Block 19 Lab ID: 1404279

April 24, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 1 sample(s) on 4/24/2014 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,

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project:	GeoEngineers, Inc Redmond Block 19	Work Order S	Sample Summary
Lab Order:	1404279		
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1404279-001	SP-1	04/24/2014 9:00 AM	04/24/2014 1:00 PM



**Case Narrative** 

WO#: **1404279** Date: **4/24/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Block 19

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.



# **Analytical Report**

WO#: **1404279** Date Reported: **4/24/2014** 

Client: GeoEngineers, Inc Redm	nond			Collection	Date: 4/2	24/2014 9:00:00 AM
Project: Block 19						
Lab ID: 1404279-001				Matrix: Sc	oil	
Client Sample ID: SP-1						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-I	Dx/Dx Ext.			Batch	n ID: 7244	Analyst: MD
Diesel (Fuel Oil)	ND	23.7		mg/Kg-dry	1	4/24/2014 4:56:00 PM
Heavy Oil	ND	59.3		mg/Kg-dry	1	4/24/2014 4:56:00 PM
Surr: 2-Fluorobiphenyl	97.1	50-150		%REC	1	4/24/2014 4:56:00 PM
Surr: o-Terphenyl	96.8	50-150		%REC	1	4/24/2014 4:56:00 PM
Sample Moisture (Percent Moistu	<u>re)</u>			Batch	n ID: R137	95 Analyst: PH
Percent Moisture	19.9			wt%	1	4/24/2014 4:16:17 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

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

Fremont
Analytical

#### **Work Order:** 1404279

CLIENT:	GeoEngineers, Inc Redmond
Project:	Block 19

### QC SUMMARY REPORT

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

Sample ID: LCS-7244	SampType: LCS			Units: <b>mg/Kg</b>		Prep Da	te: 4/24/2014	RunNo: 13797		
Client ID: LCSS	Batch ID: 7244		Analysis Date: 4/24/2014				SeqNo: 279645			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Va	al %RPD RPDLimit	Qual	
Diesel (Fuel Oil)	468	20.0	500.0	0	93.6	65	135			
Surr: 2-Fluorobiphenyl	20.3		20.00		101	50	150			
Surr: o-Terphenyl	20.6		20.00		103	50	150			
Sample ID: MB-7244	SampType: MBLK			Units: mg/Kg		Prep Da	te: 4/24/2014	RunNo: 13797		
Client ID: MBLKS	Batch ID: 7244					Analysis Da	te: 4/24/2014	SeqNo: 279646		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Va	al %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	20.9		20.00		104	50	150			

#### Qualifiers: B Analyte detected in the associated Method Blank

- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



## Sample Log-In Check List

С	lient Name:	GEI1	Work Order Num	ber: 1404279		
Lo	ogged by:	Chelsea Ward	Date Received:	4/24/2014 1	:00:00 PM	
Cha	nin of Cust	ody				
1.	Is Chain of Cu	ustody complete?	Yes 🗹	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>Client</u>			
Log	<u>ı In</u>					
3.	Coolers are p	resent?	Yes	No 🔽		
		Sample rec	eived at appropri	ate temperature.		
4.	Shipping cont	ainer/cooler in good condition?	Yes 🗹	No 🗌		
5.	Custody seals	s intact on shipping container/cooler?	Yes	No 🗌	Not Required 🗹	
6.	Was an attem	npt made to cool the samples?	Yes	No 🗌	NA 🔽	
7.	Were all coole	ers 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 san	nple volume for indicated test(s)?	Yes 🗹	No 🗌		
10.	Are samples	properly preserved?	Yes 🗹	No 🗌		
11.	Was preserva	tive added to bottles?	Yes	No 🗹	NA 🗌	
12.	Is the headsp	ace in the VOA vials?	Yes	No 🗌	NA 🔽	
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌		
14.	Does paperwo	ork match bottle labels?	Yes 🗹	No 🗌		
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🔽	No 🗌		
		t analyses were requested?	Yes 🗹	No 🗌		
17.	Were all holdi	ing times able to be met?	Yes 🗹	No 🗌		
<u>Spe</u>	cial Handl	ing (if applicable)				
		tified of all discrepancies with this order?	Yes	No 🗌	NA 🗹	
	Person I	Notified: Date:				
	By Who	m: Via:	eMail P	hone 🗌 Fax 🗌	In Person	
	Regardi	ng:				
	Client In	structions:				
19.	Additional rem	narks:				

#### Item Information

Item #	Temp ⁰C	Condition
Sample	9.6	Good

Distribution:	
White - Lab, Yellow - File, Pink - Originator	

Relinquished	Rulinguished	Sample Disposal:	*** Anions (Circle): Nitrate	2 10 **Metals Analysis (Circle): MTCA-5	o de	4 10 10	4 3	SP-1	Sample Name	*Matrix Codes: A = Air, A	21 U	Client: Address:	3600 Fremont Ave N. Seattle, WA 98103	
Date/Time	Date/Time 4	Return to Client	ate Nitrite Chloride	RCRA-8				424	Sample Date	*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, D = Other, P = Product, S = Soli, SD = Sediment, SL = Solid, W = Water,	ESSICA Su	GOO Steves	2 T Tel: 200 Fax: 20	remo
	1300	Disposal by Lab (A le	e Sulfate Bromide	Priority Pollutants TAL				S 0040	Sample Sample Type Time (Matzuk)*	Other, P = Product, S = St	SWITH Fax	t	101 / 141601 4 5-352-3790 6-352-7178	
Received	* Received	Disposal by Lab (A fee may be assessed if samples are retained after 30 days.)	nide O-Phosphate	I Individual: Ag Al As B				1.1	44-187-5385 44-187-5385 410-6385 410-6385	oil, SD = Sediment, SL = S		utte rteo	Date: 4/2	
1	0.0	retained after 30 days.)	Fluoride Nitrate+Nitrite	As B Ba Be Ca Cd Co					CS CS CS CS CS CS CS CS CS CS	olid, W=Water, DW=t	Email: Jess	Project Name: Location:	41/42	
+	HI24/14	0	Nitrite	o Cr Cu Fe Hg K Mg					44 10 4 10 10 10 10 10 10 10 10 10 10 10 10 10	ing Water,	instructure of projection	Black	Laboratory Project Na (internal): Page:	
TWI COL	1200		Specia	Min Mo Na Ni Po Sb						1	6	8 Lenora	Internal): 1404	Chain
TAL & SameDay^ NextDay^ 2 Day 3 Day STD	)		Special Remarks:	Se Sr Sn Ti Ti U V Zn				and the second se	Commonst Practic		20434 -001	2	4279	Citaliti of Custody Record



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

**GeoEngineers** Jessica Smith 600 Stewart Street, Suite 1700 Seattle, WA 98101

RE: Block 19 Lab ID: 1404305

April 28, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 1 sample(s) on 4/25/2014 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,

MGR

Michael Dee Sr. Chemist / Principal



CLIENT:	GeoEngineers	Work Order Sample Summary				
Project:	Block 19					
Lab Order:	1404305					
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received			



**Case Narrative** 

WO#: **1404305** Date: **4/28/2014** 

CLIENT: GeoEngineers Project: Block 19

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.



# **Analytical Report**

WO#: **1404305** Date Reported: **4/28/2014** 

Client: GeoEngineers	ngineers Collection Date: 4/25/20					25/2014 9:30:00 AM
Project: Block 19						
Lab ID: 1404305-001				Matrix: Sc	bil	
Client Sample ID: SP-2						
Analyses	Result	RL	Qual	I Units DF Date Analyzed		
Diesel and Heavy Oil by NWTPH	I-Dx/Dx Ext.			Batch	n ID: 7275	Analyst: PH
Diesel (Fuel Oil)	5,400	23.5		mg/Kg-dry	1	4/26/2014 10:33:00 AM
Heavy Oil	855	58.9		mg/Kg-dry	1	4/26/2014 10:33:00 AM
Surr: 2-Fluorobiphenyl	127	50-150		%REC 1 4/26		4/26/2014 10:33:00 AM
Surr: o-Terphenyl	124	50-150		%REC	1	4/26/2014 10:33:00 AM
Sample Moisture (Percent Mois	<u>ture)</u>			Batch	n ID: R138	30 Analyst: MW
Percent Moisture	23.3			wt%	1	4/25/2014 5:13:13 PM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Fremont
Analytical

CLIENT: G	404305 GeoEngineers Block 19	;							Diesel a	QC S and Heavy (	SUMMAI Dil by NW1		
Sample ID: MB-7275		SampType	BLK			Units: mg/Kg		Prep Dat	e: <b>4/25/20</b>	14	RunNo: 138	69	
Client ID: MBLKS		Batch ID:	7275					Analysis Dat	e: <b>4/26/20</b>	14	SeqNo: 281	804	
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-Fluorobiphen	nyl		19.7		20.00		98.7	50	150				
Surr: o-Terphenyl			19.9		20.00		99.7	50	150				
Sample ID: LCS-7275	;	SampType	LCS			Units: mg/Kg		Prep Dat	e: <b>4/25/20</b>	14	RunNo: 138	69	
Client ID: LCSS		Batch ID:	7275					Analysis Dat	e: <b>4/26/20</b>	14	SeqNo: 281	805	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			557	20.0	500.0	0	111	65	135				
Surr: 2-Fluorobiphen	nyl		19.2		20.00		96.0	50	150				
Surr: o-Terphenyl			19.5		20.00		97.7	50	150				
Sample ID: 1404303-0	001ADUP	SampType	DUP			Units: mg/Kg-	dry	Prep Dat	e: <b>4/25/20</b>	14	RunNo: 138	69	
Client ID: BATCH		Batch ID:	7275					Analysis Dat	e: <b>4/26/20</b>	14	SeqNo: 281	807	
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			124	54.6						156.6	23.0	30	
Surr: 2-Fluorobiphen	nyl		22.2		21.83		102	50	150		0		
Surr: o-Terphenyl			22.7		21.83		104	50	150		0		

- Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



## Sample Log-In Check List

С	lient Name:	GEI	Work O	der Numbe	er: <b>1404305</b>		
Lo	ogged by:	Clare Griggs	Date Re	ceived:	4/25/2014	2:50:00 PM	
Cha	nin of Cust	ody					
1.	Is Chain of Cu	ustody complete?	Yes	$\checkmark$	No 🗌	Not Present	
2.	How was the	sample delivered?	<u>Clien</u>	<u>t</u>			
Log	<u>ı In</u>						
	Coolers are p	resent?	Yes	$\checkmark$	No 🗌		
4.		ainer/cooler in good condition?	Yes		No 🗌		
5.	Custody seals	intact on shipping container/cooler?	Yes		No 🗌	Not Required 🗹	
6.	Was an attem	npt made to cool the samples?	Yes	$\checkmark$	No 🗌	NA 🗌	
7.	Were all coole	ers received at a temperature of >0°C to 10.0°C	Yes		No 🗌		
8.	Sample(s) in	proper container(s)?	Yes	$\checkmark$	No 🗌		
9.	Sufficient san	nple volume for indicated test(s)?	Yes	$\checkmark$	No 🗌		
10.	Are samples	properly preserved?	Yes	$\checkmark$	No 🗌		
11.	Was preserva	tive added to bottles?	Yes		No 🗹	NA 🗌	
12.	Is the headsp	ace in the VOA vials?	Yes		No 🗌	NA 🗹	
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes	$\checkmark$	No 🗌		
14.	Does paperwo	ork match bottle labels?	Yes	✓	No 🗌		
15.	Are matrices	correctly identified on Chain of Custody?	Yes	$\checkmark$	No 🗌		
		t analyses were requested?	Yes		No 🗌		
17.	Were all hold	ing times able to be met?	Yes	$\checkmark$	No 🗌		
Spe	cial Handl	ing (if applicable)					
		tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹	
	Person I	Notified: Da	te:				
	By Who		P	il 🗌 Pho	ne 🗌 Fax 🛛	In Person	
	Regardi						
	_	structions:					
19	Additional ren	- narks:					

#### Item Information

Item #	Temp ⁰C	Condition		
Sample	3.9	Good		
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TAT -> SameDay^ NextDay^ 2 Day 3 Day	Received a Contestine 1/25/14 1450	4/25/14 1450 Date/Time	helinquisted
Due MONDAR	Disposal by Lab (A the may be assessed if samples are retained after 30 days.)	to Client	Sample Disposal:
Special Remarks:	O-Phosphate Fluoriee Nitrate-Nitrite	Nitrite Chloride Sulfate Bramide	81
Na Ni Pb Sb Se Sr Sn TI TI U V Zn	Individual: Ag Al As 8 Ba Be Ca Co Co Co Co Fe Hg K Mg Mn Mo Na Ni	MTCA-5 RCRA-8 Priority Pollutants TAL	**Metals Analysis (Circle):
expedited TAT Circ			
4/25 Client reque			01
	X	4/25, 0920 S	CP-2
Comments/Depth	100 100 100 100 100 100 100 100 100 100	Sample Sample Type Date Time (Matris)*	Sample Name
Waste Water	S = Soli, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water	AQ = Aquenus, H = Hulk, O = Other, H = Product, S = Soll, SI	Reports To (PM): ) (5)
	1700 Location: Graftend M	SUTE	Address:
404305 A	Page:		3600 Fremont Ave N. Seattle, WA 98103
		remont	



3600 Fremont Ave. N. 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: Block 19 Lab ID: 1404319

April 29, 2014

#### **Attention Chris Brown:**

Fremont Analytical, Inc. received 7 sample(s) on 4/28/2014 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,

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers, Inc Redmond Block 19 1404319	Work Order Sample Summar			
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received		
1404319-001	UST-1-5-10.0	04/28/2014 11:48 AM	04/28/2014 4:06 PM		
1404319-002	UST-1-6-13.0	04/28/2014 12:00 PM	04/28/2014 4:06 PM		
1404319-003	UST-1-7-12.0	04/28/2014 12:05 PM	04/28/2014 4:06 PM		
1404319-004	UST-1-8-10.0	04/28/2014 12:10 PM	04/28/2014 4:06 PM		
1404319-005	UST-1-9-10.0	04/28/2014 12:15 PM	04/28/2014 4:06 PM		
1404319-006	UST-1-10-10.0	04/28/2014 12:20 PM	04/28/2014 4:06 PM		
1404319-007	SP-3	04/28/2014 11:30 AM	04/28/2014 4:06 PM		



**Case Narrative** 

WO#: **1404319** Date: **4/29/2014** 

CLIENT:GeoEngineers, Inc. - RedmondProject:Block 19

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.



WO#: **1404319** Date Reported: **4/29/2014** 

### CLIENT: GeoEngineers, Inc. - Redmond Project: Block 19

Lab ID: 1404319-002 Client Sample ID: UST-1-6-1		Collection Matrix: So	4/28/2014 12:00:00 PM		
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWT	PH-Dx/Dx Ext.		Batch	n ID: 731	0 Analyst: PH
Diesel (Fuel Oil)	ND	23.3	mg/Kg-dry	1	4/29/2014 9:29:00 AM
Heavy Oil	ND	58.1	mg/Kg-dry	1	4/29/2014 9:29:00 AM
Surr: 2-Fluorobiphenyl	101	50-150	%REC	1	4/29/2014 9:29:00 AM
Surr: o-Terphenyl	101	50-150	%REC	1	4/29/2014 9:29:00 AM
Sample Moisture (Percent Mo	<u>pisture)</u>		Batch	n ID: R13	877 Analyst: KZ
Percent Moisture	22.5		wt%	1	4/29/2014 9:07:36 AM

Client Sample ID: UST-1-7-12.0

Collection Date: 4/28/2014 12:05:00 PM Matrix: Soil

Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	TPH-Dx/Dx Ext.		Batch	ID: 73	Analyst: PH
Diesel (Fuel Oil)	ND	24.2	mg/Kg-dry	1	4/29/2014 10:26:00 AM
Heavy Oil	ND	60.5	mg/Kg-dry	1	4/29/2014 10:26:00 AM
Surr: 2-Fluorobiphenyl	98.4	50-150	%REC	1	4/29/2014 10:26:00 AM
Surr: o-Terphenyl	98.8	50-150	%REC	1	4/29/2014 10:26:00 AM
Sample Moisture (Percent M	oisture)		Batch	ID: R	13877 Analyst: KZ
Percent Moisture	21.8		wt%	1	4/29/2014 9:07:36 AM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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



WO#: **1404319** Date Reported: **4/29/2014** 

### CLIENT: GeoEngineers, Inc. - Redmond Project: Block 19

Lab ID: 1404319-005 Client Sample ID: UST-1-9-10.0		Collection Date: 4/28/2014 12:15:00 F Matrix: Soil					
Analyses	Result	RL Qual	Units	DF	Date Analyzed		
Diesel and Heavy Oil by NWTPH-I	Dx/Dx Ext.		Batch	n ID: 7310	) Analyst: PH		
Diesel (Fuel Oil)	ND	22.9	mg/Kg-dry	1	4/29/2014 10:54:00 AM		
Heavy Oil	ND	57.3	mg/Kg-dry	1	4/29/2014 10:54:00 AM		
Surr: 2-Fluorobiphenyl	101	50-150	%REC	1	4/29/2014 10:54:00 AM		
Surr: o-Terphenyl	101	50-150	%REC	1	4/29/2014 10:54:00 AM		
Sample Moisture (Percent Moistur	<u>re)</u>		Batch	n ID: R138	877 Analyst: KZ		
Percent Moisture	17.3		wt%	1	4/29/2014 9:07:36 AM		

Lab ID: 1404319-006
---------------------

Client Sample ID: UST-1-10-10.0

Collection Date: 4/28/2014 12:20:00 PM Matrix: Soil

Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	TPH-Dx/Dx Ext.		Batch	ID: 73	Analyst: PH
Diesel (Fuel Oil)	ND	23.6	mg/Kg-dry	1	4/29/2014 11:22:00 AM
Heavy Oil	ND	59.0	mg/Kg-dry	1	4/29/2014 11:22:00 AM
Surr: 2-Fluorobiphenyl	99.0	50-150	%REC	1	4/29/2014 11:22:00 AM
Surr: o-Terphenyl	101	50-150	%REC	1	4/29/2014 11:22:00 AM
Sample Moisture (Percent M	loisture)		Batch	ID: R′	13877 Analyst: KZ
Percent Moisture	23.8		wt%	1	4/29/2014 9:07:36 AM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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

CLIENT: Geo	)4319 oEngineers, Inc Red ck 19	lmond					Diesel a	QC S and Heavy (	SUMMAF Dil by NWT		-
Sample ID: MB-7310	SampType:	MBLK		Units: mg/K	9	Prep Da	te: <b>4/28/20</b>	14	RunNo: 139	13	
Client ID: MBLKS	Batch ID: 7	7310				Analysis Da	te: 4/29/20	14	SeqNo: 282	811	
Analyte	Re	sult 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	2	23.4	20.00		117	50	150				
Surr: o-Terphenyl	2	24.5	20.00		122	50	150				
Sample ID: LCS-7310	SampType: L	_CS		Units: mg/K	)	Prep Da	te: 4/28/20	14	RunNo: 139	13	
Client ID: LCSS	Batch ID: 7	7310				Analysis Da	te: 4/29/20	14	SeqNo: 282	812	
Analyte	Re	sult RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)		556 20.0	500.0	0	111	65	135				
Surr: 2-Fluorobiphenyl	1	8.7	20.00		93.7	50	150				
Surr: o-Terphenyl	1	9.6	20.00		98.1	50	150				
Sample ID: 1404319-002	2ADUP SampType:	DUP		Units: mg/K	g-dry	Prep Da	te: <b>4/28/20</b>	014	RunNo: 139	13	
Client ID: UST-1-6-13.	0 Batch ID: 7	7310				Analysis Da	te: 4/29/20	14	SeqNo: 282	824	
Analyte	Re	sult RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)		ND 22.0						0		30	
Heavy Oil		ND 54.9						0		30	
Surr: 2-Fluorobiphenyl	2	21.3	21.97		97.1	50	150		0		
Surr: o-Terphenyl	2	21.9	21.97		99.7	50	150		0		

- Qualifiers:
- В Analyte detected in the associated Method Blank
- н Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- Dilution was required D
- J Analyte detected below quantitation limits
- RL Reporting Limit

- Е Value above quantitation range
- ND Not detected at the Reporting Limit
- s Spike recovery outside accepted recovery limits

Fremont Analytical



### Sample Log-In Check List

С	lient Name:	GEI1	Work O	rder Num	nber: 1404319		
Lo	ogged by:	Chelsea Ward	Date Re	ceived:	4/28/2014	4:06:00 PM	
Cha	ain of Custo	ody					
1.	Is Chain of Cu	ustody complete?	Yes	$\checkmark$	No 🗌	Not Present	
2.	How was the	sample delivered?	Clier	<u>it</u>			
Log	<u>ı In</u>						
3.	Coolers are p	resent?	Yes	$\checkmark$	No 🗌	NA 🗌	
	Chinning cont	cincr/cooler in read condition?	Vee				
		ainer/cooler in good condition?	Yes		No 🗆		
5.	Custody seals	s intact on shipping container/cooler?	Yes		No 📖	Not Required 🗹	
6.	Was an attem	npt made to cool the samples?	Yes	✓	No 🗌	NA 🗌	
7.	Were all coole	ers received at a temperature of >0°C to 10.0°C	Yes		No 🗌		
8.	Sample(s) in	proper container(s)?	Yes		No 🗌		
9.	Sufficient san	nple volume for indicated test(s)?	Yes	$\checkmark$	No 🗌		
10.	Are samples	properly preserved?	Yes	$\checkmark$	No 🗌		
11.	Was preserva	tive added to bottles?	Yes		No 🗹	NA 🗌	
12.	Is the headsp	ace in the VOA vials?	Yes		No 🗌	NA 🗹	
13.	Did all sample	es containers arrive in good condition(unbroken)?	? Yes	$\checkmark$	No 🗌		
14.	Does paperwo	ork match bottle labels?	Yes	$\checkmark$	No 🗌		
15.	Are matrices	correctly identified on Chain of Custody?	Yes	✓	No 🗌		
16.	Is it clear wha	t analyses were requested?	Yes	$\checkmark$	No 🗌		
17.	Were all holdi	ing times able to be met?	Yes	$\checkmark$	No 🗌		
<u>Sp</u> e	ecial Handl	ing (if applicable)					
		tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹	
	Person I	Notified:	Date:				
	By Who	m:	Via: eMa	il 🗌 P	hone 🗌 Fax [	In Person	
	Regardi	ng:					
	Client In	structions:					
19.	Additional rem	narks:					

#### Item Information

Item #	Temp ⁰C	Condition
Cooler	2.3	Good
Sample	8.7	Good

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Distribution: White - Lab, Yellow - File, Pink - Originator

	HISHIH HADIA		* / */	606	14 1606	1821h	1	1 Sel
	Date/Time	Disposal by Lab (A tee may be assessed if samples are retrimined after 30 days.) Receiving	Received	sal by Lab (A tee	Dispo		Bietum	Sample Disposal: Relinguished
Special Remarks:	Nitrate+Mitrite	Ruoride	ide O-Phosphate	ate Bromide	e Sulfate	Chloride	Nitrate Nitrate	**Anions (Circle): Nis
Ni Pb Sb Se Sr Sn Ti Ti U V Zn	Ca Cr Cu Fe Hg K Mg Mn Mo Na N	Al As B Ba Be Ca Cd	L (individual): Ag Al	utants TAL	Priority Pollutants	RCRA-8		10 ** Metals Analysis (Circle): MTCA-5
	X			5	1130	4/28	SP-3	ACT-Durc
		X		*	1220	K	1-10-10,0	UST - 1-10
		X		-	5121	-	- 10.0	Ust-1-9-
	X				1210	-	10.0	UST-1-8-
		X			1205		12.0	UST-1-7-12.0
		X		-	1200	-	13.0	UST-1-6-
	-	-		5	1148	4/28	-10,0	UST-1-5-
Comments/Depth	<b>Solution</b> <b>Constant</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b> <b>Solution</b>	2 2 2 2 2 2 2 2 2 2 2 2 2 2	102-103 0000 103-1030 103-1030	Sample Type (Matrix)*	Sample	Sample Date		Sample Name
( = Waste Water	DW = Drinking Water, GW = Ground Water, WW = Waste Water	W = Water,	5 = Soll, 50 = Sediment, 51 = Solid,		ther, P = Pr	Bulk, 0 = 0	A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product,	Matrix Codes: A = Air, A
61-100-424-00-12	Collected by: DEAN CHAHING	Collected by: Email: < T\$ 17		Tel:	1013%	E WA 4610	22	a (PM):
	BLOCK 19	Project Name: Location:	00.FI 31	T. Sutte	S 12	STEWART	SET ST	Client:
404319	Laboratory Project No (Internal):	18/14	Date: 4/28		90 90	AmolyLical Tel: 206-352-3790 Fox: 206-352-7178	Fax	3600 Fremont Ave N. Seattle, WA 98103
Chain of Custody Record	Cha					)		A A A A A A A A A A A A A A A A A A A



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 19 Lab ID: 1404321

April 29, 2014

#### **Attention Chris Brown:**

Fremont Analytical, Inc. received 5 sample(s) on 4/24/2014 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,

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers Block 19 1404321	Work Order S	Sample Summary
Lab Sample ID	O Client Sample ID	Date/Time Collected	Date/Time Received
1404321-001	UST-1-1-25.0	04/23/2014 9:15 AM	04/24/2014 8:08 AM
1404321-002	UST-1-2-8.0	04/23/2014 9:25 AM	04/24/2014 8:08 AM
1404321-003	UST-1-3-7.0	04/23/2014 10:06 AM	04/24/2014 8:08 AM
1404321-004	UST-1-4-12.0	04/23/2014 4:50 PM	04/24/2014 8:08 AM
1404321-005	UNK-1	04/23/2014 11:36 AM	04/24/2014 8:08 AM



**Case Narrative** 

WO#: **1404321** Date: **4/29/2014** 

CLIENT: GeoEngineers Project: Block 19

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.



WO#: **1404321** Date Reported: **4/29/2014** 

CLIENT: GeoEngineers Project: Block 19

Lab ID: 1404321-001 Client Sample ID: UST-1-1-2	5.0		Collection Matrix: So		I/23/2014 9:15:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTF	PH-Dx/Dx Ext.		Batch	ID: 7322	2 Analyst: PH
Diesel (Fuel Oil)	59.7	24.0	mg/Kg-dry	1	4/29/2014 2:16:00 PM
Heavy Oil	ND	60.1	mg/Kg-dry	1	4/29/2014 2:16:00 PM
Surr: 2-Fluorobiphenyl	101	50-150	%REC	1	4/29/2014 2:16:00 PM
Surr: o-Terphenyl	95.6	50-150	%REC	1	4/29/2014 2:16:00 PM
Sample Moisture (Percent Mo	sture)		Batch	ID: R13	877 Analyst: KZ
Percent Moisture	24.0		wt%	1	4/29/2014 9:07:36 AM

Lab ID: 1404321-	002
------------------	-----

Client Sample ID: UST-1-2-8.0

Collection Date: 4/23/2014 9:25:00 AM Matrix: Soil

Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	TPH-Dx/Dx Ext.		Batch	ID: 73	Analyst: PH
Diesel (Fuel Oil)	ND	25.2	mg/Kg-dry	1	4/29/2014 2:46:00 PM
Heavy Oil	ND	63.0	mg/Kg-dry	1	4/29/2014 2:46:00 PM
Surr: 2-Fluorobiphenyl	99.7	50-150	%REC	1	4/29/2014 2:46:00 PM
Surr: o-Terphenyl	100	50-150	%REC	1	4/29/2014 2:46:00 PM
Sample Moisture (Percent M	<u>oisture)</u>		Batch	ID: R	13877 Analyst: KZ
Percent Moisture	29.0		wt%	1	4/29/2014 9:07:36 AM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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



WO#: **1404321** Date Reported: **4/29/2014** 

CLIENT: GeoEngineers

Project: Block 19

Lab ID: 1404321-003 Client Sample ID: UST-1-3-7.0	0		Collection Matrix: So		/23/2014 10:06:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTP	<u>H-Dx/Dx Ext.</u>		Batch	ID: 7322	Analyst: PH
Diesel (Fuel Oil)	ND	25.8	mg/Kg-dry	1	4/29/2014 3:14:00 PM
Heavy Oil	ND	64.5	mg/Kg-dry	1	4/29/2014 3:14:00 PM
Surr: 2-Fluorobiphenyl	115	50-150	%REC	1	4/29/2014 3:14:00 PM
Surr: o-Terphenyl	120	50-150	%REC	1	4/29/2014 3:14:00 PM
Sample Moisture (Percent Mois	<u>sture)</u>		Batch	ID: R138	377 Analyst: KZ
Percent Moisture	26.8		wt%	1	4/29/2014 9:07:36 AM

Client Sample ID: UST-1-4-12.0

Collection Date: 4/23/2014 4:50:00 PM Matrix: Soil

Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	TPH-Dx/Dx Ext.		Batch	ID: 73	Analyst: PH
Diesel (Fuel Oil)	ND	24.8	mg/Kg-dry	1	4/29/2014 3:43:00 PM
Heavy Oil	ND	62.0	mg/Kg-dry	1	4/29/2014 3:43:00 PM
Surr: 2-Fluorobiphenyl	111	50-150	%REC	1	4/29/2014 3:43:00 PM
Surr: o-Terphenyl	114	50-150	%REC	1	4/29/2014 3:43:00 PM
Sample Moisture (Percent M	<u>oisture)</u>		Batch	ID: R1	13877 Analyst: KZ
Percent Moisture	23.0		wt%	1	4/29/2014 9:07:36 AM

Qualifiers:	в	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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: CLIENT: Project:	1404321 GeoEngineer Block 19	ſS							Diesel a	QC S and Heavy (	SUMMAI Dil by NW1		-
Sample ID: MB-73 Client ID: MBLK		SampType: Batch ID:	MBLK 7322			Units: <b>mg/Kg</b>		Prep Dat Analysis Dat	te: <b>4/29/20</b> te: <b>4/29/20</b>		RunNo: 139 SeqNo: 282		
Analyte		R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil) Heavy Oil Surr: 2-Fluorobip Surr: o-Terpheny			ND ND 20.0 20.3	20.0 50.0	20.00 20.00		99.9 102	50 50	150 150				
Sample ID: LCS-7: Client ID: LCSS	322	SampType: Batch ID:	LCS 7322			Units: <b>mg/Kg</b>		Prep Dat Analysis Dat	te: <b>4/29/20</b> te: <b>4/29/20</b>		RunNo: 139 SeqNo: 282		
Analyte			esult	RL	SPK value	SPK Ref Val	%REC			RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil) Surr: 2-Fluorobip Surr: o-Terpheny			546 18.9 19.4	20.0	500.0 20.00 20.00	0	109 94.3 97.3	65 50 50	135 150 150				

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



### Sample Log-In Check List

Client Name: GEI	Work C	order Number:	1404321	
Logged by: Clare Griggs	Date Re	eceived:	4/24/2014	8:08:00 AM
Chain of Custody				
1. Is Chain of Custody complete?	Yes	$\checkmark$	No 🗌	Not Present
2. How was the sample delivered?	Clie	<u>nt</u>		
<u>Log In</u>				
3. Coolers are present?	Yes	$\checkmark$	No 🗌	
4. Shipping container/cooler in good condition	? Yes	✓	No 🗌	
5. Custody seals intact on shipping container/			No 🗌	Not Required 🗹
6. Was an attempt made to cool the samples?	Yes		No 🗌	
7. Were all coolers received at a temperature of	of >0°C to 10.0°C Yes		No 🗌	
8. Sample(s) in proper container(s)?	Yes		No 🗌	
9. Sufficient sample volume for indicated test(	s)? Yes	$\checkmark$	No 🗌	
10. Are samples properly preserved?	Yes	$\checkmark$	No 🗌	
11. Was preservative added to bottles?	Yes		No 🗹	NA 🗌
12. Is the headspace in the VOA vials?	Yes		No 🗌	NA 🗹
13. Did all samples containers arrive in good co	ndition(unbroken)? Yes	$\checkmark$	No 🗌	
14. Does paperwork match bottle labels?	Yes	$\checkmark$	No 🗌	
15. Are matrices correctly identified on Chain of	Custody? Yes		No 🗌	
16. Is it clear what analyses were requested?	Yes	$\checkmark$	No 🗌	
17. Were all holding times able to be met?	Yes	$\checkmark$	No 🗌	
Special Handling (if applicable)				
18. Was client notified of all discrepancies with	this order? Yes		No 🗌	NA 🗹
Person Notified:	Date:			
By Whom:	Via: 🗌 eMa	ail 🗌 Phone	e 🗌 Fax 🗌	In Person
Regarding: Client Instructions:				
19. Additional remarks:				

#### Item Information

Item #	Temp ⁰C	Condition
Cooler	7.9	Good
Sample	8.5	Good

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

**GeoEngineers** Jessica Smith 600 Stewart Street, Suite 1700 Seattle, WA 98101

RE: Rufus - Block 19 Lab ID: 1405074

May 14, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 3 sample(s) on 5/9/2014 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,

MGA

Michael Dee Sr. Chemist / Principal

CC: Chris Brown



CLIENT: Project: Lab Order:	GeoEngineers Rufus - Block 19 1405074	Work Order Sample Summary			
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received		
1405074-001	SP-1	05/08/2014 6:55 AM	05/09/2014 8:00 AM		
1405074-002	N13-8.0	05/08/2014 7:00 AM	05/09/2014 8:00 AM		
1405074-003	N13-10.0	05/08/2014 7:02 AM	05/09/2014 8:00 AM		



WO#: 1405074

Date: 5/14/2014

CLIENT:GeoEngineersProject:Rufus - Block 19

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.



WO#: **1405074** Date Reported: **5/14/2014** 

Client: GeoEngineers				Collection	Date: 5/8	3/2014 6:55:00 AM
Project: Rufus - Block 19						
Lab ID: 1405074-001				Matrix: Sc	bil	
Client Sample ID: SP-1						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Hydrocarbon Identification by	NWTPH-HCID			Batcl	h ID: 7452	Analyst: EM
Gasoline	ND	23.9		mg/Kg-dry	1	5/10/2014 5:36:00 AM
Mineral Spirits	ND	35.9		mg/Kg-dry	1	5/10/2014 5:36:00 AM
Kerosene	ND	59.9		mg/Kg-dry	1	5/10/2014 5:36:00 AM
Diesel (Fuel Oil)	ND	59.9		mg/Kg-dry	1	5/10/2014 5:36:00 AM
Heavy Oil	ND	120		mg/Kg-dry	1	5/10/2014 5:36:00 AM
Mineral Oil	ND	120		mg/Kg-dry	1	5/10/2014 5:36:00 AM
Surr: 2-Fluorobiphenyl	97.3	50-150		%REC	1	5/10/2014 5:36:00 AM
Surr: o-Terphenyl	98.6	50-150		%REC	1	5/10/2014 5:36:00 AM
Sample Moisture (Percent Mois	<u>sture)</u>			Batcl	h ID: R141	67 Analyst: KZ
Percent Moisture	18.4			wt%	1	5/12/2014 10:12:00 AM

Qualifiers: B Ar

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded

ND Not detected at the Reporting Limit

Fremont
Analytical

Work Order:1405074CLIENT:GeoEnginProject:Rufus - B							• -	SUMMARY REI	-
Sample ID: MB-7452	SampType: MBLK			Units: mg/Kg		Prep Da	te: 5/9/2014	RunNo: 14180	
Client ID: MBLKS	Batch ID: 7452					Analysis Da	te: 5/10/2014	SeqNo: 289685	
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	19.2		20.00		96.1	50	150		
Surr: o-Terphenyl	18.8		20.00		94.0	50	150		
Sample ID: LCS-7452	SampType: LCS			Units: mg/Kg		Prep Da	te: 5/9/2014	RunNo: 14180	
Client ID: LCSS	Batch ID: 7452					Analysis Da	te: 5/10/2014	SeqNo: 289686	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Diesel (Fuel Oil)	404	50.0	500.0	0	80.7	65	135		
Surr: 2-Fluorobiphenyl	20.7		20.00		103	50	150		
Surr: o-Terphenyl	22.4		20.00		112	50	150		

в Qualifiers:

- Analyte detected in the associated Method Blank
- н Holding times for preparation or analysis exceeded

R RPD outside accepted recovery limits D Dilution was required

J Analyte detected below quantitation limits

RL Reporting Limit

E Value above quantitation range

- ND Not detected at the Reporting Limit
- s Spike recovery outside accepted recovery limits



### Sample Log-In Check List

C	lient Name:	GEI	Work Or	der Number:	14050	)74
Lo	ogged by:	Clare Griggs	Date Red	ceived:	5/9/20	014 8:00:00 AM
Cha	in of Cust	ody				
1.	Is Chain of C	ustody complete?	Yes	$\checkmark$	No 🗌	Not Present
2.	How was the	sample delivered?	Client	t		
Log	. In					
	Coolers are p	resent?	Yes		No 🔽	
-			No coo	ler present		
4.	Shipping cont	ainer/cooler in good condition?	Yes	$\checkmark$	No 🗌	]
5.	Custody seals	s intact on shipping container/cooler?	Yes		No 🗌	Not Required 🗹
6.	Was an attem	npt made to cool the samples?	Yes		No 🗹	
			No cooler	/ice presen	<u>t.</u>	
7.	Were all coole	ers received at a temperature of >0°C to 10.0°C	Yes		No 🗹	
				<u>temp = 11.0</u>	1	
8.	Sample(s) in	proper container(s)?	Yes	$\checkmark$	No 🗌	
9.	Sufficient san	nple volume for indicated test(s)?	Yes	$\checkmark$	No 🗌	
10.	Are samples	properly preserved?	Yes	$\checkmark$	No 🗌	]
11.	Was preserva	ative added to bottles?	Yes		No 🗹	NA 🗌
12.	Is the headsp	ace in the VOA vials?	Yes		No 🗌	NA 🗹
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes	$\checkmark$	No 🗌	]
14.	Does paperwo	ork match bottle labels?	Yes	$\checkmark$	No 🗌	]
15.	Are matrices	correctly identified on Chain of Custody?	Yes		No 🗌	]
		t analyses were requested?	Yes	$\checkmark$	No 🗌	]
17.	Were all hold	ing times able to be met?	Yes	$\checkmark$	No 🗌	]
<u>Sp</u> e	cial Handl	ing (if applicable)				
-		tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹
	Person	Notified: Date	e:			
	By Who			I 🗌 Phone	e 🗌 Fa	ax 🗌 In Person
	Regardi					
	_	structions:				
10	Additional ren					

5/12 - Change to 2 Day TAT per Chris Brown

Item Information

Image: Normal State Image: State	TAT -> SameDayn NextDayn 2 Day 4 Day STD Velate coordinate with the lab in advance	retunder UV Jace/Turks	Dete/Time 1	RailAquished 0
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Fremont the N. Tel: 206-352-7178 SECIA Fax: 206-352-7178 Date: $5/9/14$ Date: $5/9/14$ Project Name: Ruffy S-B Location: Secrific Human	roject No: 20434-001-		Smith	Reports To IPME JESSICO
TEREMONT ATTIVITATION TEMPORTANE N. Tel: 206-352-778 S. WA 98103 Fax: 206-352-778 S. WA 98104 Fax: 206-352-778 S. WA 9810	JAC	CAVIS BIO	Tel:	City, State, Zip
<b>TEMPONT</b> A Tel: 206-352-3790 Fax: 206-352-7178 Date: $5/9/14$ Page: 1 Page: 1	619	Rufes-Bl	Cyaaw Bw	*
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	in of Custor	Cha	mont	



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

**GeoEngineers** Jessica Smith 600 Stewart Street, Suite 1700 Seattle, WA 98101

RE: Rufus - Block 19 Lab ID: 1407177

July 23, 2014

#### Attention Jessica Smith:

Fremont Analytical, Inc. received 3 sample(s) on 7/17/2014 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,

MGR

Michael Dee Sr. Chemist / Principal



CLIENT: Project: Lab Order:	GeoEngineers Rufus - Block 19 1407177	Work Order Sample Summary				
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received			
1407177-001	EX-11-4.5	07/17/2014 10:30 AM	07/17/2014 5:25 PM			
1407177-002	EX-12-4.5	07/17/2014 10:45 AM	07/17/2014 5:25 PM			
1407177-003	EX-13-5.0	07/17/2014 11:30 AM	07/17/2014 5:25 PM			



**Case Narrative** 

WO#: **1407177** Date: **7/23/2014** 

CLIENT:GeoEngineersProject:Rufus - Block 19

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.



WO#: **1407177** Date Reported: **7/23/2014** 

Client: GeoEngineers				Collection	Date: 7/1	7/2014 10:30:00 AM
Project: Rufus - Block 19						
Lab ID: 1407177-001				Matrix: So	bil	
Client Sample ID: EX-11-4.5						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-	Dx/Dx Ext.			Batch	n ID: 8155	Analyst: EC
Diesel (Fuel Oil)	ND	22.2		mg/Kg-dry	1	7/21/2014 12:57:00 PM
Heavy Oil	125	55.5		mg/Kg-dry	1	7/21/2014 12:57:00 PM
Surr: 2-Fluorobiphenyl	90.0	50-150		%REC	1	7/21/2014 12:57:00 PM
Surr: o-Terphenyl	74.2	50-150		%REC	1	7/21/2014 12:57:00 PM
Sample Moisture (Percent Moistu	ire)			Batch	n ID: R156	57 Analyst: TK
Percent Moisture	21.7			wt%	1	7/18/2014 10:55:42 AM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: **1407177** Date Reported: **7/23/2014** 

Client: GeoEngineers	Collection Date: 7/17/2014 10:45:00 AM					
Project: Rufus - Block 19						
Lab ID: 1407177-002				Matrix: So	bil	
Client Sample ID: EX-12-4.5						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-	Dx/Dx Ext.			Batch	n ID: 8155	Analyst: EC
Diesel (Fuel Oil)	ND	24.0		mg/Kg-dry	1	7/21/2014 1:28:00 PM
Heavy Oil	ND	59.9		mg/Kg-dry	1	7/21/2014 1:28:00 PM
Surr: 2-Fluorobiphenyl	88.7	50-150		%REC	1	7/21/2014 1:28:00 PM
Surr: o-Terphenyl	71.0	50-150		%REC	1	7/21/2014 1:28:00 PM
Sample Moisture (Percent Moistu	<u>ire)</u>			Batch	n ID: R156	57 Analyst: TK
Percent Moisture	24.0			wt%	1	7/18/2014 10:55:42 AM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



WO#: **1407177** Date Reported: **7/23/2014** 

Client: GeoEngineers	Collection Date: 7/17/2014 11:30:00 AM					
Project: Rufus - Block 19						
Lab ID: 1407177-003				Matrix: Sc	bil	
Client Sample ID: EX-13-5.0						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH	-Dx/Dx Ext.			Batch	n ID: 8155	Analyst: EC
Diesel (Fuel Oil)	ND	24.3		mg/Kg-dry	1	7/21/2014 1:59:00 PM
Heavy Oil	ND	60.7		mg/Kg-dry	1	7/21/2014 1:59:00 PM
Surr: 2-Fluorobiphenyl	88.3	50-150		%REC	1	7/21/2014 1:59:00 PM
Surr: o-Terphenyl	70.8	50-150		%REC	1	7/21/2014 1:59:00 PM
Sample Moisture (Percent Moist	ure)			Batch	n ID: R156	57 Analyst: TK
Percent Moisture	26.3			wt%	1	7/18/2014 10:55:42 AM

Qualifiers: B

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

RL Reporting Limit

- D Dilution was required
- H Holding times for preparation or analysis exceeded
- ND Not detected at the Reporting Limit



Work Order: CLIENT: Project:	1407177 GeoEngineer Rufus - Block								Diesel a	QC S and Heavy (	SUMMAI Oil by NW1		
Sample ID: LCS81		SampType	LCS			Units: mg/Kg		Prep Dat	e: <b>7/21/20</b>	14	RunNo: 156	677	
Client ID: LCSS		Batch ID:	8155					Analysis Dat	e: 7/21/20	14	SeqNo: 317	7332	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			452	20.0	500.0	0	90.5	65	135				
Surr: 2-Fluorobip	henyl		21.5		20.00		107	50	150				
Surr: o-Terpheny	l		18.4		20.00		92.1	50	150				
Sample ID: MBLK	3155	SampType	BLK			Units: mg/Kg		Prep Dat	e: <b>7/21/20</b>	14	RunNo: 156	677	
Client ID: MBLK	5	Batch ID:	8155					Analysis Dat	e: <b>7/21/20</b>	14	SeqNo: 317	7333	
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-Fluorobip	henyl		18.9		20.00		94.7	50	150				
Surr: o-Terpheny	I		18.3		20.00		91.4	50	150				
Sample ID: 140717	7-003ADUP	SampType	: DUP			Units: mg/Kg	-dry	Prep Dat	e: 7/18/20	14	RunNo: 156	677	
Client ID: EX-13-	5.0	Batch ID:	8155					Analysis Dat	e: <b>7/21/20</b>	14	SeqNo: 317	7756	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			ND	24.8						0		30	
Heavy Oil			ND	62.1						0		30	
Surr: 2-Fluorobip	henyl		22.7		24.84		91.3	50	150		0		
Surr: o-Terpheny	l		17.5		24.84		70.4	50	150		0		

- Qualifiers:
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



### Sample Log-In Check List

Client Name:	GEI	Work Order Number	: 1407177	7	
Logged by:	Erica Silva	Date Received:	7/17/201	14 5:25:00 PM	
Chain of Cus	stody				
1. Is Chain of (	Custody complete?	Yes 🗹	No 🗌	Not Present	
2. How was the	e sample delivered?	<u>Client</u>			
<u>Log In</u>					
3. Coolers are	present?	Yes	No 🗹		
0.		No cooler present			
4. Shipping co	ntainer/cooler in good condition?	Yes 🔽	No 🗌		
5. Custody sea	als intact on shipping container/cooler?	Yes	No 🗌	Not Required 🗹	
6. Was an atte	empt made to cool the samples?	Yes	No 🗹		
		Unknown prior to rece			
7. Were all coo	olers received at a temperature of >0°C to 10.0°C	Yes	No 🗹	NA 🗌	
		Refer to item informat	ion		
8. Sample(s) ir	n proper container(s)?	Yes 🗹	No 🗌		
9. Sufficient sa	ample volume for indicated test(s)?	Yes 🗹	No 🗌		
10. Are samples	s properly preserved?	Yes 🗹	No 🗌		
11. Was preserv	vative added to bottles?	Yes	No 🗹	NA 🗌	
12. Is the heads	space in the VOA vials?	Yes	No 🗌	NA 🗹	
13. Did all samp	bles containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌		
14. Does paper	work match bottle labels?	Yes 🔽	No 🗌		
15. Are matrices	s correctly identified on Chain of Custody?	Yes 🔽	No 🗌		
	nat analyses were requested?	Yes 🗹	No 🗌		
	lding times able to be met?	Yes 🔽	No 🗌		
<u>Special Hand</u>	lling (if applicable)				
-	notified of all discrepancies with this order?	Yes	No 🗌	NA 🗹	
Persor	n Notified:	ate:			
ByWh	nom: Vi	ia: 🗌 eMail 🗌 Phon	e 🗌 Fax	In Person	
Regard	ding:				
Client	Instructions:				
19. Additional re	emarks:				

#### Item Information

Item #	Temp ⁰C	Condition
Sample	23.5	

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Distribution: White - Lab, Yellow - File, Pink - Originator

F



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

**GeoEngineers** Jessica Smith 600 Stewart Street, Suite 1700 Seattle, WA 98101

RE: Block 19 Lab ID: 1409153

September 23, 2014

#### **Attention Jessica Smith:**

Fremont Analytical, Inc. received 2 sample(s) on 9/16/2014 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,

Mulc. Rody

Mike Ridgeway President



CLIENT:	GeoEngineers	Work Order Sample Summar		
Project:	Block 19			
Lab Order:	1409153			
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received	
1409153-001	N-44-6.0	09/09/2014 8:15 AM	09/16/2014 9:10 AM	
1409153-002	N-44-10.0	09/09/2014 8:45 AM	09/16/2014 9:10 AM	



Case Narrative

Date: 9/23/2014

CLIENT: GeoEngineers Project: Block 19

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.


# **Analytical Report**

WO#: **1409153** Date Reported: **9/23/2014** 

Analyst: TK

Batch ID: R16775

CLIENT: Geo	oEngineers
-------------	------------

Project: Block 19

Lab ID: 1409153-001 Client Sample ID: N-44-6.0			Collection Matrix: So		9/9/2014 8:15:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH	I-Dx/Dx Ext.		Batch	n ID: 87	Analyst: EC
Diesel (Fuel Oil)	ND	21.9	mg/Kg-dry	1	9/16/2014 8:20:00 PM
Diesel Range Organics (C12-C24)	108	21.9	mg/Kg-dry	1	9/16/2014 8:20:00 PM
Heavy Oil	ND	54.8	mg/Kg-dry	1	9/16/2014 8:20:00 PM
Surr: 2-Fluorobiphenyl	88.8	50-150	%REC	1	9/16/2014 8:20:00 PM
Surr: o-Terphenyl	85.7	50-150	%REC	1	9/16/2014 8:20:00 PM
NOTES:					
DRO - Indicates the presence of unresolution	ed compounds elutir	ng from dodecane throu	gh tetracosane (	C12-C2	4).

Sample	Moisture	(Percent	Moisture)	
Gampic	Molature		<b>WOISturc</b>	

Percent Moisture	14.4	wt%	1	9/16/2014 9:47:43 AM

Lab ID: 1409153-002 Client Sample ID: N-44-10.0	)		Collection Matrix: So		9/9/2014 8:45:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NW	<u>[PH-Dx/Dx Ext.</u>		Batch	n ID: 873	2 Analyst: EC
Diesel (Fuel Oil)	ND	24.2	mg/Kg-dry	1	9/16/2014 8:51:00 PM
Heavy Oil	ND	60.6	mg/Kg-dry	1	9/16/2014 8:51:00 PM
Surr: 2-Fluorobiphenyl	83.4	50-150	%REC	1	9/16/2014 8:51:00 PM
Surr: o-Terphenyl	84.9	50-150	%REC	1	9/16/2014 8:51:00 PM
Sample Moisture (Percent M	<u>oisture)</u>		Batch	n ID: R16	775 Analyst: TK
Percent Moisture	25.1		wt%	1	9/16/2014 9:47:43 AM

Qualifiers:	В	Analyte detected in the associated Method Blank	D	Dilution was required
	Е	Value above quantitation range	Н	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



CLIENT: Ge	09153 eoEngineers ock 19								Diesel a	QC S and Heavy (	SUMMAI Dil by NW1		
Sample ID: MB-8732	Sa	mpType:	MBLK			Units: <b>mg/Kg</b>		Prep Dat	e: <b>9/16/20</b>	14	RunNo: 168	02	
Client ID: MBLKS	Ba	tch ID:	8732					Analysis Date	e: <b>9/16/20</b>	14	SeqNo: 337	568	
Analyte		F	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-Fluorobipheny	d		16.1		20.00		80.7	50	150				
Surr: o-Terphenyl			15.0		20.00		75.0	50	150				
Sample ID: LCS-8732	Sa	mpType:	LCS			Units: mg/Kg		Prep Dat	e: <b>9/16/20</b>	14	RunNo: 168	02	
Client ID: LCSS	Ва	tch ID:	8732					Analysis Date	e: <b>9/16/20</b>	14	SeqNo: 337	569	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)			454	20.0	500.0	0	90.7	65	135				
Surr: 2-Fluorobipheny	d		16.3		20.00		81.4	50	150				
Surr: o-Terphenyl			16.5		20.00		82.5	50	150				
Sample ID: 1409151-00	J4ADUP Sa	mpType:	DUP			Units: mg/Kg-	Iry	Prep Dat	e: <b>9/16/20</b>	14	RunNo: 168	02	
Client ID: BATCH	Ва	tch ID:	8732					Analysis Date	e: <b>9/16/20</b>	14	SeqNo: 337	596	
Analyte		F	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			707	50.5						610.2	14.7	30	
Surr: 2-Fluorobipheny	d		16.2		20.21		79.9	50	150		0		
Surr: o-Terphenyl			15.9		20.21		78.6	50	150		0		

- Qualifiers:
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits

- D Dilution was required
- J Analyte detected below quantitation limits
- RL Reporting Limit

- E Value above quantitation range
- ND Not detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits



# Sample Log-In Check List

Client Name:	GEI	Work Order Num	ber: 1409153		
Logged by:	Clare Griggs	Date Received:	9/16/2014	9:10:00 AM	
Chain of Cust	<u>ody</u>				
1. Is Chain of C	ustody complete?	Yes 🔽	No 🗌	Not Present	
2. How was the	sample delivered?	<u>Client</u>			
<u>Log In</u>					
3. Coolers are p	resent?	Yes	No 🔽		
		No cooler prese	ent.		
4. Shipping cont	tainer/cooler in good condition?	Yes 🗹	No 🗌		
5. Custody seals	s intact on shipping container/cooler?	Yes	No 🗌	Not Required 🗹	
6. Was an attem	npt made to cool the samples?	Yes	No 🗹		
		Unknown prior to r	eceipt.		
7. Were all cool	ers received at a temperature of >0°C to 10.0°C	Yes	No 🗹		
	Ple	ease refer to item in	formation.		
8. Sample(s) in	proper container(s)?	Yes 🗹	No 🗌		
9. Sufficient sar	nple volume for indicated test(s)?	Yes 🗹	No 🗌		
10. Are samples	properly preserved?	Yes 🗹	No 🗌		
11. Was preserva	ative added to bottles?	Yes 🗌	No 🗹	NA 🗌	
12. Is the headsp	ace in the VOA vials?	Yes	No 🗌	NA 🗹	
13. Did all sample	es containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌		
14. Does paperw	ork match bottle labels?	Yes 🗹	No 🗌		
15. Are matrices	correctly identified on Chain of Custody?	Yes 🗹	No 🗌		
16. Is it clear what	at analyses were requested?	Yes 🗹	No 🗌		
17. Were all hold	ing times able to be met?	Yes 🗹	No 🗌		
Special Handl	ing (if applicable)				
	otified of all discrepancies with this order?	Yes	No 🗌	NA 🗹	
Person	Notified: Dat	te:			
By Who	m: Via	: eMail P	hone 🗌 Fax 🛛	In Person	
Regardi	ng:				
Client In	istructions:				
19. Additional rer	narks:				

#### Item Information

Item #	Temp ⁰C	Condition
Sample	20.6	

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Distribution: White - Lab, Yellow - File, Pink - Originator

Diffeor 9 10 + Kenned UMA JOLA S/16/14 9.10 Determine Determine	A fee may be associated if samples are repaired after 3	***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Special Remarks:	** Metals Analysis (Circle): MTCA-S RCRA-B Priority Polisiants TAL individual Ag Al As B as the Cal Co Co Co Fe Hig K Mg Min Mia Na Ni Pb Sb Se Sr Sn Ti Ti U			N-14-10-0 91114 845 S X	X	Sample Sample Sample US C C C C C C C C C C C C C C C C C C	*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, D = Other, P = Product, S = Sedi SD = Sediment. SL = Solid. W = Water. DW = Drinking Water, GW = Ground Water, WW = Waste Water		City, State, Zip Tel: Collected by: Christian Collected by:	MARKER GOOFNGLICELS PROJECT NAME BLOCK 19	3600 Fremont Ave N. Tel: 206-352-3790 Seattle, WA 98103 Fax: 206-352-7178 Date: 9/10/14 Page: 1 of 1	FIRT A	Chain of Custo
TAT > SameDay^ NextDay^ 2 Day 3 Day STO		al Reminiks;	Sr Sn Ti					Comments/Depth	Water	434-001-25			-	戸ア	Chain of Custody Record

# **APPENDIX C** UST Notification and Checklist



LETTER OF CERTIFICATION

April 22nd, 2014

Hos Brothers Construction PO Box 1788 Woodinville, Washington 98072-1788

RE: Commercial Underground Heating Oil Tank at 2101 7<sup>th</sup> Avenue Seattle, Washington 98121

This is to certify that Filco Company, Inc. has removed one approximate 1,000 gallon underground commercial heating oil tank from the above named property. The tank and its contents were disposed of according to the codes and guidelines set forth by the Washington State Department of Ecology and local Fire Department regulations and the decommissioned tank meets these standards.

Phil Suetens

Phil Suetens President Filco Co., Inc. TS BROS. CONSTRUCTION

04/17/2014 14:06 FAX 206 548 9	352	THE 4/22/14 \$ 0001/000
Your		11.00
Seattle	/	RECEIVED
Fire Department APPI	LICATION FOR TEMPORAR	APR 1 7 2014
	ercial Tank Removal/Decor	PERMIT SECTION
Permit Fee: \$208.00		Date Issued: 4/2.2/14
TO BE COMPLETED BY PERMIT APPLICANT (	Tank(s) must be r (PLEASE PRINT)	emoved from site same day as permit issued!
FIRM NAME Filco Company, Inc		
MAILING ADDRESS PO Box 31228		SUITE
CITY Seattle	STATE WA	ZIP 98103
OPERATION ADDRESS 2101 7	TH AJE	
CONTACT PERSON NATE MONTA	ismeny phone numbe	R (206)547-8347
Number of Tank(s): <u>ONE</u> Ta	ank Size(s): 1,000	Aboveground tank
Product(s) Previously Contained: DIESEL	HEAVY OIL	Underground tank
	and certificate required for all tanks re	
V Removal (Marine Chemist inspection a		
Abandonment-in-Place (Marine Chemist	t certificate required for tanks previous	ly containing Class I flammable
Abandonment-in-Place (Marine Chemist Inquids and unknowns)		4
Abandonment-in-Place (Marine Chemist inquids and unknowns) Hot work being conducted?: VNo	Yes (If yes, a se	parate hot work permit is required)
Abandonment-in-Place (Marine Chemist Inquids and unknowns) Hot work being conducted?: No Please include a check ma Permit applications may be submitted in per Seattle Fire Department Fire Marshal's Office—Permits 220 Third Avenue South, Second Flo	Yes (If yes, a sep ade payable to the CITY OF SEA rson weekdays from 8:00 a.m. to 4:3 or Permit process	barate hot work permit is required) <b>TLE with this application.</b> 0 p.m., or mailed to: ing: (206) 386-1450
Abandonment-in-Place (Marine Chemist Inquids and unknowns) Hot work being conducted?: No Plense include a check me Permit applications may be submitted in pe Seattle Fire Department Fire Marshal's Office—Permits	Yes (If yes, a sej ade payable to the CITY OF SEAT rson weekdays from 8:00 a.m. to 4:3	parate hot work permit is required) <b>TLE with this application.</b> 0 p.m., or mailed to: ing: (206) 386-1450
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Abandonment-in-Place (Marine Chemist Inquids and unknowns) Hot work being conducted?: No Please include a check ma Permit applications may be submitted in per Seattle Fire Department Fire Marshal's Office—Permits 220 Third Avenue South, Second Flo Seattle, WA 98104-2608 Call 386-1450, at least 24 hours TANKS MAY BE REMOVED/DE No hot work is allowed on a Permission is hereby granted to remove of	Yes (If yes, a sep ade payable to the CITY OF SEAT arson weekdays from 8:00 a.m. to 4:3 for Permit process www.seattle.g prior to needed inspection time COMMISSIONED ONLY AFTER FIL tank system prior to issuance of to tank system prior to issuance of to or decommission the tank(s) identifitions, and all applicable provisions AND VOID IF PERMIT CONDIT	barate hot work permit is required) TLE with this application. 0 p.m., or mailed to: ing: (206) 386-1450 ov/fire e to arrange for an appointment. RE DEPARTMENT INSPECTION this Fire Department permit! Ned in this permit in accordance with the of the Seattle Fire Code, federal, state and IONS ARE NOT ATTACHED

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SOUND TESTING, INC P.O. BOX 16204 SEATTLE, WA 98116 (206) 932-0206 FAX (206) 937-3848	MARI	INE CHEMIST CERTIFICATE SERIAL Nº 46314
P	12	
PILCO Survey Requested by	Vessel Owner or Agent	22 APR 14 Date
UST	US7 Type of Vessel	2101-7th AVB.
Vessel		Specific Location of Vesse
HEAVY PUER On X3 Last Three (3) Loadings	ULSUAL On USA	THC 0915 0815 Time Survey Completed
~1000 GAL UST	SAPE POR EXC	AUATION
/	SAPE ROR TR	ANS PORTATION
		<u></u>
	02 = 209 t 0,1 9	<i>b</i> ,
	THE = OFI DOM	m
METCH: BW SIN SKIDT-00	5149C / ALLANDAR	Anniel
L'évers du du protodo	and for a de de	- APKITI

In the event of any physical or atmospheric changes adversely affecting the gas-free condition of the above spaces, or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist.

QUALIFICATIONS: Transfer of ballast or manipulation of valves or closure equipment tending to alter conditions in pipe lines, tanks or compartments subject to gas accumulation, unless specifically approved in this Certificate, requires inspection and endorsement or reissue of Certificate for the spaces so affected. All lines, vents, heating coils, valves, and similarly enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated.

#### STANDARD SAFETY DESIGNATIONS

SAFE FOR WORKERS Means that in the compartment or space so designated (a) the oxygen content of the atmosphere is at least 19.5 percent by volume, and that, (b) toxic materials in the atmosphere are within permissible concentrations, and that, (c) the residues are not capable of producing toxic materials under existing atmospheric conditions while maintained as directed on the Marine Chemist's Certificate

NOT SAFE FOR WORKERS. Means that in the compartment or space so designated, the requirements of Safe for Workers has not been met.

SAFE FOR HOT WORK: Means that in the compartment so designated: (a) oxygen content of the atmosphere is at least 19.5 percent by volume, with the exception of inerted spaces or where external hot work is to be performed; and that, (b) the concentration of flammable materials in the atmosphere is below 10 percent of the lower flammable limit; and that, (c) the residues are not capable of producing a higher concentration than permitted by (b) above under existing atmospheric conditions in the presence of fire, and while maintained as directed on the Marine Chemist's Certificate; and further, that, (d) all adjacent spaces have been cleaned sufficiently to prevent the spread of fire, or are satisfactorily inerted, or, in the case of fuel tanks, or lube oil tanks, or engine room or fire room bilges, have been treated in accordance with the Marine Chemist's requirements.

NOT SAFE FOR HOT WORK Means that in the compartment so designated, the requirements of Safe for Hot Work have not been met

CHEMIST'S 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 Section 2-6 of NFPA 306 and understands conditions and limitations under which it was issued."

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.

Signed Name	Enco	22Apr/4	Signed Chair & Totler	Certificate N		
Yaine	company		CRAIL 201-313-			

VESSEL POSTING

GF		AGE TA	NK (UST)		OFFICE USE ONLY	
-DAY NOTICE			Site ID # FS ID #			
DEPARTMENT Of See back of form for instructions)						
ECOLOGY		mstruction	·/			
State of Washington						
Please $\checkmark$ the	appropriate box:	to Inst				
		10 1151				J
HQ (360)407-7170	/ Central (509)575	5-2490 / Ea	astern (509)329		(425)649-7000 / Southw	vest (360)407-6300
SITE INFORMATION				OWNER INFORM (this form will be r	MATION returned to this address)	
N/A				Acorn Develop	ment, LLC.	
Tag or UBI number				UST Owner/Ope	erator	
Rufus 2.0 - Block 1	9			c/o Seneca Grou	p, 1191 Second Ave, Suite	1500
Site Name				Mailing Address	/PO Box	
2101 7 <sup>th</sup> Avenue				Seattle		98121
Site Physical Addre	SS			City		Zip Code
Seattle			98121	206-808-7845		
City			Zip Code	Owner/Operator		
206-812-7915					agroup.com c/o Acorn E	Development, LLC
Site Phone Number				Owner/Operator	Email Address	
TANK INFORMATION						
Tank ID	Substance Stored	Capacity	Date Pro Expected		Comments:	
	Diesel, heavy	1,000	<b>^</b>		eoninients.	
UST-1	oil	Gal	4.18.14			
1) SERVICE PROVIDE	R INFORMATION -	check the ap	propriate boxes			
,				CEDALCES MUST D	E ICC CERTIFIED OR HAVI	-
1					RTMENT OF ECOLOGY.	
Installer 🛛	Decommissioner	□ Sit	e Assessor			
Filco	2.000			James Leonard		
Service Provider Con	npany Name			Contact Person		
James Leonard	1 5			206-547-8347		
Certified Service Pro 1035157	vider Name			Contact Phone N	umber	
ICC Certification #				Contact Email Ac	ldress	
2) SERVICE PROVIDE	R INFORMATION (R			HAN ONE PROVIDER)	- check the appropriate boxe	c
	Decommissioner		e Assessor	and the interview	chook the appropriate buse	
GeoEngineers	Decommissioner		1 23923201	Chris Brown		
Service Provider Con	nnany Name			Contact Person		
Dean Chahim	npany manie			206-427-7706		
Certified Service Pro	vider Name			Contact Phone Nu	umber	
8218427				cbrown@geoengi		
ICC Certification #				Contact Email Ad		

# Instructions

**Please Read Carefully** 

DEPARTMENT OF ECOLOGY TOXICS CLEANUP PROGRAM P.O. BOX 47655 OLYMPIA, WA 98504-7655

### GENERAL

Under WAC 173-360-200 and 173-360-385, owners and operators are required to notify Ecology 30 days prior to beginning underground storage tank (UST) installation or decommissioning projects. Please use a separate form for each activity. Once this form is received and processed by Ecology, it is date stamped and returned to the owner listed on the form. Installation and decommissioning projects may begin 30 days <u>after</u> the date stamped on the form. If a project cannot meet the deadlines described below, you must submit an additional 30-Day Notice. The 30-day wait period may be waived on these additional 30-Day Notices by contacting the inspector in your region.

### SITE AND OWNER INFORMATION

Fill in the site and owner information and be sure to provide telephone numbers and email addresses so that any problems can be resolved quickly. Include the facility compliance tag or UBI number for tank closures.

# **TANK INFORMATION**

List tanks to be installed or closed, substance stored (e.g. gas, diesel, etc), tank size and date the project is expected to begin. The contact person listed on this form <u>must</u> confirm the exact date an installation and/or decommissioning project will begin at least three business days before proceeding. Please report tank ID number(s) for tanks to be closed and assign <u>new</u> Tank ID number(s) to tanks being installed. If you are installing new tanks, do not assign a Tank ID number that has previously been used at the facility. Use the Comments box to include additional information, such as when product was removed so that no more than one inch of residue remains in the system.

# **TANK INSTALLATIONS**

List the installation company. <u>The date stamped on the form indicates the beginning of a 90-day period in which an installation project must begin</u>. Once, processed, this form also allows you to receive a one-time drop of product, for UST system testing purposes only. The fuel drop is not required to occur within this 90-day period.

To dispense product and receive additional deliveries, you must complete the Business License registration and obtain your facility compliance tag from Ecology. The registration information must be submitted to the Department of Revenue within 30 days of installation to receive a Business License with the appropriate tank endorsement(s). **If, at any time, your tank(s) store greater than one inch of product, you must begin using an acceptable release detection method to monitor for leaks every month.** 

# PERMANENT TANK CLOSURES

List the closure and site assessor companies. Upon receiving a completed 30-day closure form, Ecology will stamp the date received on the form and return a copy to the owner. <u>Decommissioning projects must be completed 90 days after the stamped date</u>. **No work may begin within the first 30 days unless a waiver has been obtained from Ecology.** 

Contact your local fire marshal and planning department prior to tank closure to find out if any additional permits are required by county or other local jurisdictions. Compliance with the State Environmental Policy Act (SEPA) Rules, Chapter 197-11 WAC, may be required.

A site assessment is required at the time of closure. Contamination found or suspected at the site must be reported to the appropriate Ecology regional office within 24 hours. If the contamination is confirmed, a site characterization report must be submitted to the regional office within 90 days; if contamination is not confirmed, a site assessment report must be submitted to the above address within 30 days.

The following are examples of tanks that are exempt from notification requirements.

- Farm or residential tanks, 1,100 gallons or less, used to store motor fuel for personal or farm use only. The fuel must be used for farm purposes and cannot be for resale.
- Tanks used for storing heating oil that is used solely for the purpose of heating the premises.
- Tanks with a capacity of 110 gallons or less.
- Equipment or machinery tanks such as hydraulic lifts or electrical equipment tanks.
- Emergency overflow tanks, catch basins, or sumps.

If you need this document in a format for the visually impaired, call Toxics Cleanup Program at (360) 407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with speech disability, call (877) 833-6341.

DEPARTMENT OF
ECOLOGY
State of Washington

Response to 30 Day Notice Waiver Request \*\*To be completed by Person Submitting Request\*\*

UST ID # (if known):
Full Site Address: 2101 7th Avenue, Seattle, WA 98121
Owner/Operator: Acom Development, LLC.
Contact phone #: 206-808-7845 (Laving Sadhwani, C/O Acom)
Waiver Requested for 30 Day Notice to: (Circle one or both) DECOMMISSION INSTALL
Person and Company Submitting Request: Chris Brown, Geo Engineers
Contact phone #: 206-427-7706
Reason for Submitting Request: ENVIRONMENTAL HAZARD (Circle all that apply) OTHER
Explain Reason: UST discovered during construction activities
Date Request Submitted: 4 16 14
Date and time of Construction: 4/18/14 0800
Name, Contact Phone Number, and ICC Certification Number for all that apply:
INSTALLER:
DECOMMISSIONER: James Leonard 206-547-8347 #1035157
SITE ASSESSOR: Dean Chahim 206-239-3248 # 8218427
Completed 30 Day Notice Attached to Waiver Request Form? (Circle one) (YES) NO
Department of Ecology Response to Request (to be completed by UST Inspector):
WAVIER GRANTED WAIVER DENIED
Inspector: Frenda Gager Signature and Date: 121-20
**DECOMMISSIONER(S) SHALL HAVE A COPY OF 30 DAY NOTICE AND A COPY OF THE

WAIVER REQUEST FORM ON SITE DURING ALL DECOMMISSIONG RELATED ACTIONS \*\*\*

# **APPENDIX D** Contaminated Soil Tonnage Summaries

# Rufus 2.0 - Mass Excavation Block 19 Class III Profile: 108658WA

Date	Disposal Site	Ticket ID	Truck #	Estimated CY	Tons
4/14/2014	Waste Management	78177	H6034	17.86	28.58
4/14/2014	Waste Management	78190	H6034	17.79	28.46
4/14/2014	Waste Management	78196	H6034	17.91	28.66
4/14/2014	Waste Management	78210	H6034	19.64	31.43
4/14/2014	Waste Management	78220	H6034	19.15	30.64
4/18/2014	Waste Management	78345	H6041	15.96	25.53
4/18/2014	Waste Management	78346	H6040	17.60	28.16
4/18/2014	Waste Management	78348	H1813	15.02	24.03
4/18/2014	Waste Management	78351	H1896	16.39	26.23
4/18/2014	Waste Management	78353	H1800T	14.95	23.92
4/23/2014	Waste Management	78415	H1803	18.11	28.97
4/23/2014	Waste Management	78427	H1808	17.38	27.81
4/23/2014	Waste Management	78429	H6041	18.43	29.49
4/23/2014	Waste Management	78431	H6050	19.58	31.32
4/23/2014	Waste Management	78434	H6047	16.96	27.13
4/23/2014	Waste Management	78436	H6044	20.38	32.60
4/23/2014	Waste Management	78439	H6033T	20.24	32.39
4/23/2014	Waste Management	78441	H6047	19.88	31.80
4/23/2014	Waste Management	78442	H1806	20.14	32.22
4/23/2014	Waste Management	78445	H6041	19.94	31.91
4/23/2014	Waste Management	78456	H1808	20.55	32.88
4/23/2014	Waste Management	78457	H6002	20.26	32.42
4/23/2014	Waste Management	78461	H1807	19.91	31.85
4/23/2014	Waste Management	78462	H6053	20.31	32.50
4/23/2014	Waste Management	78463	H6050	19.41	31.06
4/24/2014	Waste Management	78478	H6046	15.73	25.16
4/24/2014	Waste Management	78479	H1805	17.80	28.48
4/24/2014	Waste Management	78483	H1807	20.94	33.50
4/24/2014	Waste Management	78484	H6047	19.64	31.42
4/24/2014	Waste Management	78487	H1808	19.28	30.85
4/24/2014	Waste Management	78488	H1814T	20.67	33.07
4/24/2014	Waste Management	78489	H1898T	21.71	34.74
4/24/2014	Waste Management	78491	H1896	17.59	28.15
4/24/2014	Waste Management	78493	H1895	21.59	34.54
4/25/2014	Waste Management	78520	H6047	16.82	26.91
4/25/2014	Waste Management	78521	H1808	16.35	26.16
4/25/2014	Waste Management	78529	H1897	16.55	26.48
4/25/2014	Waste Management	78530	H6047	16.28	26.05
4/25/2014	Waste Management	78536	H6000	20.68	33.09

4/25/2014	Waste Management	78538	H6034	20.62	32.99
4/25/2014	Waste Management	78551	H6050	14.81	23.69
4/25/2014	Waste Management	78554	H1809	15.93	25.49
4/25/2014	Waste Management	78557	H5998	18.26	29.22
4/30/2014	Waste Management	78757	H1806	16.50	26.40
4/30/2014	Waste Management	78758	H1807	16.29	26.06
5/15/2014	Waste Management	79670	H6043	16.30	26.08
5/15/2014	Waste Management	79669	H6041	17.21	27.53
5/15/2014	Waste Management	79672	H1811T	14.86	23.77
5/15/2014	Waste Management	79673	H6034	15.42	24.67
5/15/2014	Waste Management	79675	H1808	17.64	28.22
5/15/2014	Waste Management	79678	H1897	15.54	24.87
7/18/2014	Waste Management	83442	H6045T	19.98	31.97
9/9/2014	Waste Management	87909	H5999S	10.01	16.01
9/9/2014	Waste Management	87924	H5999S	7.96	12.73
	•			· · · · · · · · · · · · · · · · · · ·	

TOTALS

962.68 1,540.29

# Rufus 2.0 - Mass Excavation

Block 19

Class II

Date	Disposal Site	# of Loads	Tons
4.3.14	Cemex	1	6.32
	1	6.32	

# **APPENDIX E** Report Limitations and Guidelines for Use

# APPENDIX E REPORT LIMITATIONS AND GUIDELINES FOR USE<sup>1</sup>

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. This report may be provided to regulatory agencies for review. 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 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 King County should rely on this environmental report 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 has been prepared for excavation activities at the Driscoll Demolition Property. 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 report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

<sup>&</sup>lt;sup>1</sup> Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

### **Reliance Conditions for Third Parties**

Our report was prepared for the exclusive use of Acorn Development LLC. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. 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. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with King County and generally accepted environmental practices in this area at the time this report was prepared.

### **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 Acorn, LLC. desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.



Have we delivered World Class Client Service? Please let us know by visiting **www.geoengineers.com/feedback**.

