

## **Focused Phase II Environmental Site Assessment**

Shoreline III Development Shoreline, Washington

for

**Evergreen Point Development, LLC** 

February 29, 2024



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#### **1.0 INTRODUCTION**

This report presents the results of the focused Phase II Environmental Site Assessment (ESA) for the proposed Evergreen Point – Shoreline III development project located in Shoreline, Washington (project site). The project site is approximately 1.75 acres in size and is comprised of 10 King County Parcels (parcel numbers 440810-0005, 440810-0010, 440810-0015, 440810-0020, 440810-0025, 440810-0030, 440810-0035, 440810-0040, 440810-0045, and 440810-0050). The project site is bounded by churches to the north, NE 147<sup>th</sup> Street to the south, 1<sup>st</sup> Avenue NE to the west, and Interstate 5 to the east. The project site is shown relative to surrounding physical features in the Vicinity Map (Figure 1) and Site Plan (Figure 2).

GeoEngineers, Inc. (GeoEngineers) understands that Evergreen Point Development, LLC (Evergreen) is planning for redevelopment of the project site with a seven-story mixed-use building with up to two below-grade parking levels. Excavation depths for the planned development are anticipated to range up to 25 feet below existing site grades. Each of the 10 parcels is developed with a single-family residential structure that was constructed in the 1950s. We understand that two of the houses are now being used as construction offices for the large redevelopment in progress across the street to the south. According to documents provided by Evergreen, heating oil underground storage tanks (USTs) have been decommissioned from at least three (3) of the houses, and additional tanks and/or residual petroleum hydrocarbon-containing soil may be present at the project site. The former/current presence of USTs and/or residual soil contamination will need to be addressed as part of planning for and implementation of project construction.

This focused Phase II ESA was completed at the request of Evergreen and was completed concurrent with a geotechnical evaluation of the project site. The results of the geotechnical evaluation are presented under separate cover (GeoEngineers 2023). Select soil and groundwater samples obtained from the geotechnical borings were submitted for laboratory chemical analysis for the purposes of this focused Phase II ESA. GeoEngineers' services have been completed in accordance with our consultant agreement with Evergreen Point Development, LLC executed on July 11, 2023.

#### 2.0 SCOPE OF SERVICES

Our specific scope of services for this focused Phase II ESA included the following:

- Field screen selected soil samples from the geotechnical explorations for evidence of petroleum hydrocarbons and volatile organics using visual, water sheen and headspace vapor screening methods.
- 2. Collect up to two (2) soil samples from each geotechnical boring for chemical analyses to evaluate and document the presence of potential contaminants of concern and plan for appropriate disposal of soil that will be removed from the project site for off-site disposal. Submit the collected soil samples for subcontracted laboratory chemical analysis for one or more of the following: RCRA 8 Metals by EPA 6000/7000 series methods; gasoline, diesel- and oil-range total petroleum hydrocarbons (TPH-G, TPH-D, and TPH-O) by Methods NWTPH-G and NWTPH-Dx; benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B; and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270E/SIM.



- 3. Collect up to one (1) groundwater sample from each of the geotechnical monitoring wells (two total) for laboratory chemical analyses to evaluate and document the presence of potential contaminants of concern in groundwater and the need for further action to support project planning. Submit groundwater samples for subcontracted laboratory chemical analysis for one or more of the following: RCRA 8 Metals by EPA 6000/7000 series methods; TPH-G, TPH-D, and TPH-O by Methods NWTPH-G and NWTPH-Dx; VOCs including BTEX by EPA Method 8260; cPAHs by EPA Method 8270SIM or equivalent.
- 4. Evaluate the field and laboratory data relative to Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) cleanup levels.
- 5. Prepare this focused Phase II ESA letter report summarizing the results of the field screening, soil and groundwater sampling and laboratory analyses.
- 6. Profile soil and groundwater investigative-derived waste (IDW) for appropriate offsite disposal.

#### 3.0 SUBSURFACE INVESTIGATION

Four geotechnical soil borings (GEI-1 through GEI-4) were completed at the project site on July 12 and 13, 2023 to depths of 35 feet bgs using hollow-stem auger drilling technologies. Soil samples were collected every 2.5 feet bgs to 10 feet bgs and every 5 feet thereafter in each boring to assess soil conditions. Drilling and well installation were monitored by a GeoEngineers' representative who visually classified and performed field screening tests on the soil samples obtained during drilling activities for evidence of petroleum hydrocarbons and organic vapors. Soil samples were selected for laboratory analysis based on the results of field screening and/or based on our understanding of the planned development and project objectives. Soil and groundwater contaminants of concern (COCs) for the focused Phase II ESA were determined based on our experience on similar projects and typical landfill testing requirements for soil disposal characterization. Approximate boring locations are shown on Figure 2. Soil field screening results are shown on the boring logs in Appendix A and in Table 1 for the samples submitted for chemical analytical testing. Field procedures are described in Appendix A.

Two of the borings (GEI-1 and GEI-4) were completed as permanent PVC monitoring wells with screen intervals extending between 25 and 35 feet bgs. The monitoring wells were developed by the drilling contractor following installation by purging the well until the water was relatively clear. One groundwater sample was collected from monitoring well GEI-4 on July 17, 2023 and submitted to the analytical laboratory for chemical analysis as described in Section 3.3 below. A groundwater sample was not collected from monitoring well GEI-1 because the well was dry at the time of sampling. The remaining borings were abandoned in accordance with state regulations at the completion of each day of the field investigation.

#### 3.1. Soil Conditions

The soils encountered at the project site consist of shallow fill overlying glacially consolidated soils. The fill generally consists of loose to medium dense sand with variable silt and gravel content. The fill ranged up to approximately 8 feet thick at the boring locations (GeoEngineers 2023). Glacially consolidated soils consisting of medium dense to very dense sand with varying gravel and silt content were encountered below the fill deposits, and extended to the total depths explored. During subsurface exploration, cobbles were encountered at boring GEI-4. Occasional cobbles and boulders are typical of glacially consolidated soils and may be present at other locations on the project site. Soil conditions are described in detail in the geotechnical report for the site (GeoEngineers 2023) presented under separate cover.



#### 3.1.1. Field Screening Results

Soil samples were field screened for evidence of organic compounds and petroleum contamination by visual examination, headspace vapor monitoring, and water-sheen testing (see Appendix A). Field screening results were less than one (1) part per million in screened subsurface soil. The screening results are included in Table 1 for soil samples with corresponding chemical analytical results.

#### 3.2. Groundwater Conditions

Groundwater was not encountered during drilling in the borings except GEI-4. Groundwater was observed at a depth of approximately 11 feet bgs in monitoring well GEI-4 at the time of sampling (see Table 2).

#### 3.3. Chemical Analytical Program

Eight (8) soil samples collected from the four borings and one groundwater sample collected from monitoring well GEI-4 were submitted to OnSite Environmental Inc., in Redmond, Washington for chemical analysis. Soil and groundwater chemical analytical data are summarized in Tables 1 and 2, respectively. Chemical analytical data reports are included in Appendix B.

#### 3.3.1. Soil Chemical Analytical Results

#### 3.3.1.1. Gasoline-, Diesel-, and Lube Oil-Range Petroleum Hydrocarbons

Gasoline-range total petroleum hydrocarbons were not detected at concentrations greater than the laboratory reporting limit in any of the analyzed soil samples. Diesel- and/or Lube oil-range total petroleum hydrocarbons were detected at concentrations greater than the laboratory reporting limits in the soil samples collected from borings GEI-2 at 30 feet bgs and GEI-4 at 7.5 feet bgs. The detected concentrations ranged between 45 and 140 mg/kg and were less than the MTCA Method A cleanup level (Table 1).

#### 3.3.1.2. BTEX

BTEX analytes were not detected at concentrations greater than the respective laboratory reporting limits in any of the analyzed soil samples.

#### 3.3.1.3. PAHs

PAH analytes were not detected at concentrations greater than the respective laboratory reporting limits in any of the analyzed soil samples.

#### 3.3.1.4. Metals

Barium and chromium were detected in all collected soil samples at concentrations less than the applicable MTCA cleanup levels in the analyzed soil samples. The detected chromium concentrations were less than the published naturally occurring background concentrations (Table 1). Lead was detected in one soil sample collected from boring GEI-4 at a concentration less than the MTCA Method A cleanup level and slightly greater than the published naturally occurring background lead concentration.

#### 3.3.2. Groundwater Chemical Analytical Results

#### 3.3.2.1. Gasoline-Range Petroleum Hydrocarbons

Gasoline-range petroleum hydrocarbons were not detected at a concentration greater than the laboratory reporting limit in the groundwater sample collected from monitoring well GEI-4.



#### 3.3.2.2. Diesel- and Lube Oil-Range Petroleum Hydrocarbons

Lube oil-range total petroleum hydrocarbons were detected in the groundwater sample collected from monitoring well GEI-4 at a concentration or 220 micrograms per liter ( $\mu$ g/L), which is less than the MTCA Method A cleanup level of 500  $\mu$ g/L. Diesel-range petroleum hydrocarbons were not detected in the analyzed groundwater sample.

#### 3.3.2.3. VOCs

Chloroform was detected in the groundwater sample collected from GEI-4 at a concentration of 0.42  $\mu$ g/L, which is less than the MTCA Method A cleanup level of 700  $\mu$ g/L. Other VOCs were not detected at concentrations greater than the respective laboratory reporting limits in the analyzed groundwater sample.

#### 3.3.2.4. Metals

Arsenic and chromium concentrations (13  $\mu$ g/L and 84  $\mu$ g/L, respectively) detected in the groundwater sample collected from GEI-4 were greater than their respective MTCA Method A cleanup levels of 0.058  $\mu$ g/L and 50  $\mu$ g/L. Barium and lead were also detected in the groundwater sample at concentrations of 280  $\mu$ g/L and 15  $\mu$ g/L, which are not greater than their respective MTCA cleanup levels.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Eight soil samples and one groundwater sample were submitted for laboratory chemical analysis during this focused Phase II ESA. Soil chemical analytical results indicate that diesel- and/or oil-range petroleum hydrocarbons were detected in soil from boring GEI-2 at a depth of 30 feet bgs and boring GEI-4 at a depth of 7.5 feet bgs. The detected concentrations were less than MTCA cleanup levels. Barium, chromium and/or lead were detected at concentrations less than MTCA Method A cleanup levels and at concentrations generally consistent with published naturally occurring background metals concentrations.

Groundwater analytical results indicate that lube oil-range total petroleum hydrocarbons were detected in the groundwater sample collected from GEI-4 at a concentration less than the MTCA cleanup level. Arsenic, chromium and lead were detected in the groundwater sample collected from monitoring well GEI-4 at concentrations greater than the MTCA Method A cleanup levels. However, the arsenic, chromium and lead concentrations slightly greater than the respective MTCA cleanup levels are likely related to the presence of suspended solids in the groundwater sample collected from GEI-4.

#### **4.1. Materials Management Considerations During Construction**

Soil represented by the analyzed soil samples having detectable concentrations of diesel- and/or lube oil-range total petroleum hydrocarbons as described above will require special handling or disposal during construction based on our experience on similar projects. Soil represented by the soil samples collected from borings GEI-2 and GEI-4 having detectable concentrations of diesel and/or lube oil will likely classify as Class 2 for disposal. Class 2 soil may potentially be reused on site following Ecology guidance (Ecology 2016) and pending geotechnical suitability.

The groundwater chemical analytical results indicate the groundwater samples would meet the screening levels for discharge to the King County sanitary sewer. Recovered water containing detectable concentrations of petroleum hydrocarbons can typically be discharged to municipal or County sewers under permit or containerized and transported offsite for permitted disposal.

Based on the above considerations, a materials management plan should be developed for use by the contractor during construction to inform appropriate soil and water management procedures and disposal



options. An environmental contingency plan and budget should also be developed for use during site redevelopment in anticipation that residential USTs will be encountered, or if evidence of chemical contamination is identified during construction in areas not assessed during the focused Phase II ESA.

#### **5.0 LIMITATIONS**

We have prepared this report for the exclusive use by Evergreen Point Development, LLC for the project site located in Shoreline, Washington comprising the following 10 King County Parcels: 440810-0005, 440810-0010, 440810-0015, 440810-0020, 440810-0025, 440810-0030, 440810-0035, 440810-0040, 440810-0045, and 440810-0050. Evergreen Point Development, LLC may distribute copies of this report to authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment, and experience. No warranty, express or implied, applies to this report.

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

#### **6.0 REFERENCES**

GeoEngineers, 2023. Draft Geotechnical Due Diligence Services, Shoreline III Development, Shoreline, Washington.

Washington State Department of Ecology (Ecology), 2016. Guidance for Remediation of Petroleum Contaminated Sites. Toxics Cleanup Program Publication No. 10-09-057. Revised June 2016.





## Table 1

### Soil Chemical Analytical Results<sup>1</sup>

Focused Phase II Environmental Site Assessment Evergreen Point - Shoreline Development Project Shoreline, Washington

				Field Screeni	ng Results	Total Petrol	eum Hydrocarb	ons (mg/kg) <sup>3</sup>						Meta (mg/				
Boring Identification <sup>2</sup>	Sample Identification	Sample Date	Sample Depth (feet bgs)	Headspace Vapors (ppm)	Sheen	Gasoline Range	Diesel Range	ube Oil Range	BTEX <sup>4</sup> (mg/kg)	PAHs <sup>5</sup> (mg/kg)	Aresenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
	GEI-1-10'	07/13/23	10	<1	NS	4.9 U	26 U	52 U		ND	10 U	60	0.52 U	17	5.2 U	0.26 U	10 U	1.0 U
GEI-1	GEI-1-20'	07/13/23	20	<1	NS	5.6 U	27 U	53 U			11 U	42	0.52 U	20	5.2 U	0.27 U	11 U	1.1 U
251.2	GEI-2-7.5'	07/13/23	7.5	<1	NS	6.4 U	27 U	54 U			11 U	53	0.54 U	26	5.4 U	0.27 U	11 U	1.1 U
GEI-2	GEI-2-30'	07/13/23	30	<1	SS	5.6 U	45	54	ND		11 U	28	0.53 U	21	5.3 U	0.27 U	11 U	1.1 U
051.2	GEI-3-5'	07/12/23	5	<1	SS	5.7 U	26 U	53 U	ND	ND	11 U	46	0.53 U	19	5.3 U	0.26 U	11 U	1.1 U
GEI-3	GEI-3-15'	07/12/23	15	<1	NS	5.9 U	27 U	55 U			11 U	43	0.55 U	20	5.5 U	0.27 U	11 U	1.1 U
GEI-4	GEI-4-5'	07/12/23	5	<1	NS	6.5 U	28 U	55 U			11 U	28	0.55 U	27	5.5 U	0.28 U	11 U	1.1 U
GEI-4	GEI-4-7.5'	07/12/23	7.5	<1	NS	6.3 U	29 U	140			12 U	53	0.58 U	31	31	0.29 U	12 U	1.2 U
		МТС	A Method A or	Method B Clea	nup Level	100 <sup>7</sup>	2,0	0008	Varies	Varies	20	16,000	2	2,000	250	2	400	400
	Natural	ly Occurring E	Background M	etals in Puget S	ound Soils <sup>9</sup>	NA	1	NA	NA	NA	7	NA	1	48	24	0.07	NA	NA

#### Notes:

bgs = below ground surface VOCs = volatile organic compounds mg/kg = milligrams per kilogram MTCA = Model Toxics Control Act

ND = not detected NA = Not Available ppm = parts per million

NE = not established U = Analyte not detected at a concentration greater than the noted laboratory reporting limit.

NS = no sheen SS = slight sheen **Bolded** value indicates analyte detected at the concentration shown.

-- = not analyzed Grey shaded value indicates analyte exceeded the applicable MTCA cleanup level.



<sup>&</sup>lt;sup>1</sup>Chemical analyses performed by OnSite Analytical, Inc. of Redmond, Washington. Chemical analytical laboratory reports are included in Appendix B.

 $<sup>^{2}\</sup>mbox{\sc The}$  approximate boring locations are shown on Figure 2.

 $<sup>^{\</sup>rm 3}$  Total petroleum hydrocarbons analyzed by Methods NWTPH-Gx and NWTPH-Dx.

 $<sup>^{\</sup>rm 4}$  Benzene, toluene, ethylbenzene and xylene (BTEX) analyzed by EPA Method 8021B

 $<sup>^{5}\,\</sup>mbox{Polycyclic}$  Aromatic Hydrocarbons (PAHs) analyzed by EPA Method 8270E/SIM.

 $<sup>^{6}</sup>$  Total RCRA Metals analyzed by EPA Methods 6020B and 7471B.

<sup>&</sup>lt;sup>7</sup> Cleanup level when benzene is not present.

<sup>&</sup>lt;sup>8</sup>Cleanup level is for the sum of diesel- and oil-range petroleum hydrocarbons.

<sup>&</sup>lt;sup>9</sup> 90th Percentile for natural background soil metals concentrations in Puget Sound region, Department of Ecology, publication #94-115, dated October 1994.

## Table 2

## Groundwater Elevations and Chemical Analytical Results<sup>1</sup>

## Focused Phase II Environmental Site Assessment Evergreen Point - Shoreline Development Project Shoreline, Washington

			Screen	Depth to	Petroleum Hy	ydrocarbons <sup>4</sup>	(ug/L)	PAHs <sup>5</sup>	VOCs <sup>6</sup> (µg/L)		Total Meta	ls <sup>7</sup> (µg/L)	
Monitoring Well	Sample	Sample	Interval	Groundwater <sup>3</sup>	Gasoline Range	Diesel	Lube Oil	(µg/L)					
Identification <sup>2</sup>	Identification	Date	(ft bgs)	(ft bTOC)	Organics	Range	Range		Chloroform	Arsenic	Barium	Chromium	Lead
GEI-1	GEI-1-20230717	07/17/23	25-35	Dry	-					-			-
GEI-4	GEI-4-20230717	07/17/23	25-35	11.10	100 U	0.13 U	220	ND	0.42	13	280	84	15
MTCA Method A or B Cleanup Lev					1,000 8	500	500	Varies	700	5	3,200	50	15

#### Notes:

bgs = below ground surface

bTOC = below top of well casing

U = Analyte not detected at a concentration greater than the noted laboratory reporting limit.

µg/L = micrograms per liter

-- = Groundwater sample not collected for chemical analysis.

**Bolded** value indicates analyte detected at the concentration shown.

Grey shaded value indicates detected concentration exceeds the cleanup level.



<sup>&</sup>lt;sup>1</sup> Chemical analyses performed by Onsite Environmental Inc., Redmond, Washington. Chemical analytical laboratory reports are included in Appendix B.

<sup>&</sup>lt;sup>2</sup> The approximate monitoring well locations are shown on Figure 2.

<sup>&</sup>lt;sup>3</sup> Depth to groundwater is the static water level measured at time of sampling on March 9, 2022. Monitoring well GEI-1 was dry at time of sampling.

<sup>&</sup>lt;sup>4</sup> Petroleum hydrocarbons analyzed by Methods NWTPH-Gx and NWTPH-Dx

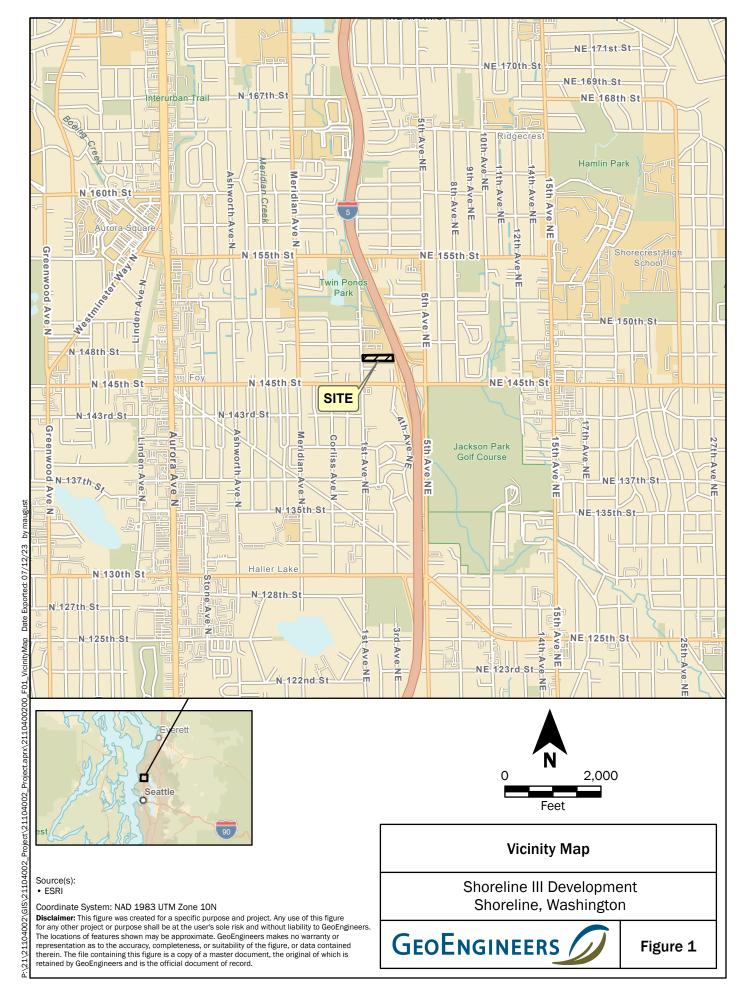
<sup>&</sup>lt;sup>5</sup> Polycyclic Aromatic Hydrocarbons (PAHs) analyzed by EPA Method 8270E/SIM. PAH compounds were not detected at concentrations greater than the laboratory reporting limit.

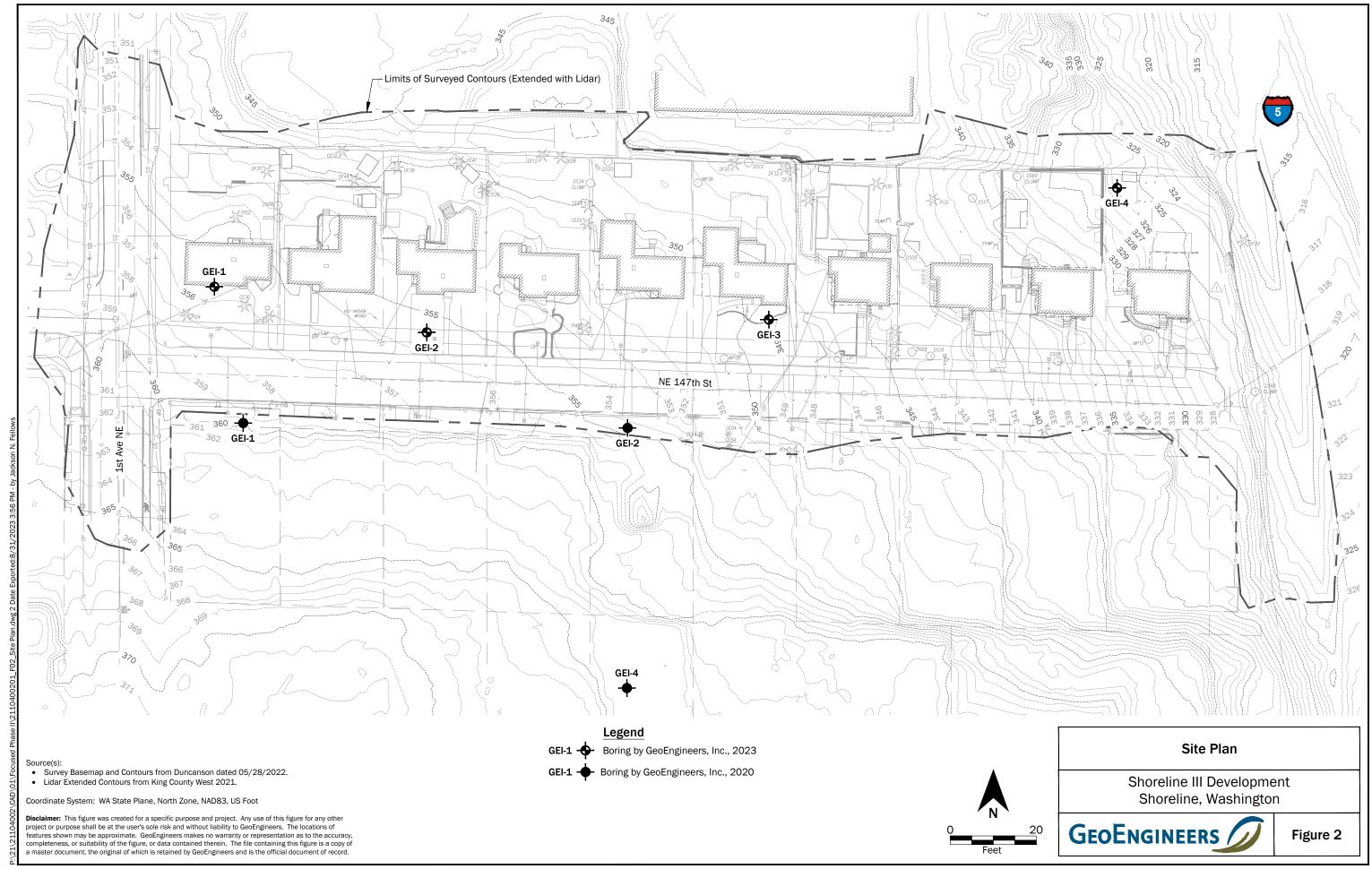
<sup>&</sup>lt;sup>6</sup> Volatile organic compounds (VOCs) analyzed by EPA Method 8260D. Only VOCs detected at concentrations greater than the laboratory reporting limit are shown.

<sup>&</sup>lt;sup>7</sup> Total RCRA metals analyzed by EPA Method 200.8/7470A. Only metals detected at concentrations greater than the laboratory reporting limit are shown.

<sup>&</sup>lt;sup>8</sup> Cleanup level when benzene is not present.









# APPENDIX A Field Procedures and Boring Logs

## APPENDIX A FIELD PROCEDURES AND BORING LOGS

#### **Underground Utility Locate**

An underground utility locate was conducted within the area of the proposed boring locations to identify any subsurface utilities and/or potential underground physical hazards prior to beginning drilling activities. An underground utility check consisting of contacting a local utility alert service and a private utility locating service was also performed.

#### **Soil Sampling**

Soil borings were advanced using hollow-stem auger drilling equipment operated by Advanced Drill Technologies, Inc., of Puyallup, Washington. Soil samples were collected in decontaminated 1.5-inch diameter split-spoon sampling devices at the above-mentioned depth intervals.

A GeoEngineers representative classified the soil encountered in each of the borings in general accordance with ASTM International (ASTM) D 248800.

Non-dedicated sampling equipment was decontaminated before each sampling attempt with an Alconox® solution wash and a distilled water rinse. Soil samples were obtained for field screening and possible chemical analysis. Soil samples obtained during the exploration activities were collected from the sampler with a new laboratory-supplied syringe and plunger (by United States Environmental Protection Agency [EPA] Method 5035), stainless-steel knife and/or spoon, or new nitrile gloves. A portion of selected soil samples was placed in laboratory-prepared sample jars for chemical analysis.

Samples submitted for chemical analysis are shown on the boring logs. Soil samples were placed in a cooler with ice for transport to Onsite Environmental Inc., Redmond, Washington following standard chain-of-custody procedures.

#### **Field Screening of Soil Samples**

Soil samples obtained from the borings were screened in the field for evidence of contamination using: (1) visual examination; (2) sheen screening; and (3) a photoionization detector (PID). The results of headspace and sheen screening are included on the boring logs and in Table 1 for soil samples tested by chemical analysis.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons, such as motor oil or hydraulic oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines. Sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen classifications are as follows:



No Sheen (NS) No visible sheen on water surface.

Slight Sheen (SS) Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates

rapidly. Natural organic matter in the soil may produce a slight sheen.

Moderate Sheen (MS) Light to heavy sheen; may have some color/iridescence; spread is

irregular to flowing, may be rapid; few remaining areas of no sheen on

water surface.

Heavy Sheen (HS) Heavy sheen with color/iridescence; spread is rapid; entire water surface

may be covered with sheen.

Headspace vapor screening involves placing a portion of the soil sample in a plastic sample bag or clean 4-ounce jar covered with aluminum foil. Air is captured in the bag or jar and the bag or jar is shaken to expose the soil to the trapped air. The probe of a PID is inserted in the bag or used to puncture the aluminum foil covering the jar and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in parts per million (ppm) and is calibrated to isobutylene. The PID is designed to quantify combustible gas and organic vapor concentrations up to 2,500 ppm. Field screening results are site-specific and vary with soil type, soil moisture content, temperature, and type of contaminant.

#### **Soil Logging**

The field representative visually classified the soil in accordance with ASTM Method D 2488 and recorded soil descriptions and other relevant field screening details (e.g., staining, debris, odor etc.) in the field log. ASTM Method D 2488 is the visual-manual soil description method that corresponds to laboratory ASTM Method D 2487 (Unified Soil Classification System [USCS] method). The boring logs are presented in this appendix.

#### **Groundwater Sampling**

One groundwater sample was collected from the permanent groundwater monitoring well GEI-4 using low-flow sampling techniques. The groundwater sample was collected from the monitoring well using a peristaltic pump with new, disposable plastic tubing. Groundwater was pumped at approximately 0.5 liters per minute from the approximate midpoint of the screened interval. A water quality meter with a flow-through-cell was used to monitor water quality parameters including electric conductivity, dissolved oxygen, pH, oxidation-reduction potential, and temperature. Ambient groundwater conditions were assumed to have been reached and the purge complete once these parameters varied by less than 10 percent through three consecutive measurements. Field measurements were documented on the groundwater collection field form.

Once purging was complete, the flow-through-cell was disconnected, and the groundwater sample was placed directly from the disposable plastic tubing into laboratory-prepared vials/jars for chemical analytical testing. The groundwater sample was then placed in a cooler with ice for transport to the laboratory under standard chain-of-custody procedures within the proper hold-time.

#### **Sample Nomenclature**

Soil samples collected from the borings were identified using the following identification system: GEI-#-depth, where GEI-# is the boring number, and depth is the depth within the boring at which the



specific sample was collected (e.g., GEI-1-10' was collected from boring location GEI-1 at 10 feet bgs). The groundwater sample collected from the monitoring well GEI-4 was identified using the well ID followed by the date sampled (e.g., GEI-4-20230717).

#### **Investigative-Derived Waste**

Soil and water investigative-derived waste were transferred to separate 55-gallon steel drums and stored temporarily at the site pending characterization and coordination for disposal.



#### **SOIL CLASSIFICATION CHART**

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

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

#### **Sampler Symbol Descriptions**

2.4-inch I.D. split barrel / Dames & Moore (D&M)

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push
Bulk or grab

Continuous Coring

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

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

"WOH" indicates sampler pushed using the weight of the hammer.

#### **ADDITIONAL MATERIAL SYMBOLS**

SYM	BOLS	TYPICAL
GRAPH	LETTER	DESCRIPTIONS
	AC	Asphalt Concrete
	cc	Cement Concrete
<b>13</b>	CR	Crushed Rock/ Quarry Spalls
7 71 71 71 71 71 71 71 71 71 71 71 71 71	SOD	Sod/Forest Duff
	TS	Topsoil

#### **Groundwater Contact**

Ţ

Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

#### **Graphic Log Contact**

Distinct contact between soil strata

Approximate contact between soil strata

#### **Material Description Contact**

Contact between geologic units

\_\_\_\_\_ Contact between soil of the same geologic

#### **Laboratory / Field Tests**

%F Percent fines %G Percent gravel AL Atterberg limits CA Chemical analysis

CP Laboratory compaction test

CS Consolidation test
DD Dry density
DS Direct shear
HA Hydrometer analysis

MC Moisture content
MD Moisture content and

MD Moisture content and dry density
Mohs Mohs hardness scale
OC Organic content

PM Permeability or hydraulic conductivity

PI Plasticity index
PL Point load test
PP Pocket penetrometer
SA Sieve analysis

TX Triaxial compression

UC Unconfined compression

UU Unconsolidated undrained triaxial compression

VS Vane shear

#### **Sheen Classification**

NS No Visible Sheen SS Slight Sheen MS Moderate Sheen HS Heavy Sheen

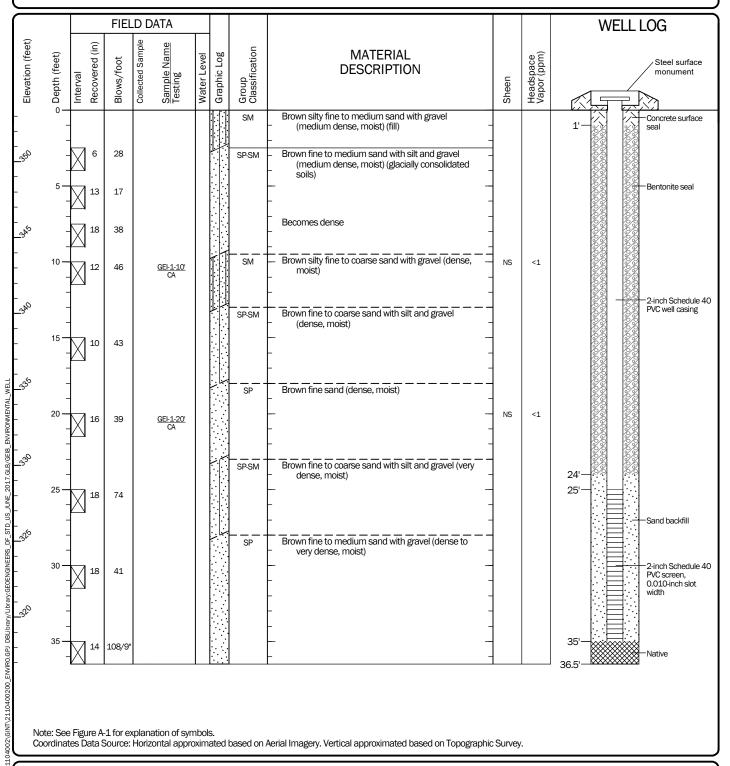
NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative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

## Key to Exploration Logs



Figure A-1

Start Drilled 7/13/2023	<u>End</u> 7/13/2023	Total Depth (ft)	36.5	Logged By Checked By	JE CRG	Driller Advanced Drill Technology	ologies,	Drilling Method Hollow-stem Auger	
Hammer Data	Autohan 140 (lbs) / 30			Drilling Equipment	Die	drich D-50 Track Rig	DOE Well I.D.: E	BPR 247 installed on 7/13/2023 to a depth of 3	5 ft.
Surface Elevation (ft) Vertical Datum	-	53.4 NVD88	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		353.20	Groundwater	Depth to		
Latitude Longitude	47.7355 -122.3287		Horizontal Datum	WA Decimal Degrees North WGS84 (feet)		<u>Date Measured</u> 7/26/2023	<u>Water (ft)</u> <u>Elevat</u> Dry	tion (ft)	
Notes: Environr	Notes: Environmental sampling was completed as part of the environmental services, no sheen and headspace vapor less than 1 unless otherwise noted.								



## Log of Monitoring Well GEI-1



Project: Shoreline III

Project Location: Shoreline, Washington

Drilled	<u>Start</u> 7/13/2023	<u>End</u> 7/13/2023	Total Depth (ft)	36.5	Logged By Checked By	JE CRG	Driller Advanced Drill Technology	ologies,	Drilling Method Hollow-stem Auger
Surface Vertical	Elevation (ft) Datum		355 VD88		Hammer Data	14	Autohammer O (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D-50 Track Rig
Latitude Longitud			7354 2.3282		System Datum	WA D	ecimal Degrees North WGS84 (feet)	Groundwate	er not observed at time of exploration
Notes: Environmental sampling was completed as part of the environmental services, no sheen and headspace vapor less than 1 unless otherwise noted.									

FIELD DATA Elevation (feet) Sample Name Testing Collected Sample Group Classification **MATERIAL** Graphic Log **REMARKS** Blows/foot **DESCRIPTION** Interval Light brown silty fine to medium sand with gravel (medium dense, moist) (fill) Brown silty fine sand with occasional gravel (medium dense, moist) 15 18 SM Brown silty fine to medium sand (medium dense, moist) 18 24 (glacially consolidated soils) NS 29 GEI-2-7.5' CA With occasional gravel SP-SM 10 Brown fine to medium sand with silt and gravel 23 18 (medium dense, moist) 15 18 49 Becomes dense with occasional gravel 20 53 18 Becomes very dense with gravel 25 30 18 65 GEI-2-30' CA 18

## Log of Boring GEI-2



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

Project: Shoreline III

Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Topographic Survey.

Project Location: Shoreline, Washington

Drilled	<u>Start</u> 7/12/2023	<u>End</u> 7/12/2023	Total Depth (ft)	36.5	Logged By Checked By	JE CRG	Driller Advanced Drill Technology	ologies,	Drilling Method Hollow-stem Auger	
Surface Vertical	Elevation (ft) Datum		349 VD88		Hammer Data	14	Autohammer O (lbs) / 30 (in) Drop	Drilling Equipment	Diedrich D-50 Track Rig	
Latitude Longitud			7355 2.3274		System Datum	Groundwater not observed at time of explor				
Notes: Environmental sampling was completed as part of the environmental services, no sheen and headspace vapor less than 1 unless otherwise noted.										

FIELD DATA Elevation (feet) Sample Name Testing Collected Sample Group Classification **MATERIAL** Graphic Log **REMARKS** Blows/foot **DESCRIPTION** Interval Brown silty fine to medium sand with gravel (medium dense, moist) (fill) 23 18 Brown silty fine to medium sand and occasional gravel (medium dense, moist) (glacially consolidated soils) 18 28 GEI-3-5' CA SP-SM Brown fine to coarse sand with silt and gravel (medium 13 dense, moist) 16 15 <1 18 61 GEI-3-15' CA Becomes very dense 20 38 18 Becomes dense with occasional gravel 25 Becomes very dense 30 18 39 Becomes dense 43 18 Note: See Figure A-1 for explanation of symbols. Coordinates Data Source: Horizontal approximated based on Aerial Imagery. Vertical approximated based on Topographic Survey.

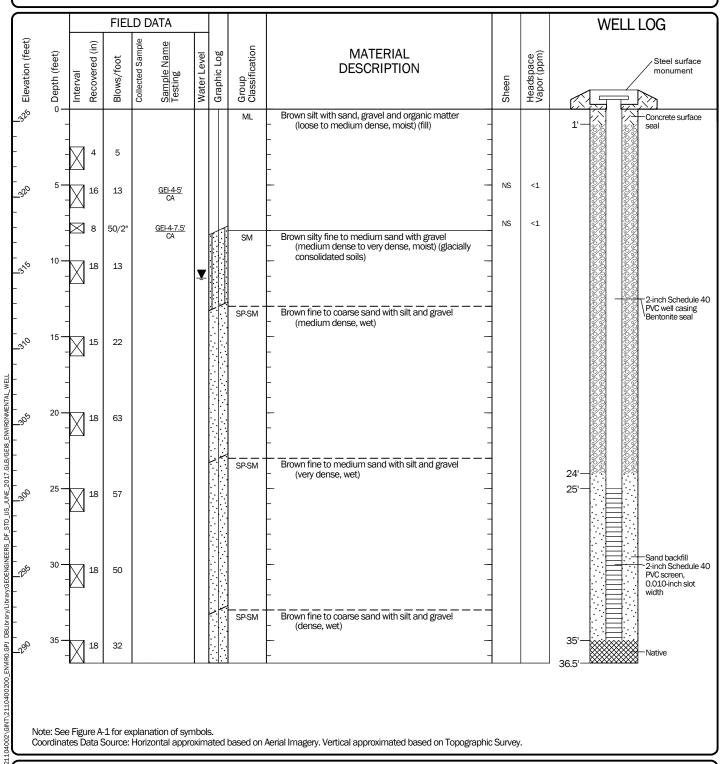
## Log of Boring GEI-3



Project: Shoreline III

Project Location: Shoreline, Washington

Start Drilled 7/12/2023	<u>End</u> 7/12/2023	Total Depth (ft)	36.5	Logged By Checked By	JE CRG	Driller Advanced Drill Techn Inc.	ologies,	gies, Drilling Hollow-stem A	
Hammer Data	Autohar 140 (lbs) / 30			Drilling Equipment	Died	drich D-50 Track Rig	DOE Well I.D.: E A 2-in well was i	BPQ 246 nstalled on 7/12/2023 to	a depth of 35 ft.
Surface Elevation (ft) Vertical Datum	-	25.8 NVD88		Top of Casing Elevation (ft)		325.40	Groundwater Depth to		
Latitude Longitude	47.7357 -122.3266		Horizontal Datum	WA Decimal Degrees North WGS84 (feet)		<u>Date Measured</u> 7/26/2023	<u>Water (ft)</u> 11.13	Elevation (ft) 314.27	
Notes: Environi	mental samplin	g was comple	eted as pa	rt of the environme	ntal service	es, no sheen and headspace va	por less than 1 ur	nless otherwise noted.	



## Log of Monitoring Well GEI-4



Project: Shoreline III

Project Location: Shoreline, Washington

# APPENDIX B Chemical Analytical Laboratory Reports

## APPENDIX B CHEMICAL ANALYTICAL DATA

#### **Analytical Methods**

Chain-of-custody procedures were followed during the transport of the soil samples to the analytical laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results, analytical method references and laboratory quality control (QC) 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. Data quality exceptions documented by the accredited laboratory were reviewed by GeoEngineers and are addressed in the data quality exception section of this appendix.

#### **Analytical Data Review Summary**

No data quality exceptions were noted in the laboratory reports during our review. Based on our data quality review, the samples/results were considered of acceptable quality for their intended use in this report.





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

July 24, 2023

Jacob Letts GeoEngineers, Inc. 1101 Fawcett Avenue South, Suite 200 Tacoma, WA 98402

Re: Analytical Data for Project 21104-002-01 Laboratory Reference No. 2307-091

Dear Jacob:

Enclosed are the analytical results and associated quality control data for samples submitted on July 13, 2023.

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

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

Sincerely,

David Baumeister Project Manager

**Enclosures** 

Date of Report: July 24, 2023 Samples Submitted: July 13, 2023 Laboratory Reference: 2307-091

Project: 21104-002-01

#### **Case Narrative**

Samples were collected on July 12 and 13, 2023 and received by the laboratory on July 13, 2023. They were maintained at the laboratory at a temperature of  $2^{\circ}$ C to  $6^{\circ}$ C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

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

#### **ANALYTICAL REPORT FOR SAMPLES**

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
GEI-4-5'	07-091-01	Soil	7-12-23	7-12-23	
GEI-4-7.5'	07-091-02	Soil	7-12-23	7-12-23	
GEI-3-5'	07-091-03	Soil	7-12-23	7-12-23	
GEI-3-15'	07-091-04	Soil	7-12-23	7-12-23	
GEI-2-7.5'	07-091-05	Soil	7-13-23	7-13-23	
GEI-2-30'	07-091-07	Soil	7-13-23	7-13-23	
GEI-1-10'	07-091-08	Soil	7-13-23	7-13-23	
GEI-1-20'	07-091-09	Soil	7-13-23	7-13-23	

#### **GASOLINE RANGE ORGANICS/BTEX NWTPH-Gx/EPA 8021B**

Matrix: Soil

Units: mg/kg (ppm)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-4-5'					
Laboratory ID:	07-091-01					
Gasoline	ND	6.5	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	107	65-126				
Client ID:	GEI-4-7.5'					
Laboratory ID:	07-091-02					
Gasoline	ND	6.3	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	111	65-126				
Client ID:	GEI-3-5'					
Laboratory ID:	07-091-03					
Benzene	ND	0.020	EPA 8021B	7-17-23	7-17-23	
Toluene	ND	0.057	EPA 8021B	7-17-23	7-17-23	
Ethylbenzene	ND	0.057	EPA 8021B	7-17-23	7-17-23	
m,p-Xylene	ND	0.057	EPA 8021B	7-17-23	7-17-23	
o-Xylene	ND	0.057	EPA 8021B	7-17-23	7-17-23	
Gasoline	ND	5.7	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	112	65-126				
Client ID:	GEI-3-15'					
Laboratory ID:	07-091-04					
Gasoline	ND	5.9	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	109	65-126				
Client ID:	GEI-2-7.5'					
Laboratory ID:	07-091-05					
Gasoline	ND	6.4	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	110	65-126				

#### **GASOLINE RANGE ORGANICS/BTEX NWTPH-Gx/EPA 8021B**

Matrix: Soil

Units: mg/kg (ppm)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-2-30'					
Laboratory ID:	07-091-07					
Benzene	ND	0.020	EPA 8021B	7-17-23	7-17-23	
Toluene	ND	0.056	EPA 8021B	7-17-23	7-17-23	
Ethylbenzene	ND	0.056	EPA 8021B	7-17-23	7-17-23	
m,p-Xylene	ND	0.056	EPA 8021B	7-17-23	7-17-23	
o-Xylene	ND	0.056	EPA 8021B	7-17-23	7-17-23	
Gasoline	ND	5.6	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	110	65-126				
Client ID:	GEI-1-10'					
Laboratory ID:	07-091-08					
Gasoline	ND	4.9	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	111	65-126				
Client ID:	GEI-1-20'					
Laboratory ID:	07-091-09					
Gasoline	ND	5.6	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	111	65-126				

#### **DIESEL AND HEAVY OIL RANGE ORGANICS NWTPH-Dx**

Matrix: Soil

Units: mg/Kg (ppm)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-4-5'					
Laboratory ID:	07-091-01					
Diesel Range Organics	ND	28	NWTPH-Dx	7-14-23	7-24-23	
Lube Oil Range Organics	ND	55	NWTPH-Dx	7-14-23	7-24-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	65	50-150				
011 / ID	0=: 4 = =:					
Client ID:	GEI-4-7.5'					
Laboratory ID:	07-091-02			=		
Diesel Range Organics	ND	29	NWTPH-Dx	7-14-23	7-14-23	
Lube Oil	140	58	NWTPH-Dx	7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	65	50-150				
Client ID:	GEI-3-5'					
Laboratory ID:	07-091-03					
Diesel Range Organics	ND	26	NWTPH-Dx	7-14-23	7-14-23	
Lube Oil Range Organics	ND	53	NWTPH-Dx	7-14-23 7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits	NW II II-DX	7-14-20	7-14-20	-
o-Terphenyl	70	50-150				
o respiration	70	00 100				
Client ID:	GEI-3-15'					
Laboratory ID:	07-091-04					
Diesel Range Organics	ND	27	NWTPH-Dx	7-14-23	7-14-23	
Lube Oil Range Organics	ND	55	NWTPH-Dx	7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	75	50-150				
011 / ID	<b>A=</b> 1					
Client ID:	GEI-2-7.5'					
Laboratory ID:	07-091-05					
Diesel Range Organics	ND	27	NWTPH-Dx	7-14-23	7-14-23	
Lube Oil Range Organics	ND	54	NWTPH-Dx	7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	76	50-150				
Client ID:	GEI-2-30'					
Laboratory ID:	07-091-07					
Diesel Range Organics	45	27	NWTPH-Dx	7-14-23	7-14-23	
Lube Oil Range Organics	54	53	NWTPH-Dx	7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits	TTTTT TITE ON	1 1 1-20	1 1 1-20	
o-Terphenyl	69	50-150				
		00 700				

#### **DIESEL AND HEAVY OIL RANGE ORGANICS NWTPH-Dx**

Matrix: Soil

Units: mg/Kg (ppm)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-1-10'					_
Laboratory ID:	07-091-08					
Diesel Range Organics	ND	26	NWTPH-Dx	7-14-23	7-14-23	_
Lube Oil Range Organics	ND	52	NWTPH-Dx	7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	67	50-150				
Client ID:	GEI-1-20'					
	07-091-09					
Laboratory ID:		07	NW/TDLL Dec	7 44 00	7.44.00	
Diesel Range Organics	ND	27	NWTPH-Dx	7-14-23	7-14-23	
Lube Oil Range Organics	ND	53	NWTPH-Dx	7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits		·	·	
o-Terphenyl	62	50-150				

Date of Report: July 24, 2023 Samples Submitted: July 13, 2023 Laboratory Reference: 2307-091

Project: 21104-002-01

#### PAHs EPA 8270E/SIM

Matrix: Soil Units: mg/Kg

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-3-5'					
Laboratory ID:	07-091-03					
Naphthalene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
2-Methylnaphthalene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
1-Methylnaphthalene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Acenaphthylene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Acenaphthene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Fluorene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Phenanthrene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Anthracene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Fluoranthene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Pyrene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[a]anthracene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Chrysene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[b]fluoranthene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo(j,k)fluoranthene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[a]pyrene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Indeno(1,2,3-c,d)pyrene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Dibenz[a,h]anthracene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[g,h,i]perylene	ND	0.0070	EPA 8270E/SIM	7-17-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits				
2-Fluorobiphenyl	68	39-111				
Pyrene-d10	81	47-114				
Terphonyl d14	92	11 121				

Date of Report: July 24, 2023 Samples Submitted: July 13, 2023 Laboratory Reference: 2307-091

Project: 21104-002-01

#### PAHs EPA 8270E/SIM

Matrix: Soil Units: mg/Kg

Analyte Client ID: Laboratory ID: Naphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene	Result  GEI-1-10'  07-091-08  ND  ND  ND  ND  ND	0.0069 0.0069 0.0069	Method  EPA 8270E/SIM EPA 8270E/SIM	7-17-23	<b>Analyzed</b> 7-18-23	Flags
Laboratory ID: Naphthalene P-Methylnaphthalene I-Methylnaphthalene Acenaphthylene	07-091-08 ND ND ND	0.0069			7-18-23	
Naphthalene 2-Methylnaphthalene I-Methylnaphthalene Acenaphthylene	ND ND ND	0.0069			7-18-23	
2-Methylnaphthalene I-Methylnaphthalene Acenaphthylene	ND ND	0.0069			7-18-23	
I-Methylnaphthalene Acenaphthylene	ND		EPA 8270E/SIM			
Acenaphthylene		0.0069		7-17-23	7-18-23	
	ND		EPA 8270E/SIM	7-17-23	7-18-23	
Acenaphthene		0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
toonapharono	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
luorene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Phenanthrene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Anthracene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
-luoranthene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Pyrene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[a]anthracene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Chrysene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[b]fluoranthene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo(j,k)fluoranthene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[a]pyrene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
ndeno(1,2,3-c,d)pyrene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Dibenz[a,h]anthracene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[g,h,i]perylene	ND	0.0069	EPA 8270E/SIM	7-17-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits				
2-Fluorobiphenyl	68	39-111				
Pyrene-d10	81	47-114				
Terphenyl-d14	81	44-121				

#### **TOTAL METALS** EPA 6010D/7471B

Matrix: Soil

Omo. mg/ng (ppm)				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-4-5'					
Laboratory ID:	07-091-01					
Arsenic	ND	11	EPA 6010D	7-18-23	7-18-23	
Barium	28	2.8	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.55	EPA 6010D	7-18-23	7-18-23	
Chromium	27	0.55	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.5	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.28	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	11	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.1	EPA 6010D	7-18-23	7-18-23	
Client ID:	GEI-4-7.5'					
Laboratory ID:	07-091-02					
Arsenic	ND	12	EPA 6010D	7-18-23	7-18-23	
Barium	53	2.9	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.58	EPA 6010D	7-18-23	7-18-23	
Chromium	31	0.58	EPA 6010D	7-18-23	7-18-23	
Lead	31	5.8	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.29	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	12	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.2	EPA 6010D	7-18-23	7-18-23	
Client ID:	GEI-3-5'					
Laboratory ID:	07-091-03					
Arsenic	ND	11	EPA 6010D	7-18-23	7-18-23	
Barium	46	2.6	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.53	EPA 6010D	7-18-23	7-18-23	
Chromium	19	0.53	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.3	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.26	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	11	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.1	EPA 6010D	7-18-23	7-18-23	

#### **TOTAL METALS** EPA 6010D/7471B

Matrix: Soil

0 0 (I I )				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-3-15'					
Laboratory ID:	07-091-04					
Arsenic	ND	11	EPA 6010D	7-18-23	7-18-23	
Barium	43	2.7	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.55	EPA 6010D	7-18-23	7-18-23	
Chromium	20	0.55	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.5	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.27	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	11	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.1	EPA 6010D	7-18-23	7-18-23	
Client ID:	GEI-2-7.5'					
Laboratory ID:	07-091-05					
Arsenic	ND	11	EPA 6010D	7-18-23	7-18-23	
Barium	53	2.7	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.54	EPA 6010D	7-18-23	7-18-23	
Chromium	26	0.54	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.4	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.27	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	11	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.1	EPA 6010D	7-18-23	7-18-23	
Client ID:	GEI-2-30'					
Laboratory ID:	07-091-07					
Arsenic	ND	11	EPA 6010D	7-18-23	7-18-23	
Barium	28	2.7	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.53	EPA 6010D	7-18-23	7-18-23	
Chromium	21	0.53	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.3	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.27	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	11	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.1	EPA 6010D	7-18-23	7-18-23	

Project: 21104-002-01

#### TOTAL METALS EPA 6010D/7471B

Matrix: Soil

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-1-10'					_
Laboratory ID:	07-091-08					
Arsenic	ND	10	EPA 6010D	7-18-23	7-18-23	
Barium	60	2.6	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.52	EPA 6010D	7-18-23	7-18-23	
Chromium	17	0.52	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.2	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.26	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	10	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.0	EPA 6010D	7-18-23	7-18-23	
Client ID:	GEI-1-20'					
Laboratory ID:	07-091-09					
Arsenic	ND	11	EPA 6010D	7-18-23	7-18-23	
Barium	42	2.7	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.53	EPA 6010D	7-18-23	7-18-23	
Chromium	20	0.53	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.3	EPA 6010D	7-18-23	7-18-23	
Mercury	ND	0.27	EPA 7471B	7-18-23	7-18-23	
Selenium	ND	11	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.1	EPA 6010D	7-18-23	7-18-23	

#### **GASOLINE RANGE ORGANICS/BTEX NWTPH-Gx/EPA 8021B QUALITY CONTROL**

Matrix: Soil

Units: mg/kg (ppm)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0717S1					
Benzene	ND	0.020	EPA 8021B	7-17-23	7-17-23	
Toluene	ND	0.050	EPA 8021B	7-17-23	7-17-23	
Ethylbenzene	ND	0.050	EPA 8021B	7-17-23	7-17-23	
m,p-Xylene	ND	0.050	EPA 8021B	7-17-23	7-17-23	
o-Xylene	ND	0.050	EPA 8021B	7-17-23	7-17-23	
Gasoline	ND	5.0	NWTPH-Gx	7-17-23	7-17-23	
Surrogate:	Percent Recovery	Control Limits				

Surrogate: Fluorobenzene 109 65-126

					Source	Per	cent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Result	Rec	overy	Limits	RPD	Limit	Flags
DUPLICATE											
Laboratory ID:	07-09	91-01									
	ORIG	DUP									
Benzene	ND	ND	NA	NA		N	ΙA	NA	NA	30	
Toluene	ND	ND	NA	NA		N	lΑ	NA	NA	30	
Ethylbenzene	ND	ND	NA	NA		N	lΑ	NA	NA	30	
m,p-Xylene	ND	ND	NA	NA		N	lΑ	NA	NA	30	
o-Xylene	ND	ND	NA	NA		N	lΑ	NA	NA	30	
Gasoline	ND	ND	NA	NA		١	lΑ	NA	NA	30	
Surrogate:											
Fluorobenzene						107	107	65-126			
SPIKE BLANKS											
Laboratory ID:	SB07	17S1									
	SB	SBD	SB	SBD		SB	SBD				
Benzene	1.03	1.03	1.00	1.00		103	103	77-113	0	10	
Toluene	1.06	1.06	1.00	1.00		106	106	81-115	0	10	
Ethylbenzene	1.05	1.05	1.00	1.00		105	105	80-115	0	10	
m,p-Xylene	1.06	1.06	1.00	1.00		106	106	81-115	0	11	
o-Xylene	1.07	1.07	1.00	1.00		107	107	82-115	0	11	
Surrogate:		•	•		•		•			•	
Fluorobenzene						100	101	65-126			

#### **DIESEL AND HEAVY OIL RANGE ORGANICS NWTPH-Dx QUALITY CONTROL**

Matrix: Soil

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0714S1					
Diesel Range Organics	ND	25	NWTPH-Dx	7-14-23	7-14-23	
Lube Oil Range Organics	ND	50	NWTPH-Dx	7-14-23	7-14-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	81	50-150				

					Source	Percent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Result	Recovery	Limits	RPD	Limit	Flags
DUPLICATE										
Laboratory ID:	07-07	'8-01								
	ORIG	DUP								
Diesel Range	ND	ND	NA	NA		NA	NA	NA	40	
Lube Oil	90.7	74.5	NA	NA		NA	NA	20	40	
Surrogate:		•								
o-Terphenyl						78 77	50-150			

Project: 21104-002-01

#### PAHs EPA 8270E/SIM **QUALITY CONTROL**

Matrix: Soil Units: mg/Kg

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0717S1					
Naphthalene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
2-Methylnaphthalene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
1-Methylnaphthalene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Acenaphthylene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Acenaphthene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Fluorene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Phenanthrene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Anthracene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Fluoranthene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Pyrene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[a]anthracene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Chrysene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[b]fluoranthene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo(j,k)fluoranthene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[a]pyrene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Indeno(1,2,3-c,d)pyrene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Dibenz[a,h]anthracene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Benzo[g,h,i]perylene	ND	0.0067	EPA 8270E/SIM	7-17-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits				
2-Fluorobiphenyl	68	39-111				
Pyrene-d10	89	47-114				
Ternhenyl-d14	88	44-121				

Terphenyl-d14 88 44-121

#### PAHs EPA 8270E/SIM **QUALITY CONTROL**

Matrix: Soil Units: mg/Kg

					Р	ercent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Re	covery	Limits	RPD	Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB07	'17S1								
	SB	SBD	SB	SBD	SE	SBD				
Naphthalene	0.0594	0.0601	0.0833	0.0833	71	72	57-116	1	16	
Acenaphthylene	0.0690	0.0688	0.0833	0.0833	83	83	59-124	0	15	
Acenaphthene	0.0663	0.0655	0.0833	0.0833	80	79	59-124	1	15	
Fluorene	0.0717	0.0718	0.0833	0.0833	86	86	62-122	0	15	
Phenanthrene	0.0736	0.0737	0.0833	0.0833	88	88	62-119	0	15	
Anthracene	0.0712	0.0707	0.0833	0.0833	85	85	64-123	1	15	
Fluoranthene	0.0804	0.0784	0.0833	0.0833	97	94	63-123	3	15	
Pyrene	0.0772	0.0779	0.0833	0.0833	93	94	62-124	1	15	
Benzo[a]anthracene	0.0771	0.0717	0.0833	0.0833	93	86	59-131	7	15	
Chrysene	0.0766	0.0822	0.0833	0.0833	92	99	61-124	7	15	
Benzo[b]fluoranthene	0.0836	0.0856	0.0833	0.0833	10	103	60-126	2	15	
Benzo(j,k)fluoranthene	0.0787	0.0758	0.0833	0.0833	94	91	63-121	4	17	
Benzo[a]pyrene	0.0750	0.0757	0.0833	0.0833	90	91	60-122	1	15	
Indeno(1,2,3-c,d)pyrene	0.0712	0.0725	0.0833	0.0833	85	87	58-127	2	15	
Dibenz[a,h]anthracene	0.0760	0.0768	0.0833	0.0833	91	92	60-124	1	15	
Benzo[g,h,i]perylene	0.0761	0.0757	0.0833	0.0833	91	91	58-124	1	15	
Surrogate:										
2-Fluorobiphenyl					75	76	39-111			
Pyrene-d10					86	90	47-114			
Terphenyl-d14					90	86	44-121			

#### **TOTAL METALS** EPA 6010D/7471B **QUALITY CONTROL**

Matrix: Soil

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0718SM1					
Arsenic	ND	10	EPA 6010D	7-18-23	7-18-23	
Barium	ND	2.5	EPA 6010D	7-18-23	7-18-23	
Cadmium	ND	0.50	EPA 6010D	7-18-23	7-18-23	
Chromium	ND	0.50	EPA 6010D	7-18-23	7-18-23	
Lead	ND	5.0	EPA 6010D	7-18-23	7-18-23	
Selenium	ND	10	EPA 6010D	7-18-23	7-18-23	
Silver	ND	1.0	EPA 6010D	7-18-23	7-18-23	
Laboratory ID:	MB0718S1					
Mercury	ND	0.25	EPA 7471B	7-18-23	7-18-23	

					Source	Pei	rcent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Result	Rec	overy	Limits	RPD	Limit	Flags
DUPLICATE											
Laboratory ID:	07-09	91-05									
	ORIG	DUP									
Arsenic	ND	ND	NA	NA		1	NA	NA	NA	20	
Barium	49.3	42.6	NA	NA		1	NΑ	NA	15	20	
Cadmium	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Chromium	24.6	20.4	NA	NA		1	NΑ	NA	19	20	
Lead	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Selenium	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Silver	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Laboratory ID:	07-09	91-05									
Mercury	ND	ND	NA	NA		1	NΑ	NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	07-09	91-05									
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	106	104	100	100	ND	106	104	75-125	2	20	
Barium	148	145	100	100	49.3	99	95	75-125	2	20	
Cadmium	48.9	49.1	50.0	50.0	ND	98	98	75-125	1	20	
Chromium	119	117	100	100	24.6	95	92	75-125	2	20	
Lead	250	251	250	250	ND	100	100	75-125	0	20	
Selenium	97.1	98.1	100	100	ND	97	98	75-125	1	20	
Silver	23.8	24.1	25.0	25.0	ND	95	96	75-125	1	20	
Laboratory ID:	07-09	91-05									
Mercury	0.502	0.506	0.500	0.500	0.0137	98	99	80-120	1	20	



#### **% MOISTURE**

Client ID	Lab ID	% Moisture	Date Analyzed
GEI-4-5'	07-091-01	10	7-17-23
GEI-4-7.5'	07-091-02	14	7-17-23
GEI-3-5'	07-091-03	5	7-17-23
GEI-3-15'	07-091-04	9	7-17-23
GEI-2-7.5'	07-091-05	7	7-17-23
GEI-2-30'	07-091-07	6	7-17-23
GEI-1-10'	07-091-08	4	7-17-23
GEI-1-20'	07-091-09	6	7-17-23



#### **Data Qualifiers and Abbreviations**

- A Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B The analyte indicated was also found in the blank sample.
- C The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E The value reported exceeds the quantitation range and is an estimate.
- F Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I Compound recovery is outside of the control limits.
- J The value reported was below the practical quantitation limit. The value is an estimate.
- K Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L The RPD is outside of the control limits.
- M Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 Hydrocarbons in diesel range are impacting lube oil range results.
- O Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P The RPD of the detected concentrations between the two columns is greater than 40.
- Q Surrogate recovery is outside of the control limits.
- S Surrogate recovery data is not available due to the necessary dilution of the sample.
- T The sample chromatogram is not similar to a typical .
- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 The practical quantitation limit is elevated due to interferences present in the sample.
- V Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X Sample extract treated with a mercury cleanup procedure.
- X1 Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- X2 Sample extract treated with a silica gel cleanup procedure.
- Y The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Y1 Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL

PQL - Practical Quantitation Limit

RPD - Relative Percent Difference



#### Lab ID 2 Sampled by: 2 00 2 Project Name: Project Number: 6 Received Relinquished Reviewed/Date Received Relinquished Received Relinquished James BE1-1 668-3-5 JE1-4-75 061-2 661-2-661-3 661-1 GE1-4-5 Evergreen SECULINACIS 2/104 -002 -01 14648 NE 95th Street • Redmond, WA 98052 Phone: (425) 883-3881 • www.onsite-env.com Environmenta 15 1 Sample Identification 30 1/12/23 Date Sampled Standard (7 Days) 2 Days Same Day

12:51 BM

9:29cm

×

X

B

5

Time Sampled

Matrix

(other)

**Number of Containers** 

NWTPH-Gx/BTEX (8021 8260 □)

NWTPH-Dx (SG Clean-up □)

Halogenated Volatiles 8260 EDB EPA 8011 (Waters Only) Semivolatiles 8270/SIM

(with low-level PAHs) PAHs 8270/SIM (low-level)

Total RCRA Metals

Total MTCA Metals

HEM (oil and grease) 1664

TCLP Metals

HOLD

% Moisture

Organochlorine Pesticides 8081

Organophosphorus Pesticides 8270/SIM Chlorinated Acid Herbicides 8151

PCBs 8082

**NWTPH-HCID** 

NWTPH-Gx

Volatiles 8260

9:20 m

Company

4:42 pm

Comments/Special Instructions

Reviewed/Date

Chromatograms with final report

Electronic Data Deliverables

(EDDs)

Data Package: Standard

Level

 $\equiv$ 

Level

 $\leq$ 

1135 am

4

×

X

X

×

X

16:45

# Chain of Custody

Turnaround Request   Laboratory Number: 07 - 09 1
Page of

MXU23-3073

(Check One)

3 Days



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

July 26, 2023

Jacob Letts GeoEngineers, Inc. 1101 Fawcett Avenue South, Suite 200 Tacoma, WA 98402

Re: Analytical Data for Project 21104-002-01 Laboratory Reference No. 2307-109

Dear Jacob:

Enclosed are the analytical results and associated quality control data for samples submitted on July 17, 2023.

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

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

Sincerely,

David Baumeister Project Manager

**Enclosures** 

Project: 21104-002-01

#### **Case Narrative**

Samples were collected on July 17, 2023 and received by the laboratory on July 17, 2023. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

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

#### **ANALYTICAL REPORT FOR SAMPLES**

Client ID	Laboratory ID Matrix		Date Sampled	Date Received	Notes
GEI-4-20230717	07-109-01	Water	7-17-23	7-17-23	

Project: 21104-002-01

#### GASOLINE RANGE ORGANICS NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEI-4-20230717					
Laboratory ID:	07-109-01					
Gasoline	ND	100	NWTPH-Gx	7-20-23	7-20-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	92	65-122				

Project: 21104-002-01

### DIESEL AND HEAVY OIL RANGE ORGANICS NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEI-4-20230717					_
Laboratory ID:	07-109-01					
Diesel Range Organics	ND	0.13	NWTPH-Dx	7-18-23	7-18-23	
Lube Oil Range Organics	0.22	0.20	NWTPH-Dx	7-18-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	67	50-150				

Project: 21104-002-01

#### **VOLATILE ORGANICS EPA 8260D**

page 1 of 2

Matrix: Water Units: ug/L

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-4-20230717					
Laboratory ID:	07-109-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Chloromethane	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Vinyl Chloride	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromomethane	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Chloroethane	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Trichlorofluoromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1-Dichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Acetone	ND	5.0	EPA 8260D	7-18-23	7-18-23	
lodomethane	ND	6.5	EPA 8260D	7-18-23	7-18-23	
Carbon Disulfide	ND	0.27	EPA 8260D	7-18-23	7-18-23	
Methylene Chloride	ND	1.0	EPA 8260D	7-18-23	7-18-23	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Methyl t-Butyl Ether	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1-Dichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Vinyl Acetate	ND	1.0	EPA 8260D	7-18-23	7-18-23	
2,2-Dichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
2-Butanone	ND	5.0	EPA 8260D	7-18-23	7-18-23	
Bromochloromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Chloroform	0.42	0.20	EPA 8260D	7-18-23	7-18-23	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Carbon Tetrachloride	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1-Dichloropropene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Benzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Trichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Dibromomethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromodichloromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	7-18-23	7-18-23	
Toluene	ND	1.0	EPA 8260D	7-18-23	7-18-23	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	7-18-23	7-18-23	

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#### **VOLATILE ORGANICS EPA 8260D**

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				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-4-20230717					
Laboratory ID:	07-109-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Tetrachloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,3-Dichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
2-Hexanone	ND	2.0	EPA 8260D	7-18-23	7-18-23	
Dibromochloromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dibromoethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Chlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Ethylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
m,p-Xylene	ND	0.40	EPA 8260D	7-18-23	7-18-23	
o-Xylene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Styrene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromoform	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Isopropylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
n-Propylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
2-Chlorotoluene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
4-Chlorotoluene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
tert-Butylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
sec-Butylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
p-Isopropyltoluene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
n-Butylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dibromo-3-chloropropane		1.0	EPA 8260D	7-18-23	7-18-23	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Hexachlorobutadiene	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Naphthalene	ND	1.0	EPA 8260D	7-18-23	7-18-23	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits				
Dibromofluoromethane	104	75-127				
Toluene-d8	98	80-127				

Toluene-d8 98 80-127 4-Bromofluorobenzene 103 78-125

#### PAHs EPA 8270E/SIM

Matrix: Water Units: ug/L

Prepared	Analyzed	Flags
7-18-23	7-18-23	
7-18-23	7-18-23	
7-18-23	7-18-23	
7-18-23	7-18-23	
7-18-23	7-18-23	
7-18-23	7-18-23	
7-18-23	7-18-23	
	7-18-23 7-18-23 7-18-23 7-18-23 7-18-23	7-18-23 7-18-23 7-18-23 7-18-23 7-18-23 7-18-23 7-18-23 7-18-23 7-18-23 7-18-23 7-18-23 7-18-23

Project: 21104-002-01

#### TOTAL METALS EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
Client ID:	GEI-4-20230717					
Laboratory ID:	07-109-01					
Arsenic	13	3.3	EPA 200.8	7-24-23	7-24-23	
Barium	280	28	EPA 200.8	7-24-23	7-24-23	
Cadmium	ND	4.4	EPA 200.8	7-24-23	7-24-23	
Chromium	84	11	EPA 200.8	7-24-23	7-24-23	
Lead	15	1.1	EPA 200.8	7-24-23	7-24-23	
Mercury	ND	0.50	EPA 7470A	7-19-23	7-19-23	
Selenium	ND	5.6	EPA 200.8	7-24-23	7-24-23	
Silver	ND	11	EPA 200.8	7-24-23	7-24-23	

Project: 21104-002-01

#### GASOLINE RANGE ORGANICS NWTPH-Gx QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0720W1					
Gasoline	ND	100	NWTPH-Gx	7-20-23	7-20-23	
Surrogate:	Percent Recovery	Control Limits				
Fluorobenzene	86	65-122				

					Source	Percent	Recovery		RPD	
Analyte	Res	sult	Spike L	.evel	Result	Recovery	Limits	RPD	Limit	Flags
DUPLICATE										
Laboratory ID:	07-10	9-01								
	ORIG	DUP								
Gasoline	ND	ND	NA	NA		NA	NA	NA	30	
Surrogate:			•	•	•					

Fluorobenzene 92 86 65-122

Project: 21104-002-01

#### DIESEL AND HEAVY OIL RANGE ORGANICS NWTPH-Dx QUALITY CONTROL

Matrix: Water Units: mg/L (ppm)

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0718W1					
Diesel Range Organics	ND	0.10	NWTPH-Dx	7-18-23	7-18-23	
Lube Oil Range Organics	ND	0.16	NWTPH-Dx	7-18-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits				
o-Terphenyl	107	50-150				

					Source	Perc	cent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Result	Reco	very	Limits	RPD	Limit	Flags
DUPLICATE											
Laboratory ID:	SB07	18W1									
	ORIG	DUP									_
Diesel Fuel #2	0.347	0.322	NA	NA		N.	A	NA	7	40	
Surrogate:											
o-Terphenyl						82	78	50-150			

Project: 21104-002-01

#### VOLATILE ORGANICS EPA 8260D QUALITY CONTROL

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Matrix: Water Units: ug/L

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0718W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Chloromethane	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Vinyl Chloride	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromomethane	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Chloroethane	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Trichlorofluoromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1-Dichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Acetone	ND	5.0	EPA 8260D	7-18-23	7-18-23	
lodomethane	ND	6.5	EPA 8260D	7-18-23	7-18-23	
Carbon Disulfide	ND	0.27	EPA 8260D	7-18-23	7-18-23	
Methylene Chloride	ND	1.0	EPA 8260D	7-18-23	7-18-23	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Methyl t-Butyl Ether	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1-Dichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Vinyl Acetate	ND	1.0	EPA 8260D	7-18-23	7-18-23	
2,2-Dichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
2-Butanone	ND	5.0	EPA 8260D	7-18-23	7-18-23	
Bromochloromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Chloroform	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Carbon Tetrachloride	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1-Dichloropropene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Benzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Trichloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Dibromomethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromodichloromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	7-18-23	7-18-23	
Toluene	ND	1.0	EPA 8260D	7-18-23	7-18-23	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	7-18-23	7-18-23	

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#### VOLATILE ORGANICS EPA 8260D QUALITY CONTROL

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				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0718W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Tetrachloroethene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,3-Dichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
2-Hexanone	ND	2.0	EPA 8260D	7-18-23	7-18-23	
Dibromochloromethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dibromoethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Chlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Ethylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
m,p-Xylene	ND	0.40	EPA 8260D	7-18-23	7-18-23	
o-Xylene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Styrene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromoform	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Isopropylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Bromobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	7-18-23	7-18-23	
n-Propylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
2-Chlorotoluene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
4-Chlorotoluene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
tert-Butylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
sec-Butylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
p-Isopropyltoluene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
n-Butylbenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
1,2-Dibromo-3-chloropropane		1.0	EPA 8260D	7-18-23	7-18-23	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Hexachlorobutadiene	ND	1.0	EPA 8260D	7-18-23	7-18-23	
Naphthalene	ND	1.0	EPA 8260D	7-18-23	7-18-23	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	7-18-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits	, , , , , , , , , , , , , , , , , , ,	20	5 25	
Dibromoflyoromothono	10e	CONTION LINING				

Dibromofluoromethane 106 75-127
Toluene-d8 100 80-127
4-Bromofluorobenzene 105 78-125

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#### VOLATILE ORGANICS EPA 8260D QUALITY CONTROL

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Matrix: Water Units: ug/L

					Per	cent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Reco	very	Limits	RPD	Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB07	18W1								
	SB	SBD	SB	SBD	SB	SBD				
Dichlorodifluoromethane	10.6	10.8	10.0	10.0	106	108	34-166	2	21	
Chloromethane	10.9	11.7	10.0	10.0	109	117	63-138	7	18	
Vinyl Chloride	9.62	9.99	10.0	10.0	96	100	71-135	4	20	
Bromomethane	10.7	12.6	10.0	10.0	107	126	20-151	16	36	
Chloroethane	9.68	9.96	10.0	10.0	97	100	76-125	3	20	
Trichlorofluoromethane	9.90	10.5	10.0	10.0	99	105	75-131	6	19	
1,1-Dichloroethene	9.07	9.53	10.0	10.0	91	95	78-125	5	19	
Acetone	10.5	11.0	10.0	10.0	105	110	76-125	5	18	
lodomethane	7.72	10.0	10.0	10.0	77	100	10-155	26	40	
Carbon Disulfide	7.38	8.28	10.0	10.0	74	83	58-129	11	17	
Methylene Chloride	9.49	9.81	10.0	10.0	95	98	80-120	3	15	
(trans) 1,2-Dichloroethene	9.38	9.83	10.0	10.0	94	98	80-125	5	17	
Methyl t-Butyl Ether	9.49	9.58	10.0	10.0	95	96	80-122	1	15	
1,1-Dichloroethane	9.16	9.52	10.0	10.0	92	95	80-125	4	17	
Vinyl Acetate	10.6	11.2	10.0	10.0	106	112	80-131	6	15	
2,2-Dichloropropane	10.3	11.1	10.0	10.0	103	111	80-146	7	21	
(cis) 1,2-Dichloroethene	9.76	10.3	10.0	10.0	98	103	80-129	5	17	
2-Butanone	11.0	11.4	10.0	10.0	110	114	80-129	4	16	
Bromochloromethane	10.8	11.1	10.0	10.0	108	111	80-125	3	18	
Chloroform	9.28	9.59	10.0	10.0	93	96	80-123	3	16	
1,1,1-Trichloroethane	9.22	9.67	10.0	10.0	92	97	80-123	5	18	
Carbon Tetrachloride	8.90	9.33	10.0	10.0	89	93	80-126	5	17	
1,1-Dichloropropene	8.88	9.52	10.0	10.0	89	95	80-126	7	18	
Benzene	9.23	9.65	10.0	10.0	92	97	80-121	4	16	
1,2-Dichloroethane	10.2	10.3	10.0	10.0	102	103	80-124	1	15	
Trichloroethene	8.89	9.38	10.0	10.0	89	94	80-122	5	18	
1,2-Dichloropropane	8.85	9.25	10.0	10.0	89	93	80-123	4	15	
Dibromomethane	9.99	10.2	10.0	10.0	100	102	80-123	2	15	
Bromodichloromethane	9.44	9.75	10.0	10.0	94	98	80-125	3	15	
(cis) 1,3-Dichloropropene	9.87	10.2	10.0	10.0	99	102	80-129	3	15	
Methyl Isobutyl Ketone	9.47	9.83	10.0	10.0	95	98	80-124	4	15	
Toluene	8.42	8.85	10.0	10.0	84	89	80-120	5	18	
(trans) 1,3-Dichloropropene	8.76	8.90	10.0	10.0	88	89	80-134	2	17	

#### **VOLATILE ORGANICS EPA 8260D** QUALITY CONTROL

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Analyte	Re	sult	Spike	Level	Rec	overy	Limits	RPD	Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB07	'18W1								
	SB	SBD	SB	SBD	SB	SBD				
1,1,2-Trichloroethane	9.99	10.3	10.0	10.0	100	103	77-126	3	20	
Tetrachloroethene	8.89	9.67	10.0	10.0	89	97	80-124	8	18	
1,3-Dichloropropane	9.67	9.88	10.0	10.0	97	99	80-120	2	15	
2-Hexanone	9.18	9.35	10.0	10.0	92	94	80-130	2	16	
Dibromochloromethane	10.3	10.5	10.0	10.0	103	105	80-128	2	15	
1,2-Dibromoethane	10.4	10.8	10.0	10.0	104	108	80-127	4	15	
Chlorobenzene	8.79	9.23	10.0	10.0	88	92	80-120	5	17	
1,1,1,2-Tetrachloroethane	9.23	9.73	10.0	10.0	92	97	80-125	5	17	
Ethylbenzene	8.79	9.41	10.0	10.0	88	94	80-125	7	18	
m,p-Xylene	17.7	18.8	20.0	20.0	89	94	80-127	6	18	
o-Xylene	8.94	9.45	10.0	10.0	89	95	80-126	6	18	
Styrene	9.39	9.91	10.0	10.0	94	99	80-130	5	17	
Bromoform	9.87	10.4	10.0	10.0	99	104	80-130	5	15	
Isopropylbenzene	9.10	9.65	10.0	10.0	91	97	80-129	6	18	
Bromobenzene	9.28	9.87	10.0	10.0	93	99	76-128	6	16	
1,1,2,2-Tetrachloroethane	10.3	10.9	10.0	10.0	103	109	74-130	6	15	
1,2,3-Trichloropropane	9.31	9.94	10.0	10.0	93	99	71-129	7	25	
n-Propylbenzene	8.92	9.72	10.0	10.0	89	97	80-129	9	19	
2-Chlorotoluene	8.74	9.40	10.0	10.0	87	94	80-128	7	18	
4-Chlorotoluene	8.95	9.72	10.0	10.0	90	97	80-130	8	19	
1,3,5-Trimethylbenzene	8.83	9.58	10.0	10.0	88	96	80-131	8	18	
tert-Butylbenzene	8.90	8.79	10.0	10.0	89	88	80-130	1	18	
1,2,4-Trimethylbenzene	8.89	9.67	10.0	10.0	89	97	80-130	8	18	
sec-Butylbenzene	8.88	9.69	10.0	10.0	89	97	80-130	9	18	
1,3-Dichlorobenzene	9.01	9.69	10.0	10.0	90	97	80-126	7	17	
p-Isopropyltoluene	8.92	9.78	10.0	10.0	89	98	80-132	9	18	
1,4-Dichlorobenzene	8.78	9.59	10.0	10.0	88	96	80-121	9	17	
1,2-Dichlorobenzene	9.25	9.87	10.0	10.0	93	99	79-125	6	15	
n-Butylbenzene	9.03	9.92	10.0	10.0	90	99	80-138	9	19	
1,2-Dibromo-3-chloropropane	9.73	10.4	10.0	10.0	97	104	73-133	7	15	
1,2,4-Trichlorobenzene	9.12	9.89	10.0	10.0	91	99	80-139	8	18	
Hexachlorobutadiene	8.09	9.16	10.0	10.0	81	92	80-151	12	18	
Naphthalene	8.16	8.68	10.0	10.0	82	87	68-144	6	25	
1,2,3-Trichlorobenzene	8.65	9.55	10.0	10.0	87	96	75-146	10	28	
Surrogate:					<u> </u>					
Dibromofluoromethane					109	107	75-127			
Toluene-d8					101	101	80-127			
4-Bromofluorobenzene					109	108	78-125			
. B. SHIOHAGI ODGI IZGI IG					103	100	10 120			

Project: 21104-002-01

### PAHS EPA 8270E/SIM QUALITY CONTROL

Matrix: Water Units: ug/L

				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0718W1					
Benzo[a]anthracene	ND	0.010	EPA 8270E/SIM	7-18-23	7-18-23	
Chrysene	ND	0.010	EPA 8270E/SIM	7-18-23	7-18-23	
Benzo[b]fluoranthene	ND	0.010	EPA 8270E/SIM	7-18-23	7-18-23	
Benzo(j,k)fluoranthene	ND	0.010	EPA 8270E/SIM	7-18-23	7-18-23	
Benzo[a]pyrene	ND	0.010	EPA 8270E/SIM	7-18-23	7-18-23	
Indeno(1,2,3-c,d)pyrene	ND	0.010	EPA 8270E/SIM	7-18-23	7-18-23	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270E/SIM	7-18-23	7-18-23	
Surrogate:	Percent Recovery	Control Limits				
2-Fluorobiphenyl	34	26-106				
Pyrene-d10	70	45-104				
Terphenyl-d14	71	43-114				

					Pe	rcent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Rec	overy	Limits	RPD	Limit	Flags
SPIKE BLANKS										_
Laboratory ID:	SB07	18W1								
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	0.430	0.387	0.500	0.500	86	77	51 - 119	11	20	
Chrysene	0.483	0.412	0.500	0.500	97	82	52 - 113	16	21	
Benzo[b]fluoranthene	0.484	0.438	0.500	0.500	97	88	50 - 116	10	24	
Benzo(j,k)fluoranthene	0.490	0.408	0.500	0.500	98	82	54 - 113	18	22	
Benzo[a]pyrene	0.478	0.401	0.500	0.500	96	80	52 - 110	18	21	
Indeno(1,2,3-c,d)pyrene	0.422	0.381	0.500	0.500	84	76	55 - 114	10	21	
Dibenz[a,h]anthracene	0.472	0.422	0.500	0.500	94	84	55 - 111	11	19	
Surrogate:										
2-Fluorobiphenyl					53	47	26-106			
Pyrene-d10					83	73	45-104			
Terphenyl-d14					82	72	43-114			

Project: 21104-002-01

#### TOTAL METALS EPA 200.8/7470A QUALITY CONTROL

Matrix: Water Units: ug/L (ppb)

3 (11)				Date	Date	
Analyte	Result	PQL	Method	Prepared	Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0724WM1					
Arsenic	ND	3.3	EPA 200.8	7-24-23	7-24-23	
Barium	ND	28	EPA 200.8	7-24-23	7-24-23	
Cadmium	ND	4.4	EPA 200.8	7-24-23	7-24-23	
Chromium	ND	11	EPA 200.8	7-24-23	7-24-23	
Lead	ND	1.1	EPA 200.8	7-24-23	7-24-23	
Selenium	ND	5.6	EPA 200.8	7-24-23	7-24-23	
Silver	ND	11	EPA 200.8	7-24-23	7-24-23	
Laboratory ID:	MB0719W1					
Mercury	ND	0.50	EPA 7470A	7-19-23	7-19-23	_

					Source	Per	rcent	Recovery		RPD	
Analyte	Res	sult	Spike	Level	Result	Rec	overy	Limits	RPD	Limit	Flags
DUPLICATE											
Laboratory ID:	07-04	19-07									
	ORIG	DUP									
Arsenic	3.80	4.29	NA	NA		1	NA	NA	12	20	
Barium	57.8	57.8	NA	NA		1	NΑ	NA	0	20	
Cadmium	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Chromium	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Lead	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Selenium	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Silver	ND	ND	NA	NA		1	NΑ	NA	NA	20	
Laboratory ID:	07-05	53-01									
Mercury	ND	ND	NA	NA		١	NA	NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	07-04	19-07									
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	114	115	111	111	3.80	100	100	75-125	0	20	
Barium	170	167	111	111	57.8	102	99	75-125	2	20	
Cadmium	112	111	111	111	ND	101	100	75-125	0	20	
Chromium	110	111	111	111	ND	99	100	75-125	1	20	
Lead	108	106	111	111	ND	97	96	75-125	1	20	
Selenium	114	116	111	111	ND	103	104	75-125	2	20	
Silver	114	114	111	111	ND	103	103	75-125	0	20	
Laboratory ID:	07-05	53-01									
Mercury	5.73	5.70	6.25	6.25	ND	92	91	75-125	0	20	



OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881



#### **Data Qualifiers and Abbreviations**

- A Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B The analyte indicated was also found in the blank sample.
- C The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E The value reported exceeds the quantitation range and is an estimate.
- F Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I Compound recovery is outside of the control limits.
- J The value reported was below the practical quantitation limit. The value is an estimate.
- K Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L The RPD is outside of the control limits.
- M Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 Hydrocarbons in diesel range are impacting lube oil range results.
- O Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P The RPD of the detected concentrations between the two columns is greater than 40.
- Q Surrogate recovery is outside of the control limits.
- S Surrogate recovery data is not available due to the necessary dilution of the sample.
- T The sample chromatogram is not similar to a typical .
- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 The practical quantitation limit is elevated due to interferences present in the sample.
- V Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X Sample extract treated with a mercury cleanup procedure.
- X1 Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- X2 Sample extract treated with a silica gel cleanup procedure.
- Y The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Y1 Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL

PQL - Practical Quantitation Limit

RPD - Relative Percent Difference



#### Lab ID Project Manager Project Number: Received Relinquished Reviewed/Date Received Relinquished Received Relinquished ENERGRESSON. 21104-002-0 )Acas EDENCINEERS Phone: (425) 883-3881 • www.onsite-env.com 14648 NE 95th Street • Redmond, WA 98052 **Environmental Inc.** 4-2023071 Sample Identification few7

Company

SECENCINEERS

7-17-27 1909

Time

Comments/Special Instructions

250

Reviewed/Date

Chromatograms with final report

Electronic Data Deliverables (EDDs)

Data Package: Standard

Level

= 

Level

<  Sampled

Sampled lime

Matrix

30

0

(other)

**Number of Containers** 

NWTPH-Gx/BTEX (8021 8260) 8260 €

NWTPH-Dx (SG Clean-up □)

Halogenated Volatiles 8260 EDB EPA 8011 (Waters Only)

Semivolatiles 8270/SIM (with low-level PAHs)

PAHs 8270/SIM (low-level)

Organochlorine Pesticides 8081

Chlorinated Acid Herbicides 8151

Total RCRA Metals &

Total MTCA Metals

HEM (oil and grease) 1664

TCLP Metals

% Moisture

Organophosphorus Pesticides 8270/SIM

GCOC /1000

NWTPH-HCID

Volatiles 8260

CPA 11: PCBs 8082

Standard (7 Days)

2 Days

3 Days ☐ 1 Day

☐ Same Day

# Chain of Custody

Turnaround Request (in working days)

Laboratory

(Check One)

Number:	
-	1
	1
6	
diene	1
	1
	1
(0)	1

MXU23-3073

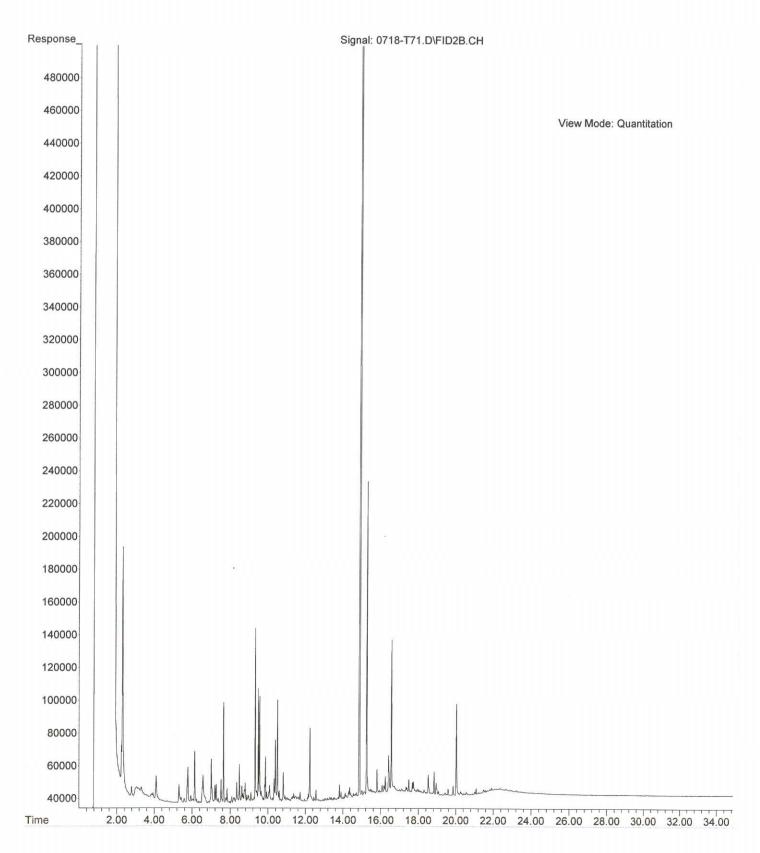
File :C:\msdchem\1\data\T230718.SEC\0718-T71.D

Operator : LW

Acquired : 18 Jul 2023 23:28 using AcqMethod T230601F.M

Instrument : Teri Sample Name: 04-109-01 Misc Info : RearSamp

Vial Number: 71



## APPENDIX C Report Limitations and Guidelines for Use

#### **APPENDIX C**

#### 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. Please confer with GeoEngineers, Inc. (GeoEngineers) if you need to know more about how these "Report Limitations and Guidelines for Use" apply to your project or property.

#### **Read These Provisions Closely**

It is important to recognize that environmental engineering and geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce the risk of misunderstandings or unrealistic expectations that lead to disappointments, claims and disputes.

#### Environmental Services Are Performed for Specific Purposes, Persons and Projects

GeoEngineers has performed this Focused Phase II ESA of the property in general accordance with the scope and limitations of our proposal, dated July 11, 2023. This report has been prepared for the exclusive use of Evergreen Point Development, LLC. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures its services to meet the specific needs of its clients. For example, an ESA 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 property. Use of this report is not recommended for any purpose or project other than as expressly stated in this report.

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

This report has been prepared for the property located at Shoreline III development project located in Shoreline, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this Project. Unless GeoEngineers specifically indicates otherwise, it is important not to 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 Project changes were made.

If changes to the Project or property occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity

<sup>1</sup> Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.



to review our interpretations and recommendations in the context of such changes. Based on that review, we can provide written modifications or confirmation, as appropriate.

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

This report was prepared for the exclusive use of the party to whom this report is addressed. No other party may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed Project scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

#### **Understand That Geotechnical Issues Have Not Been Addressed**

This report does not provide any geotechnical findings, conclusions, or recommendations, including but not limited to, the suitability of subsurface materials for construction purposes. A geotechnical report has been submitted under separate cover.

#### **Do Not Separate Documentation from the Report**

Environmental reports often include supplemental documentation, such as maps, figures, and tables. Do not separate such documentation from the report. Further, do not, and do not permit any other party to redraw or modify any of the supplemental documentation for incorporation into other professionals' instruments of service.

#### **Environmental Regulations Change and Evolve**

Some substances may be present in the vicinity of the site in quantities or under conditions that may have led, or may lead, to contamination of the 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 substances, change or if more stringent environmental standards are developed in the future.

#### **Uncertainty May Remain Even After This Focused Phase II ESA is Completed**

Performance of a Phase II ESA is intended to reduce uncertainty regarding the potential for contamination in connection with a property, but no ESA can wholly eliminate that uncertainty. 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 man-made events such as construction on or adjacent to the site, by new releases of hazardous substances, new information or technology that become available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.



#### **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 properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-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 site or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. GeoEngineers will not assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the site to another location, or the reuse of such soil and/or groundwater on-site in any instances that we did not recommend, know of, or 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 its professional judgment to render an informed opinion about subsurface conditions throughout the property. Actual subsurface conditions may differ significantly from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

#### **Do Not Redraw the Exploration Logs**

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design documents. Only photographic or electronic reproduction that preserves the entire original boring log is acceptable, but separating logs from the report can increase the risk of potential misinterpretation.

#### **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.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.



