Appendix J: Field Methods and Exploration Logs for 2019 Data Gaps Investigation (35 Sheets)

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Introduction

This appendix describes Shannon & Wilson's field methods, including explorations, field testing, soil and groundwater sampling, data analysis, and the handling of investigation derived waste (IDW). The scope of the activities conducted includes the following:

- Gasoline-range petroleum hydrocarbons and associated benzene, toluene, ethylbenzene, and xylene (BTEX) compounds are present in Site soil and groundwater at concentrations exceeding cleanup levels. The concentrations of constituents in soil gas, collected on the Site and at a location adjacent to the nearest occupied property, were below indoor air exposure thresholds at the time of sampling.
- Advancement of 16 borings in and around the Site, including:
  - Eight soil borings with no installations: SB-2-19 through SB-9-19
  - Five borings completed as groundwater monitoring wells: MW-1-19 through MW-5-20
  - Two borings completed as vapor monitoring points: SG-1-19 and SG-2-19
  - One boring completed as a product recovery well: RW-1-19
- Collection of soil, groundwater, and soil vapor samples for chemical analysis.
- Analysis of groundwater levels to obtain an estimated groundwater gradient direction for the Site.
- Hydraulic conductivity (slug) tests.

Standard investigation methods, including sample collection, field screening, documentation procedures, and selected analyses, are described briefly in the following subsections. Methods and documentation were completed in accordance with Shannon & Wilson's standard operating procedures.

Pre-Sampling Activities

Prior to the field phase, public and private utility locating took place in the areas of subsurface exploration. Exploration locations were marked with white paint. Shannon & Wilson obtained a public utility locating ticket number by coordinating with the Washington State Utility Notification Center. A private utility locating company utilized electromagnetic detection and ground penetrating radar methods.

A site-specific health and safety plan for the environmental explorations and sampling was prepared for and implemented during field activities. The plan addresses worker safety and safety related to protecting the public from hazards associated with explorations and sampling. An exclusion zone was established around each exploration with safety cones to protect field personnel from parking lot hazards and to isolate the public from the work zone. Prior to the start of fieldwork each day, a tailgate safety meeting was held to identify potential job hazards and to remind personnel to be aware of their surroundings. A daily health and safety tailgate meeting sign-in sheet was completed to document field personnel were briefed on safety hazards expected for that day.

Traffic control was required during drilling and subsequent well development and groundwater sampling activities. Traffic control plans and a street use permit were acquired prior to field mobilization.

Shannon & Wilson coordinated with the Washington State Department of Transportation (WSDOT) to gain access to the property.

Boring Advancement and Logging

Prior to advancing the borings, each location was potholed to approximately 5 feet below ground surface (bgs) using pressurized air to break up the soil and vacuum out the boreholes. The borings were then advanced using sonic drilling methods with standard penetration testing (SPT) equipment and a split-spoon sampler for environmental soil sample collection.

Soil was visually described using Shannon & Wilson's soil classification procedure, which is a modified version of the Unified Soil Classification System. The soil descriptions were recorded on field logs. The boring logs are enclosed.

Installations

Four groundwater monitoring wells, one product recovery well, and two soil vapor monitoring points were installed. The following exhibit provides key parameters. The following sections describe the installation methods.

EXHIBIT J-1: INSTALLATION PARAMETERS

Well ID	Ecology Well Tag ID	Northing	Easting	Total Depth (feet bgs)	Screened Interval (feet bgs)	Materials
MW-1-19	BLU421	238209.4833	1277927.53	26.5	11.5 to 26.5	2-inch PVC, 10 slot screen
MW-2-19	BLT996	238165.7495	1277765.886	20.0	10.0 to 20.0	2-inch PVC, 10 slot screen
MW-3-19	BLT987	238,303.838	1,277,738.636	25.0	10.0 to 25.0	2-inch PVC, 10 slot screen
MW-4-19	BLT986	238,264.421	1,277,911.209	27.0	17.0 to 27.0	2-inch PVC, 10 slot screen
MW-5-19	BLU319	TBD	TBD	26.0	5.0 to 15.0	2-inch PVC, 10 slot screen
RW-1-19	BLU433	238267.5298	1277864.232	29.5	14.5 to 29.5	4-inch PVC, 10 slot screen
SG-1-19	BLT997	238192.1348	1277883.769	15.0	14.5 to 15.0	¼-in-dia silicone tubing, 6-inch-long stainless steel monitoring point
SG-2-19	BLT998	238186.358	1277913.121	5.0	4.5 to 5.0	¼-in-dia silicone tubing, 6-inch-long stainless steel monitoring point

NOTES:
Coordinates are reported in State Plane, Washington North, US Feet, North American Datum of 1983
Coordinates were collected via a WSDOT surveyor, except for wells MW-3-19 and MW-4-19, which were collected via Google Earth overlay.
Elevations are reported in North American Vertical Datum of 1988.
bgs = below ground surface; dia = diameter; Ecology = Washington State Department of Ecology; ID = identification; in = inch; PVC = polyvinyl chloride

Groundwater Monitoring Wells

The groundwater monitoring wells were constructed of 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC), thread-coupled, flush-joint riser pipe, and a 0.010-inch Schedule 40 slotted screen (10-slot). The wells were constructed with 1 to 2 feet of screen above the anticipated groundwater table to evaluate if free petroleum hydrocarbon product/non-aqueous phase liquid has accumulated or pooled on the water table. The annulus between the boring wall and the well screen was backfilled with clean filter sand (U.S. No. 12-20) to 2 feet above the top of the screen. The remaining annular space was filled with bentonite chips (hydrated in place) to 2 feet bgs. Each well was completed with a concrete plug and a flush-mount, traffic-rated monument.

Product Recovery Well

The product recovery well (RW-1-19) was installed with the same parameters as the groundwater monitoring wells, except the pipe was 4-inch-diameter.

Soil Vapor Monitoring Points

Two vapor monitoring points were installed such that one vapor intake (SG-1-19) was placed just above the groundwater table, at approximately 15 feet bgs, and the other (SG-2-19) just below the paved surface at approximately 5 feet bgs. Soil vapor monitoring points were completed with:

- Vapor monitoring point of ¼-inch-diameter, 6-inch-long, stainless steel point with inlet perforations resting at the bottom of the boring
- Filter pack of 12/20 silica sand to 1 to 2 feet above the vapor point
- Blank tubing of ¼-inch-diameter silicone from the vapor point up to the monument
- Sealed with hydrated-in-place bentonite chips to 2 to 3 feet bgs
- Concrete plug to ground surface with flush-mount, traffic-rated monuments

Field Screening

Field screening of soil samples helped evaluate for the potential presence of contamination. Based on the source of contamination and previous investigations, the most likely locations to encounter contamination are at the water table interface, in the water table smear (fluctuation) zone, at fill/native soil contacts, and at pronounced changes in permeability. However, the location of contamination, if any, is site-dependent.

Field screening methods consisted of photoionization detector (PID) measurements, visual observations, and olfactory observations.

During screening, the following items were recorded: type of measurement/observation, depth, time of measurement or observation, possible source, and description of odor (petroleum, decaying organics, creosote, cedar, etc.).

Photoionization Detector (PID) Measurements

PID measurements were collected for each sonic core and split-spoon sample to screen for volatile organic vapors such as gasoline. Typically, decaying organics can elevate PID measurements, and diesel and oil can rarely be detected with the PID. PID measurements were obtained by passing the instrument directly over the soil.

Elevated PID measurements were recorded in the boring logs and detected at RW-1-19, SB-2-19, SB-5-10, SB-6-19, SB-7-19, SB-9-19, and MW-4-19.

Visual Observation

Visual observations of soil samples were recorded in the field logbook. Indications of contamination observed included:

- Blue discolorations and sheen in soil at RW-1-19 from ground surface to 17.5 feet bgs.
- Blue discolorations in soil at SB-7-19 from 8.5 to 11.5 feet bgs.
- Sheen on soil from SB-6-19 from 15 to 22 feet bgs.

Odors

Unusual odors were recorded when noted during sampling. Soil was not intentionally smelled for contamination. Petroleum odors were observed in soil from RW-1-19, SB-3-19, SB-6-19, SB-8-19, and MW-4-19, and groundwater from SB-3-19, MW-3-19, MW-4-19, and RW-1-19.

Sample Collection

Environmental samples were collected using disposable and non-disposable sampling equipment. New nitrile gloves were worn by the sample handler during collection of each sample. Non-disposable sampling equipment, including the split-spoon sampler, was decontaminated between sample locations to reduce potential for cross-contamination. Field notes documented site conditions and sample collection activities.

Samples collected for laboratory analysis were placed into pre-cleaned, laboratory-provided glassware and containerized sequentially, with the most volatile target analyte collected first. The preferred collection order for some of the more common analytes is (1) volatile organics and petroleum, (2) semi-volatile organics, and (3) metals. The sample container labels were completed using indelible ink. The samples were sealed in plastic bags and then placed into a cooler and maintained at 4 degrees Celsius (ºC) (+ 2ºC) with ice.

Soil Samples

Soil samples were collected at 5-foot intervals with an SPT split-spoon sampler. Soil samples were collected from each boring except SG-2-19, because it was terminated at 5 feet bgs and was adjacent to SG-1-19, which had soil samples collected.

When a soil sample was selected for chemical analysis, the soil sample was placed into laboratory-supplied glassware using disposable, stainless-steel spoons and disposable plastic syringes.

Reconnaissance Groundwater Samples

Groundwater samples were collected from temporary 1-inch-diameter PVC wells installed where groundwater was observed in the boreholes. A peristaltic pump and disposable tubing were used to pump water into laboratory-supplied glassware. Reconnaissance groundwater samples were not collected at boreholes where monitoring wells were installed. The temporary wells were removed following sampling, and each hole was backfilled in accordance with state regulations.

Soil Vapor Samples

Before sampling, at least two days elapsed following installation of the soil vapor monitoring point to allow for construction materials to cure and the subsurface to equilibrate.

To collect the soil vapor samples, the upper end of the tubing was connected to the purging and sampling system. A vacuum was placed on the system to check for leaks. The line was purged for one minute and then the sample was collected using a laboratory-supplied, stainless-steel canister (SUMMA canister). A flow controller was attached to the sample setup to regulate the flow of soil vapor into the sample container. Helium was used as a tracer gas to check for leakage in the system.

Groundwater Samples

The groundwater sampling event included (1) well development, (2) collecting depth to free product and groundwater, (3) measuring field water quality parameters during purging, (4) and collecting groundwater samples for laboratory analysis.

Well Development

The groundwater monitoring wells were developed by field personnel using a powered Waterra and surge block method. Development was completed no sooner than 24 hours after the new wells were installed. Before development, each well was evaluated for the presence of floating free product using an oil-water interface probe. No free product was observed.

Development included surging the screen in 0.5-foot intervals followed by pumping fines from the casing. Development was considered complete when sediments had been removed from the casing, and the groundwater removed from the well became clear or had stabilized. Groundwater quality parameters, including conductivity, pH, turbidity, and temperature, were measured periodically during development.

Product and Groundwater-Level Measurements

Prior to collecting initial groundwater samples, an oil-water interface probe was used to evaluate for the presence of free product. No free product was detected.

The depth to groundwater was measured using a water-level indicator.

Well Purging

Groundwater sampling included purging the well while collecting field groundwater parameter readings followed by the collection of samples into laboratory-supplied and appropriately preserved containers.

A peristaltic pump was fitted with disposable polyethylene and silicon (at the pump head and water quality instrument connections) tubing used to purge and sample each monitoring well. At each well location, the following activities were performed:

- Pumping rates were measured with a stopwatch and container of known volume to adjust the flow rate to between 150 milliliters per minute (mL/min) and 1 liter per minute (L/min). The water level was measured, and field parameters were recorded every three to five minutes. The pumping rate was adjusted to maintain a steady water level. If possible, a drawdown of 0.3 foot or less was maintained in the well, and the water level was maintained above the intake. The pumping rate was lowered to a minimum of 150 mL/min, if necessary, to maintain the desired drawdown.
- Field groundwater quality parameters, including pH, specific conductivity, temperature, dissolved oxygen (DO), Oxidation-Reduction Potential (ORP), turbidity as nephelometric turbidity units (NTU), salinity, and total dissolved solids (TDS), were measured approximately every three to five minutes during purging. Measurements will be recorded to the following standards:
  - pH to ±0.01 pH units,
  - Specific conductivity to ±0.01 siemens per centimeter,
  - Temperature to ±0.1 ^{o}C,
  - DO to ±0.01 milligrams per liter,
  - ORP to ±0.1 millivolt,
  - Turbidity to ±0.01 NTU, and
  - TDS to ±0.001 gram per liter.

- Samples were collected following parameter stabilization. Stabilization occurs when three consecutive readings are within a specified tolerance from each other. The following criteria were evaluated for stabilization:
  - pH to ±0.1 pH units,
  - Specific conductivity to ±10% (readings within 10% of each other),
  - Temperature to ±10%,
  - DO to ±10%, and
  - Turbidity to ±10%.
- Well purging data was recorded on a Water Sampling Log.
- If the well yield was poor and the water level dropped to the level of the intake, the pump was stopped until the water level recovered to near the pre-pumping level. The process was then repeated until the field parameters stabilized. Measured water levels and pumping rate changes were recorded on a Water Sampling Log.

Well Sampling

Upon completion of purging and parameter stabilization, samples were collected from the discharge end of the pump tubing into the laboratory-supplied containers. If the pump rate at the end of well purging was at or below 0.5 L/min, the same pump rate was used during sample collection. If the pump rate at the end of well purging was greater than 0.5 L/min, the pump rate was reduced to 0.5 L/min during sample collection. Sample containers were filled in order from most to least volatile.

Volatile organic analyte (VOA) vials were filled by allowing the sample water to pour down the inside wall of the vials without splashing onto the base. VOAs were filled to eliminate headspace and the seal/lid was secured.

Analytical Methods

The soil and groundwater samples were submitted to Onsite Laboratories of Redmond, Washington. Soil vapor samples were submitted to Freidman & Bruya, Inc. of Seattle, Washington.

Soil Samples

Soil samples were analyzed for:

- Gasoline-range petroleum hydrocarbons using Washington State Department of Ecology's (Ecology's) Northwest Total Petroleum Hydrocarbon (NWTPH) – Gasoline Extended (Gx) method.
- BTEX and naphthalene by U.S. Environmental Protection Agency (EPA) 8260 Method.
- Diesel and oil-range petroleum hydrocarbons using Ecology's NWTPH – Diesel Extended (Dx) Method.
- Ethylene dibromide (EDB) and ethylene dichloride (EDC) by EPA 8260 Method.
- Resource Conservation Recovery Act (RCRA) Metals by EPA Method 6010.
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by EPA Method 8270 SIM.
- Total organic carbon by EPA 9060A method.

Soil at location RW-1-19 was observed to have a relatively higher level of contamination. Additional sample analyses were performed on the samples taken from just above the groundwater table to evaluate parameters important for the Voluntary Cleanup Program, the Site conceptual model, and remedial design, including:

- Hexane by EPA 8260 Method
- Extractable petroleum hydrocarbons (EPHs) by Ecology's NWTPH-EPH Method
- Volatile petroleum hydrocarbons (VPHs) by Ecology's NWTPH-VPH Method

Reconnaissance Groundwater Samples

The reconnaissance groundwater samples were submitted to the laboratory for analyses of the primary chemicals of concern:

- Gasoline-range petroleum hydrocarbons using Ecology's NWTPH-Gx Method
- BTEX and naphthalene by EPA 8260 Method

In addition, approximately half of the reconnaissance groundwater samples were submitted to the laboratory for analyses of potential chemicals of concern:

- Diesel and oil-range petroleum hydrocarbons using Ecology's NWTPH-Dx Method
- EDB and EDC by EPA 8260 Method
- Total and dissolved RCRA Metals by EPA Method 6010/7470
- cPAHs by EPA Method 8270 SIM

Groundwater Samples from Groundwater Monitoring Wells

Following development, groundwater samples were collected from each monitoring well:

- Gasoline-range petroleum hydrocarbons using Ecology's NWTPH-Gx Method
- BTEX and naphthalene by EPA 8260 Method
- Diesel and oil-range petroleum hydrocarbons using Ecology's NWTPH-Dx Method
- EDB and EDC by EPA 8260 Method
- Total and dissolved RCRA Metals by EPA Method 6010/7470
- cPAHs by EPA Method 8270 SIM

Due to very low groundwater production encountered at MW-5-20, groundwater was limited to the following analyses:

- Gasoline-range petroleum hydrocarbons using Ecology's NWTPH-Gx Method
- BTEX and naphthalene by EPA 8260 Method

Soil Vapor Samples

Soil vapor samples were submitted to the laboratory for analyses of the following chemicals using EPA TO-15 Method:

- Air-phase hydrocarbons
- BTEX
- Naphthalene

Field and Laboratory Quality Assurance/Quality Control (QA/QC)

Field and laboratory QA/QC protocols were established so that samples could be tracked from collection through analysis to evaluate the efficiency and reproducibility of sampling procedures. Standard procedures were used for sample labeling, chain-of-custody control, and sample transportation.

QA/QC samples were collected during the fieldwork to evaluate the reproducibility of the sampling technique and the subsequent laboratory analysis. These included field duplicate samples and trip blank samples. The laboratory tested the reproducibility of their results by using matrix spike/matrix spike duplicate samples.

Field Duplicate Samples

Field duplicate samples are a second sample collected from a location. These sample were submitted to the laboratory with a different, yet distinguishable sample number as a regular sample. They were analyzed for the same suite as the original sample to allow for evaluation of the reproducibility of the sampling technique and the subsequent laboratory analysis. The field team noted in the field log where duplicate samples were collected. Field duplicate samples are provided in the following exhibit.

EXHIBIT J-2: DUPLICATE SAMPLE IDENTIFICATION

Sample Type	First/Source Sample ID	Duplicate Sample with Distinct Sample ID
Reconnaissance Groundwater	SB-4-19	SB-100-19
Soil	SB-3-19:10.0	SB-101-19:10.0
Soil	SB-8-19:10.0	SB-102-19:10.0
Soil	SB-7-19:15.0	SB-102-19:15.0
Soil	SB-1-19:20.0	SB-103-19:20.0
Soil	MW-1-19:15.0	MW-100-19:15.0
Groundwater	MW-4 101719	DUP 101719

Trip Blank Samples

One trip blank was submitted with each cooler containing samples for volatile analytes (e.g., gasoline and BTEX). The trip blanks were provided by the laboratory as vials filled with deionized water. Selected trip blank samples were analyzed for BTEX and EDC by EPA 8260 Method. The analytes were not detected above the method reporting limit.

Temperature Blank Samples

Temperature blank samples are used to evaluate whether the samples have been maintained within the appropriate temperature range. The lab also used the trip blank samples as the temperature blank samples.

Decontamination Methods

The primary objective of the decontamination process was to reduce the potential for the accidental introduction of contaminants to non-contaminated areas or samples. Soil sampling equipment was cleaned prior to and at the completion of each sample as follows:

- Remove gross contamination and particulate matter.
- Wash thoroughly with Alconox™ or similar non-phosphate detergent plus tap water or designated decontamination water supply source.
- Rinse equipment thoroughly with distilled or deionized water.

Investigation-Derived Waste (IDW)

Soil cuttings, decontamination water, and purge water were collected as IDW into steel 55-gallon drums. Samples were collected from the drums and analyzed for waste characterization purposes. The 2019 exploration drums were temporarily stored at the WSDOT State Route (SR) 520 Construction Project Office and have since been transferred to a certified disposal facility. Two drums (one soil and one water) of IDW generated during install of MW-5-20 (2020 exploration) are currently staged at the former Montlake Gas Station and are pending transfer to a certified disposal facility.

Miscellaneous IDW consisted of used personal protective equipment (PPE), disposable sampling equipment (spoons, tubing, etc.), and other wastes that originated from site activities. This IDW was placed in doubled, heavy-duty plastic bags. The waste PPE and disposable sampling equipment were disposed of in a dumpster at Shannon & Wilson's office.

Groundwater Flow Study

WSDOT surveyed the coordinates and elevation of each well. With the survey information and water level data, a potentiometric surface map was created for the Site to estimate groundwater flow direction(s). This was completed following groundwater sampling.

Hydraulic Conductivity Testing

Falling-head/rising-head slug tests were performed by a two-person crew at two monitoring wells to evaluate hydraulic conductivity. The results of the hydraulic conductivity testing were used for evaluation of remedial design options.

Falling-head slug tests involve rapidly raising the water level within the well and recording the water level as the well returns to equilibrium. Rising-head slug tests involve rapidly dropping the water level within the well and recording the water level recovery as the well returns to equilibrium. These tests can be accomplished by adding an object of known size to the well to raise the water level. Once equilibrium has returned, the object can be removed to drop the water level.

The slug tests included the following steps:

1. A pressure transducer was placed within the well and set at a sufficient depth to avoid interference with the slug once it was placed. The depth to water was recorded. The datalogger was set to record several readings per second for the first two minutes with gradually increasing reading intervals over time.
2. The falling-head test was initiated by rapidly lowering a slug consisting of a solid or sand-filled PVC pipe into the well and placing it below the water table. The water level rose as a result of this placement, and the transducer was allowed to record as the slug came into equilibrium with the water table.
3. Readings were collected until the water level had returned to equilibrium.
4. After a period of at least 24 hours, the datalogger was reset to record several readings per second for first two minutes with gradually increasing reading intervals over time. The slug was then pulled from the well, initiating the rising-head test.
5. Readings were collected until the water level returned to equilibrium.

Two tests were performed within wells RW-1-19 and MW-4-19. The resulting data was analyzed using a standard method such as Bouwer and Rice to estimate the hydraulic conductivity.

Exhibit J-3
Boring Logs (27 Sheets)

Shannon & Wilson, Inc. (S&W) uses a soil classification system modified from the Unified Soil Classification System (USCS). Elements of the USCS and other definitions are provided on these three pages. Soil descriptions are based on visual-manual procedures (ASTM D 2488-93) unless otherwise noted.

S&W CLASSIFICATION OF SOIL CONSTITUENTS

MAJOR constituents compose more than 50 percent, by weight, of the soil. Major consituents are capitalized (e.g., SAND).

Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (i.e., silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (e.g., slightly silty SAND).

Trace constituents compose 0 to 5 percent of the soil (e.g., slightly silty SAND, trace of gravel).

Clean is similar to trace but is used when the fines content is less than 5 percent of the soil (e.g. clean SAND).

(Xxxx) Primary geologic unit interpreted from soil samples.

STANDARD PENETRATION TEST (SPT) SPECIFICATIONS

Hammer: 140 pounds with a 30-inch free fall. Rope on 6- to 10-inch-dia. cathead 2-1/4 rope turns, > 100 rpm
NOTE: If automatic hammers are used, blow counts shown on boring logs should be adjusted to account for higher efficiency of hammer.

Sampler: 18- to 30-inches long
Shoe ID = 1.375 inches
Barrel ID = 1.5 inches
Barrel OD = 2 inches

N-Value: Sum blow counts for second and third of three 6-inch increments.
Refusal: 50 blows for 6 inches or less; 10 blows for 0 inches.

NOTE: Penetration resistances (N-values) shown on boring logs are as recorded in the field and have not been corrected for hammer efficiency, overburden, or other factors.

SAMPLES-COLUMN SYMBOLS

- 3" O.D. Split Spoon Sample
- Grab Sample
- 3" O.D. Pitcher Sample
- Pressuremeter Test (f=failed)
- Soil Core or Sonic Core
- Standard Penetration Test

GRAIN SIZE DEFINITION

DESCRIPTION	SIEVE NUMBER AND/OR SIZE
FINES	< #200 (0.08 mm)
SAND*	
- Fine	#200 to #40 (0.08 to 0.4 mm)
- Medium	#40 to #10 (0.4 to 2 mm)
- Coarse	#10 to #4 (2 to 5 mm)
GRAVEL*	
- Fine	#4 to 3/4 inch (5 to 19 mm)
- Coarse	3/4 to 3 inches (19 to 76 mm)
COBBLES	3 to 12 inches (76 to 305 mm)
BOULDERS	> 12 inches (305 mm)

* Unless otherwise noted, sand and gravel, when present, range from fine to coarse in grain size.

RELATIVE DENSITY / CONSISTENCY

COHESIONLESS SOILS		COHESIVE SOILS (FINE-GRAINED)	
N, SPT, BLOWS/FT.	RELATIVE DENSITY	N, SPT, BLOWS/FT.	RELATIVE CONSISTENCY
0 - 4	Very loose	Under 2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
Over 50	Very dense	15 - 30	Very stiff
		Over 30	Hard

WELL AND OTHER SYMBOLS

Bent. Cement Grout	Surface Cement Seal
Bentonite Grout	Asphalt or Cap
Bentonite Chips	Slough
Silica Sand	Bedrock
PVC Screen	Peat
Vibrating Wire	Inclinometer/Open Pipe

GROUNDWATER SYMBOLS

- Groundwater Level at Time of Drilling
- Groundwater Level in Well
- Groundwater Level Measured Using VWP

Montlake Gas Station VCP
Remedial Investigation Report
Seattle, Washington

SOIL CLASSIFICATION AND LOG KEY

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXHIBIT J-3
Sheet 1 of 3

BORING CLASS1-OF-3 21-22242.GPJ SWNEW.GDT 8/7/19

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)
(From USACE Tech Memo 3-357)

MAJOR DIVISIONS			GROUP/GRAPHIC SYMBOL		TYPICAL DESCRIPTION
COARSE-GRAINED SOILS *(more than 50% retained on No. 200 sieve)*	Gravels *(more than 50% of coarse fraction retained on No. 4 sieve)*	Clean Gravels *(less than 5% fines)*	GW		Well-graded gravels, gravels, gravel/sand mixtures, little or no fines
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines
		Gravels with Fines *(more than 12% fines)*	GM		Silty gravels, gravel-sand-silt mixtures
			GC		Clayey gravels, gravel-sand-clay mixtures
	Sands *(50% or more of coarse fraction passes the No. 4 sieve)*	Clean Sands *(less than 5% fines)*	SW		Well-graded sands, gravelly sands, little or no fines
			SP		Poorly graded sand, gravelly sands, little or no fines
		Sands with Fines *(more than 12% fines)*	SM		Silty sands, sand-silt mixtures
			SC		Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS *(50% or more passes the No. 200 sieve)*	Silts and Clays *(liquid limit less than 50)*	Inorganic	ML		Inorganic silts of low to medium plasticity, rock flour, sandy silts, gravelly silts, or clayey silts with slight plasticity
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		Organic	OL		Organic silts and organic silty clays of low plasticity
	Silts and Clays *(liquid limit 50 or more)*	Inorganic	MH		Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silt
			CH		Inorganic clays or medium to high plasticity, sandy fat clay, or gravelly fat clay
		Organic	OH		Organic clays of medium to high plasticity, organic silts
HIGHLY-ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT		Peat, humus, swamp soils with high organic content (see ASTM D 4427)

NOTE: No. 4 size = 5 mm; No. 200 size = 0.075 mm

NOTES

1. Dual symbols *(symbols separated by a hyphen, i.e., SP-SM, slightly silty fine SAND)* are used for soils with between 5% and 12% fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.
2. Borderline symbols *(symbols separated by a slash, i.e., CL/ML, silty CLAY/clayey SILT; GW/SW, sandy GRAVEL/gravelly SAND)* indicate that the soil may fall into one of two possible basic groups.

Montlake Gas Station VCP
Remedial Investigation Report
Seattle, Washington

SOIL CLASSIFICATION AND LOG KEY

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
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EXHIBIT J-3
Sheet 2 of 3

BORING CLASS2-OF-3 21-22242.GPJ SWNEW.GDT 8/7/19

OTHER GEOLOGIC TERMS AND DEFINITIONS

STRUCTURE	CRITERIA
Parting	< 1/16" (1.6 mm) thickness
Seam	1/16" - 1/2" (1.6 to 12.7 mm) thickness
Layer	> 1/2" (12.7 mm) thickness
Lamination	< 1/4" (6 mm) thick, typically alternating soils or colors
Pocket	Irregular, discontinuous zone
Clast	An individual soil fragment
Bedded	Arranged in layers; stratified
Interbedded	Alternating layers of different soils
Lensed	Small lenticular pockets of different soil types
Fractured	Breaks easily along definite planes
Slickensided	Polished, glossy, striated, fractured planes
Diced	Breaks into 1/4" or smaller orthogonal pieces
Blocky	Breaks into orthogonal pieces larger than 1/4"
Hackly	Uneven, jagged, angular texture
Sheared	Disturbed texture, mix of strengths
Diamict	Nonsorted, coarse grains in a fine matrix
Homogeneous	Uniform color, grain-size, and appearance
Mottled	Irregular patches of different color or texture
Weathered	Alteration of soil (e.g. discoloration, softening, or pitting of grains) by exposure to the atmosphere
Contorted	Twisted, distorted
Bioturbated	Disturbance or mixing by plants or animals
Dilatant	Water appears quickly on the surface during shaking and disappears quickly upon squeezing

ORGANICS	CRITERIA
Trace	0 - 5 percent by volume
Scattered	5 - 15 percent by volume
Abundant	15 - 30 percent by volume
Organic	30 - 50 percent by volume
Peat/Wood	> 50 percent by volume
Fibric	Peat with >67% fibers
Hemic	Peat with >33% and <67% fibers
Sapric	Peat with <33% fibers

PARTICLE SHAPE	CRITERIA
Angular	Sharp edges and unpolished plane surfaces
Subangular	Similar to angular but with rounded edges
Subrounded	Nearly plane sides with well-rounded edges
Rounded	Smoothly curved sides and no edges
Flat	Particles with width/thickness ratio > 3
Elongated	Particles with length/width ratio < 3

GRADATION	CRITERIA
Well-Graded	Full range and even distribution of grain sizes present
Poorly Graded	Narrow range of grain sizes present
Uniformly Graded	Consists predominantly of one grain size
Gap-Graded	Within the range of grain sizes present, one or more sizes are missing

MOISTURE CONTENT	CRITERIA
Dry	Absence of Moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually from below water table

ACRONYMNS AND ABBREVIATIONS

*	Sample Not Recovered
ATD	At Time of Drilling
C	Corrosion and/or Cation Exchange Test
CDF	Controlled Density Fill
DM	Dames & Moore Sampler
dia.	Diameter
E	Environmental Sample
Elev.	Elevation
ft	Feet
FeO	Iron Oxide
MgO	Magnesium Oxide
HSA	Hollow Stem Auger
ID	Inside Diameter
in	Inches
lbs	Pounds
LL	Liquid Limit
Mon.	Monument Cover
N	Blows for 2nd & 3rd 6-inch Increments
NA	Not Applicable or Not Available
NP	Nonplastic
OD	Outside Diameter
OW	Observation Well
PID	Photo-ionization Detector
PI	Plasticity Index
PL	Plastic Limit
PMT	Pressuremeter Test
ppm	Parts per Million
PVC	Polyvinyl Chloride
RS	Ring Shear Test
SS	Split Spoon Sampler
SPT	Standard Penetration Test
TW	Thin-Walled Tube Sampler
USCS	Unified Soil Classification System
VWP	Vibrating Wire Piezometer
WC	Water Content
WLI	Water Level Indicator
WOH	Weight of Hammer
WOR	Weight of Rods

Montlake Gas Station VCP
Remedial Investigation Report
Seattle, Washington

SOIL CLASSIFICATION AND LOG KEY

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXHIBIT J-3
Sheet 3 of 3

BORING CLASS3-OF-3 WAB 21-22242.GPJ SWNEW.GDT 8/7/19

Total Depth:	30.3 ft.	Northing:	238,210 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.4 ft.	Easting:	1,277,928 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Description	Depth, ft.
Asphalt.	0.7
Brown, sandy SILT, trace of gravel; moist; slight iron-oxide staining, description based on limited grab sample from vac sidewall; (Hf) ML.	5.0
- Air vac clearance to 5 feet.	
Soft, brown and green-gray, slightly sandy SILT, trace of fine gravel; moist; scattered dark brown soil pockets, 1/2-inch-thick sandy layer with strong iron-oxide staining; (Qvrl) ML.	7.0
Very stiff, marbled gray and brown and mottled, silty CLAY, trace of sand; moist; laminated, trace fine sand and silt seams, trace fine dark brown organics and fine roots, scattered iron-oxide staining; (Qvrl) CH/CL.	11.5
Medium dense, brown, slightly silty SAND, trace of gravel; moist to wet; (Qvat) SP-SM.	13.5
Medium dense to dense, brown, slightly gravelly, silty SAND; moist to wet; (Qvat) SM.	

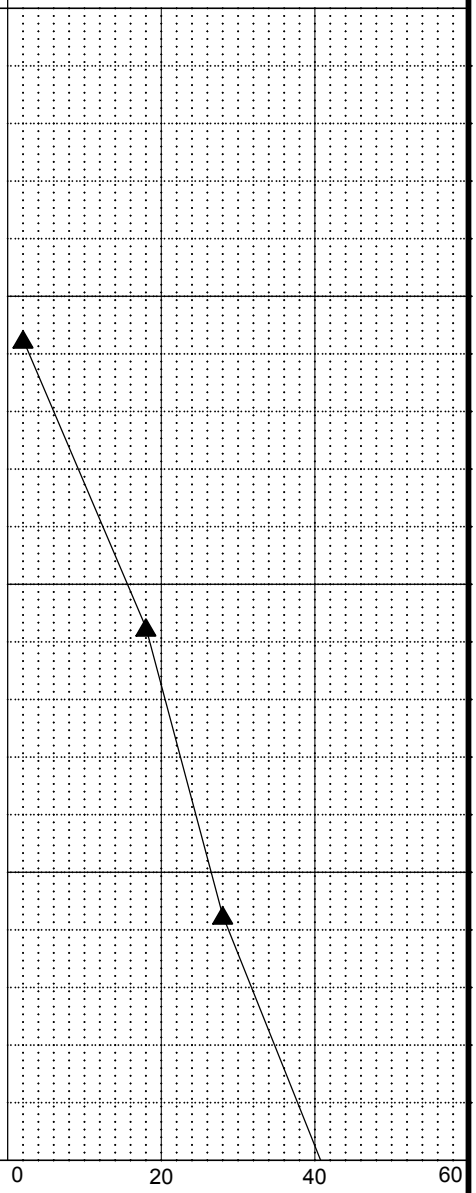
CONTINUED NEXT SHEET

Samples	PID, ppm
S-1	0
S-2	0.1
R-1	0.1
S-3	0.1
R-2	0.1
S-4	0.1
R-3	0.1

Ground-water: 10/17/2019

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-1-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

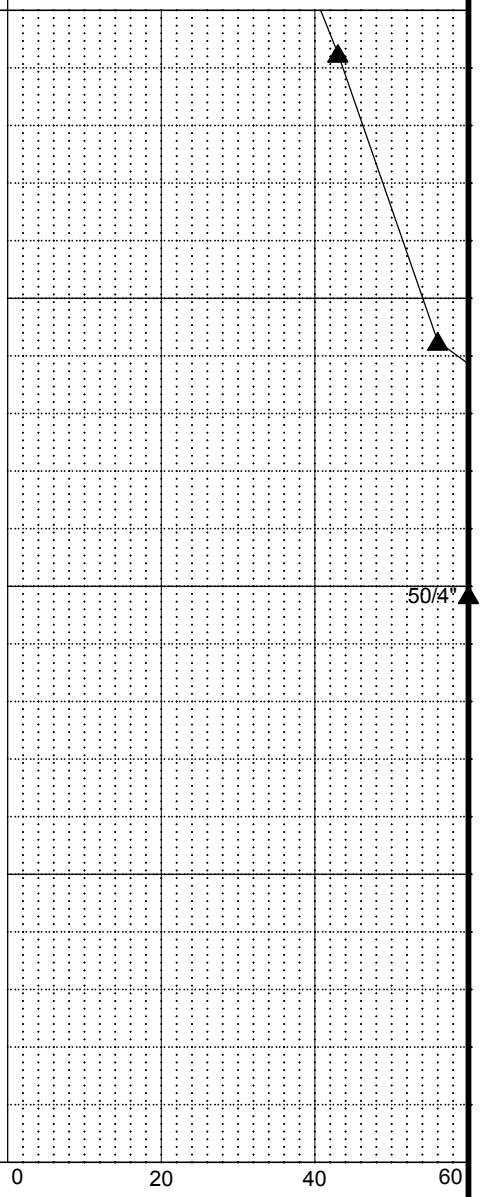
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	30.3 ft.	Northing:	238,210 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.4 ft.	Easting:	1,277,928 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
			0.1	S-5		
Very dense, gray, fine silty SAND; moist to wet; scattered laminated silt layers; (Qvd) SM.	22.5		0	R-4		
			0	S-6		25
Very dense, gray, slightly gravelly, silty SAND; moist; slight diamict texture; (Qpgt) SM.	26.5		0	R-5		
	30.3		0	S-7 E		30
BOTTOM OF BORING COMPLETED 9/24/2019						35

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-1-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	21.4 ft.	Northing:	238,166 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.9 ft.	Easting:	1,277,766 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Description	Depth, ft.
Asphalt.	0.7
Brown, slightly gravelly, sandy SILT to slightly gravelly, silty SAND mixed with silty CLAY; moist; clay clasts and pockets, description based on limited grab sample from vac sidewall; (Hf) ML/SM. - Air vac clearance to 5.5 feet.	5.5
Loose, brown, slightly gravelly, silty SAND; moist; (Hf) SM.	6.0
Loose, red-brown, slightly gravelly, sandy SILT; moist; (Hf) ML.	8.0
Loose, brown, gravelly, silty SAND, trace of clay; moist; trace clay pockets; (Hf) SM.	9.5
Dense, gray-brown, gravelly, silty SAND; moist to wet; slight diamict texture; (Qvat) SM.	15.0
Very dense, gray-brown, silty fine SAND to fine sandy SILT; moist to wet; 3-inch-thick laminated silty clay pockets around 16.5 feet; (Qvd) SM/ML.	17.5
Very dense, gray, gravelly, silty SAND; moist; diamict; (Qpgt) SM.	

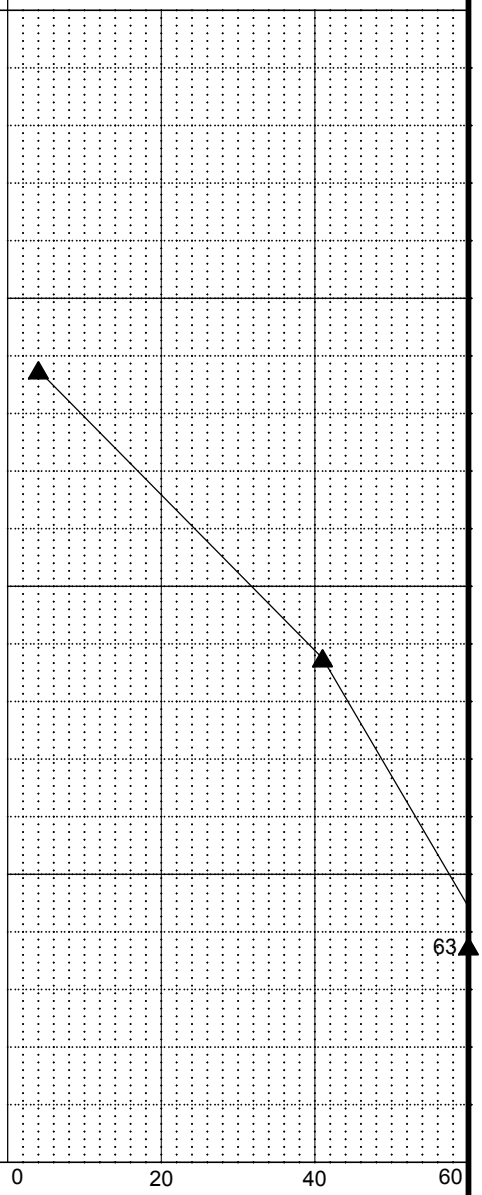
CONTINUED NEXT SHEET

Samples	PID, ppm
S-1	0.3
S-2	0.3
R-1	0.3
S-3	0.3
R-2	0.3
S-4	0.3
R-3	0.3

Ground-water: 10/17/2019

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-2-19

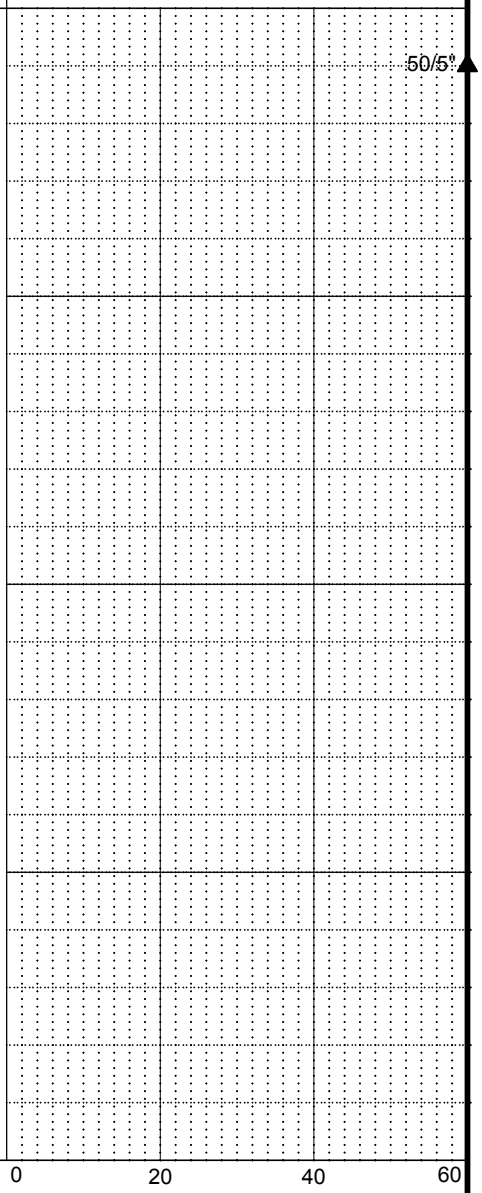
March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	21.4 ft.	Northing:	238,166 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.9 ft.	Easting:	1,277,766 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot)
Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.							▲ Hammer Wt. & Drop: *140 lbs / 30 inches*
			0.3	S-5 E			50/5"
BOTTOM OF BORING COMPLETED 9/23/2019	21.4						



NOTES

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4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-2-19

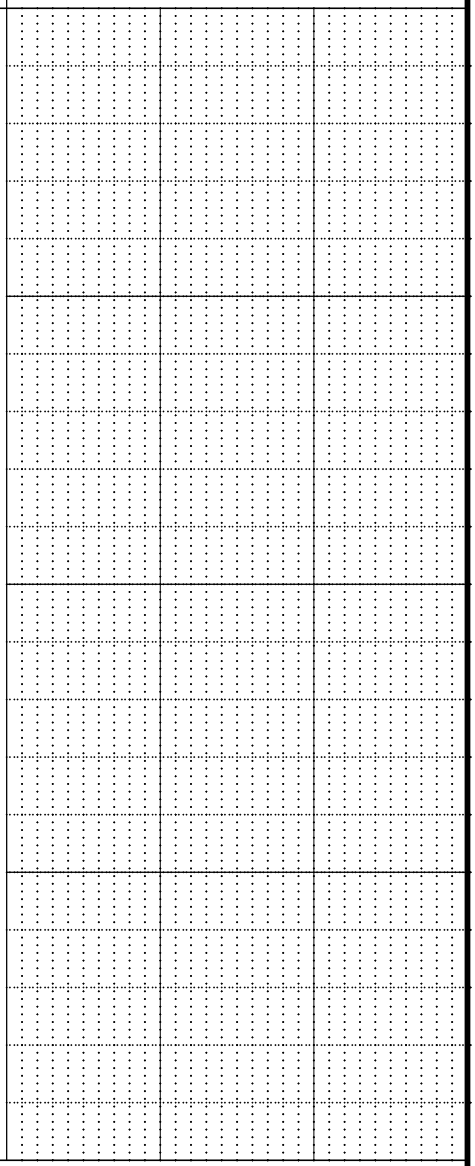
March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	25 ft.	Northing:	238,312 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.3 ft.	Easting:	1,277,743 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches 0 20 40 60
This boring colocated at boring H-7-17 (Installed by Innovex Environmental Management, Inc. 10/24/2017) and reemed out for monitoring well installation.				10/17/2019	5 10 15	



CONTINUED NEXT SHEET

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-3-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	25 ft.	Northing:	238,312 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.3 ft.	Easting:	1,277,743 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches 0 20 40 60
BOTTOM OF BORING COMPLETED 8/26/2019	25.0				25 30 35	

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

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3. USCS designation is based on visual-manual classification and selected lab testing.
4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-3-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	25.3 ft.	Northing:	238,253 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	7 in.
Top Elevation:	59 ft.	Easting:	1,277,930 ft.	Drilling Company:	Holt Services	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

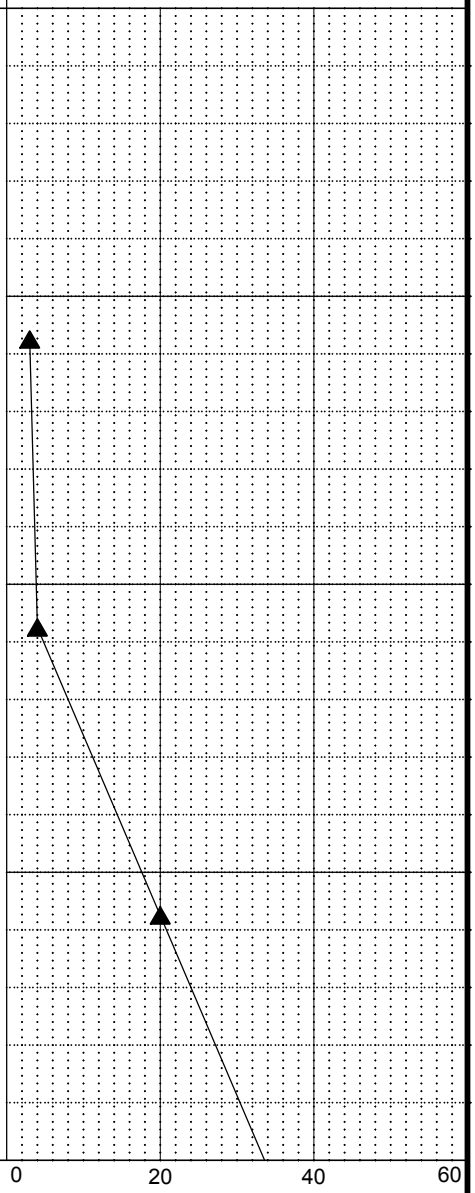
Description	Depth, ft.
Asphalt.	0.7
Very loose, gray-brown, gravelly, silty SAND; moist; (Hf) SM.	
- Air vac clearance to 5 feet.	
- 2-inch-thick organic and wood layer at 7.5 feet.	10.0
Soft to medium stiff, gray, slightly fine sandy CLAY; moist; sulfur-like odor; (Hf) CL.	12.5
Loose to medium dense, gray-brown to gray, slightly gravelly, silty SAND, trace of clay; moist to wet; scattered wet sand seams, scattered diamict pockets; (Qvat) SM.	15.0
Medium dense to dense, gray-brown to gray, slightly gravelly, silty SAND, trace of clay to slightly gravelly, sandy SILT, trace of clay; moist; scattered sand seams, scattered diamict pockets; (Qvat) SM/ML. - Strong petroleum odor at 16 feet.	

Samples	PID, ppm
S-1	
S-2	0
R-1	
S-3	0.8
R-2	
S-4	257
R-3	

Ground-water: 11/11/2019

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches



◇ % Fines (<0.075mm)

● Natural Water Content

CONTINUED NEXT SHEET

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-4-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

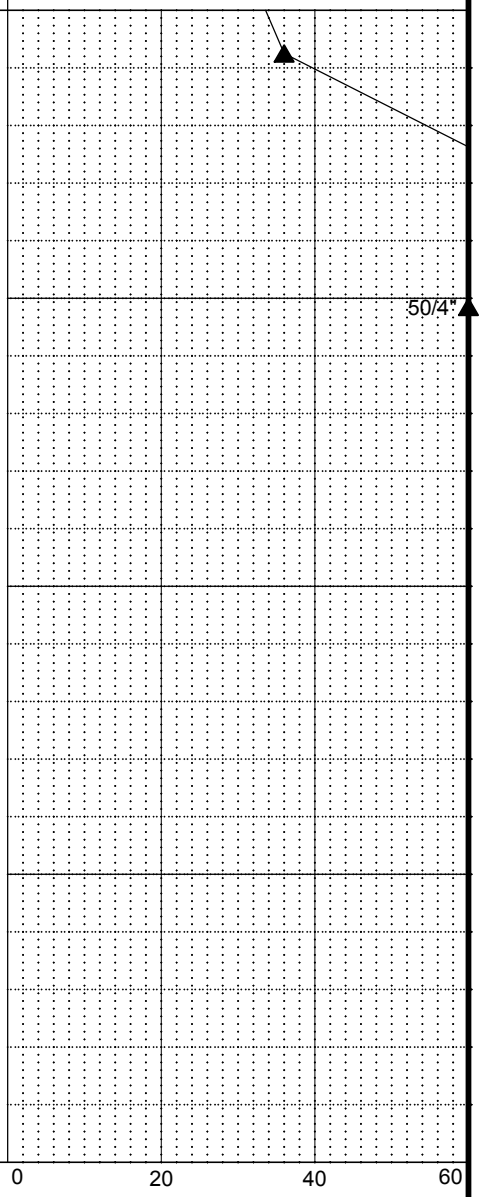
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	25.3 ft.	Northing:	238,253 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	7 in.
Top Elevation:	59 ft.	Easting:	1,277,930 ft.	Drilling Company:	Holt Services	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
- Faint petroleum odor at 21.5 feet.			3.3	S-5		
				R-4		
Very dense, gray, trace to slightly gravelly, slightly fine sandy SILT; moist; diamict; (Qpgt) SM.	23.0					
			0.5	S-6 E		25
BOTTOM OF BORING COMPLETED 8/24/2019	25.3					
						30
						35

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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Montlake Gas Station VCP
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2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-4-19

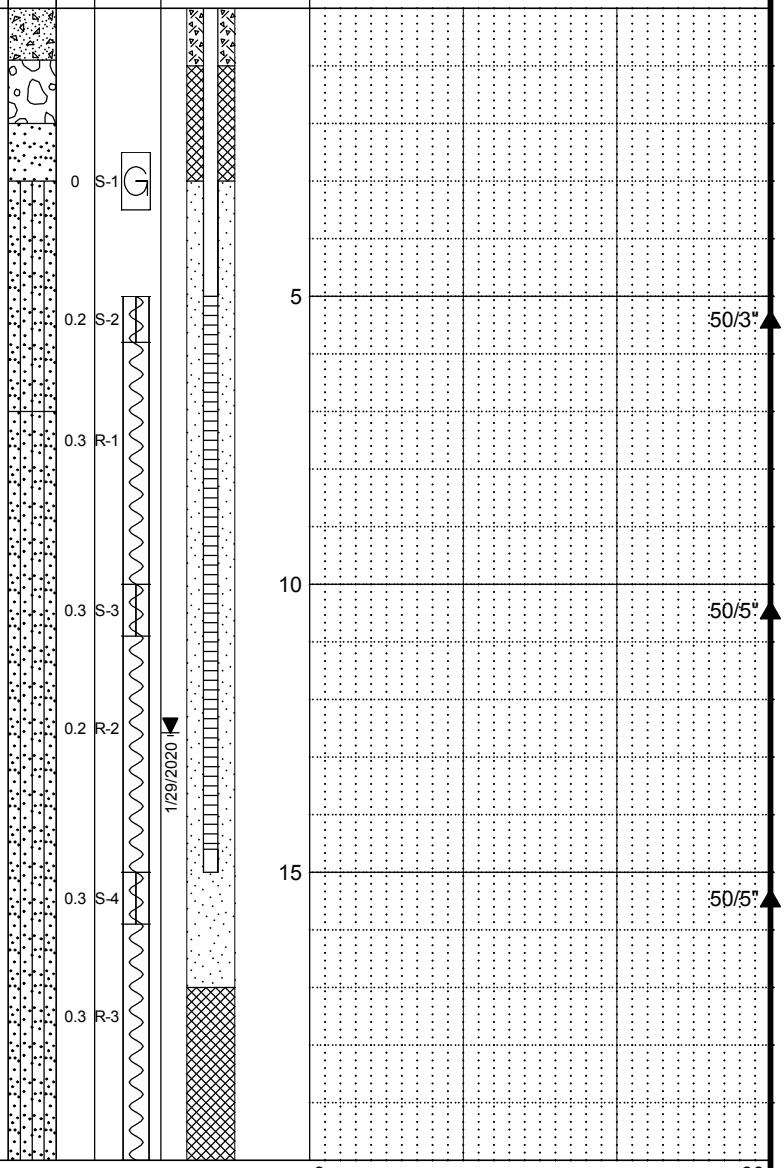
March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	25.5 ft.	Northing:	~ 238,715 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	~ 43 ft.	Easting:	~ 1,277,690 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION	Depth, ft.
Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.	
Concrete.	0.9
Gray, crushed gravel; moist; base course, description based on limited visual observation of the vac sidewall; (Hf) GP.	2.0
Brown, SAND; moist; base course; (Hf) SP.	3.0
Very dense, brown to gray-brown, slightly gravelly, silty SAND; moist; (Qpgt) SM. - Air vac clearance to 5 feet.	7.0
Very dense, gray-brown, gravelly, silty SAND; moist; diamict; (Qgpt) SM.	



CONTINUED NEXT SHEET

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-5-20

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	25.5 ft.	Northing:	~ 238,715 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	~ 43 ft.	Easting:	~ 1,277,690 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot)
Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.							▲ Hammer Wt. & Drop: *140 lbs / 30 inches*
			0.3	S-5			50/4"
			0.2	R-4			
			0.2	S-6		25	50/6"
BOTTOM OF BORING COMPLETED 1/20/2020	25.5						
						30	
						35	

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
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4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-5-20

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Sheet 2 of 2

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	60.4 ft.	Northing:	238,268 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,864 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Description	Depth, ft.
Asphalt.	0.7
Loose, gray and brown mottled, slightly gravelly, sandy SILT, trace of clay and cobbles; moist; strong petroleum odor; (Hf) ML.	12.0
Medium dense, blue-gray, trace to slightly gravellly, silty SAND; moist, wet below 15 feet; strong petroleum odor; (Qvat) SM.	17.5
Medium dense to dense, gray, silty, gravelly SAND; moist to wet; strong petroleum odor; (Qvat) SM.	19.0

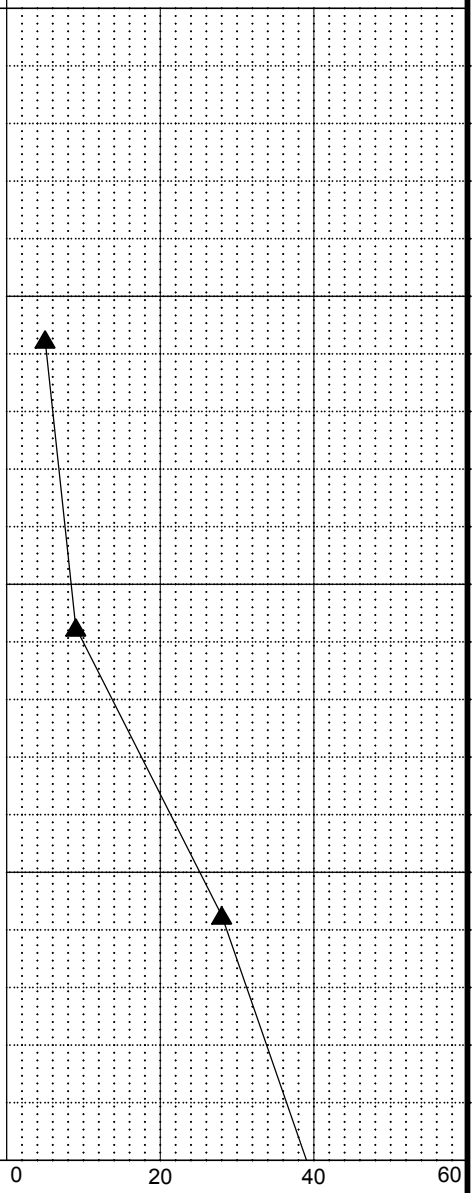
- Air vac clearance to 5 feet.
- Color changed to blue-gray at around 5 feet.
- Concrete piece and wood debris at 11.9 feet.
- Sheen observed at about 15 feet.

Samples	PID, ppm
S-1	56.1
R-1	104
S-2	92
R-2	2250
S-3	1070
R-3	1000

Ground-water: E 11/14/2019

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches



◇ % Fines (<0.075mm)

● Natural Water Content

CONTINUED NEXT SHEET

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING RW-1-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	60.4 ft.	Northing:	238,268 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
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Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Description	Depth, ft.
Medium dense to dense, gray, slightly gravelly, sandy SILT to slightly gravelly, silty SAND; moist to wet; petroleum odor; (Qvat) ML/SM.	20.0
Dense, gray, slightly gravelly, silty SAND; wet; scattered sand seams and silt pockets, strong petroleum odor; (Qvat) SM.	22.0
Dense, gray, slightly gravelly, silty SAND to slightly gravelly, slightly silty SAND; wet; scattered sand seams, strong petroleum odor; (Qvd) SM/SP-SM.	
- Fine to coarse sand with strong petroleum odor around 27-1/2 feet.	
Very dense, gray, slightly gravelly, silty SAND; moist; diamict; (Qpgt) SM.	28.0
- Increased silt content between 35 and 40 feet.	

Samples	PID, ppm
S-4	68
R-4	15
S-5	236
R-5	25
S-6	6.5
R-6	0.1
S-7	1.1
R-7	3.5

Ground-water Depth, ft.: 25, 30, 35

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches

0 20 40 60

84 ▲ (25)

50/4" ▲ (30)

50/4" ▲ (35)

CONTINUED NEXT SHEET

0 20 40 60

◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING RW-1-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	60.4 ft.	Northing:	238,268 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,864 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches 0 20 40 60
			0.3	S-8 E			50/3"
			0.4	R-8			
Very dense, gray, slightly sandy, SILT, trace of gravel and cobbles; moist; scattered sand seams and silt partings, slight diamict texture; (Qpgt) ML.	45.0		0.2	S-9		45	50/5"
			0.1	R-9			
- Cobbles from 50 to 55 feet.			0.1	S-10 E		50	50/5"
			0.1	R-10			
Very dense, gray, trace to slightly gravelly, silty SAND; moist; scattered wet seams, slight diamict texture; (Qpgt) SM.	55.0		0	S-11		55	50/3"
			0.2	R-11			

CONTINUED NEXT SHEET

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING RW-1-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	60.4 ft.	Northing:	238,268 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,864 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches 0 20 40 60
	60.4		0.1	S-12 E			50/5" ▲
BOTTOM OF BORING COMPLETED 9/26/2019						65 70 75	

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING RW-1-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

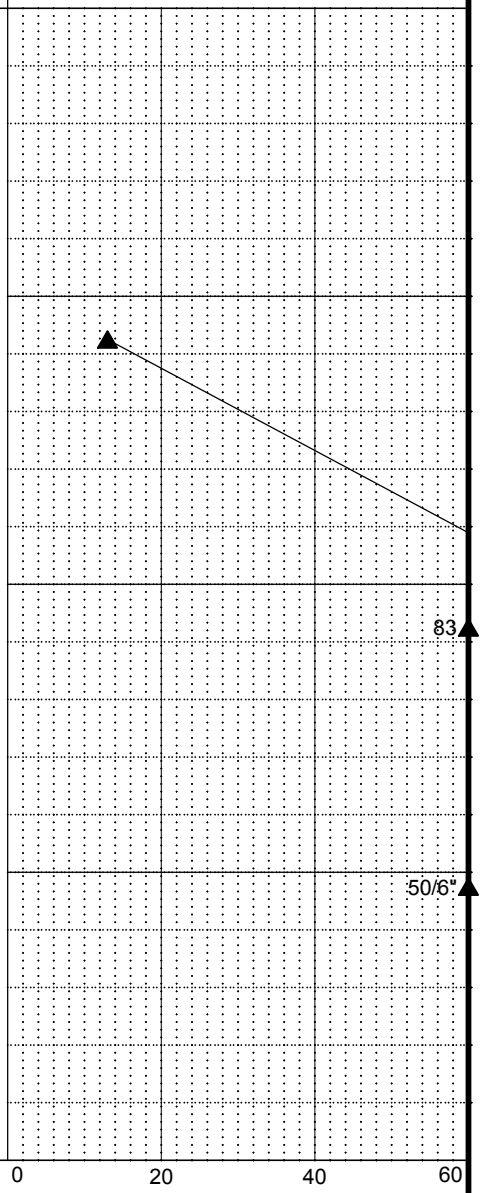
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	30.2 ft.	Northing:	238,303 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.6 ft.	Easting:	1,277,819 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
Asphalt.						
Gray, silty, sandy GRAVEL; moist; description based on limited visual observation of vac sidewall; (Hf) GM.	0.7					
- Air vac clearance to 5 feet.	5.0					5
Medium dense, gray and brown, slightly gravelly, sandy SILT; moist; trace dark brown organics; (Hf) ML.			0.4	S-1		
	7.5			R-1		
Very dense, gray-brown, gravelly, silty SAND, trace of clay; moist; diamict, scattered sand lenses, blow count N-values are overstated due to driving on sledge hammer dropped in hole; (Qvat) SM.			0	S-2		10
				R-2		
	14.0					
Very dense, brown and gray, gravelly, silty SAND; moist; blow count N-values are overstated due to driving on sledge hammer dropped in hole; (Qvat) SM.			0	S-3		15
- Increased silt content below 17 feet.				R-3		

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



CONTINUED NEXT SHEET

◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-2-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS/MJR Rev: SAW Typ: LKN

Total Depth:	30.2 ft.	Northing:	238,303 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.6 ft.	Easting:	1,277,819 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches
Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.							0 20 40 60
Very dense, gray, fine sandy SILT, trace of gravel; wet; faint iron-oxide staining; (Qvd) ML.	20.0		0.5	S-4 E			72 ▲
Very dense, gray, slightly gravelly, silty SAND; moist to wet; scattered sand seams and layers, slight diamict locally, strong petroleum odor; (Qpgt) SM.	22.0		84	R-4 S-5 E		25	50/6" ▲
Very dense, gray, gravelly, silty SAND; moist; diamict; (Qpgt) SM.	28.0		216	R-5		30	50/3" ▲
BOTTOM OF BORING COMPLETED 8/24/2019	30.2		0.4	S-6 E		35	

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-2-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

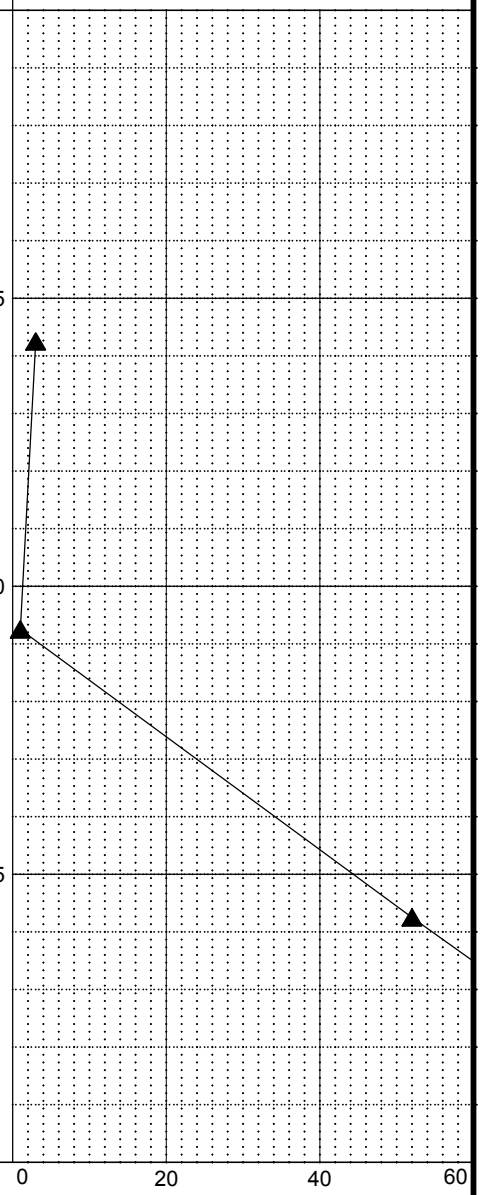
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS/MJR Rev: SAW Typ: LKN

Total Depth:	20.8 ft.	Northing:	238,211 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.2 ft.	Easting:	1,277,781 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	PID, ppm	Samples	Ground-water
Asphalt.				
Brown and mottled, trace to slightly gravelly, silty SAND, trace of clay; moist; trace light brown clay pockets, trace organics; (Hf) SM.	0.7	0.2	S-1	
- Air vac clearance to 5 feet.	5.0			
Very loose, green-gray, brown, and mottled, slightly sandy SILT, trace of clay; moist; trace light brown clay pockets, trace organics; (Hf) ML.	5.8	0.3	S-2	
Very loose to loose, brown, gravelly, silty SAND; moist, scattered wet seams; iron oxide staining below 12 feet; (Hf) SM.		0.2	R-1	
- Petroleum odor in wet seams from 10 to 15 feet.			S-3 *	
- Transitions to gray, sandy silt around 13 feet.		0.3	R-2 E	
Very dense, gray, gravelly, silty SAND; moist; diamict; (Qpgt) SM.	15.5	0.2	S-4 E	
		0.2	R-3 E	

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

CONTINUED NEXT SHEET

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-3-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	20.8 ft.	Northing:	238,211 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.2 ft.	Easting:	1,277,781 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches 0 20 40 60
				S-5			50/4" ▲
BOTTOM OF BORING COMPLETED 9/23/2019	20.8						
						25	
						30	
						35	
							0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-3-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

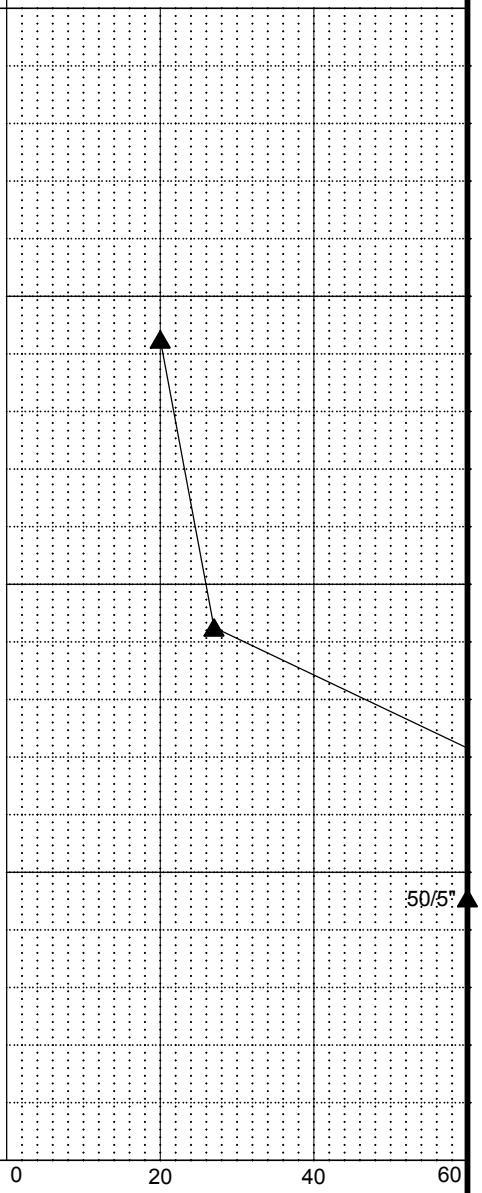
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	20.4 ft.	Northing:	238,160 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.7 ft.	Easting:	1,277,802 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
Asphalt.						
Red-brown to brown, slightly gravelly, slightly silty SAND, trace of cobbles; moist; (Hf) SM.	0.7		0.2	S-1		
- Air vac clearance to 5 feet.	5.0					5
Medium dense, brown to yellow-brown, trace to slightly gravelly, slightly silty SAND; moist; iron-oxide staining around 6 feet; (Qvat) SP-SM.			0.2 0.2	S-2 R-1		
Medium dense, gray-brown, trace to slightly gravelly, silty SAND; moist to wet; diamict locally; (Qvat) SM. - Wet seams from 10 to 15 feet.	10.0		0.2 0.2	S-3 E R-2		10
Very dense, gray-brown, slightly gravelly, silty SAND; moist; locally stratified, trace diamict texture, trace iron-oxide staining; (Qpgt) SM.	15.0		0.2	S-4		15
Very dense, gray-brown, trace to slightly gravelly, silty SAND; moist; diamict; (Qpgt) SM.	17.0		0.2	R-3 E		

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



CONTINUED NEXT SHEET

◇ % Fines (<0.075mm)

● Natural Water Content

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-4-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	20.4 ft.	Northing:	238,160 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.7 ft.	Easting:	1,277,802 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches 0 20 40 60
	20.4			S-5			50/5" ▲
BOTTOM OF BORING COMPLETED 9/23/2019							
						25	
						30	
						35	
							0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-4-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

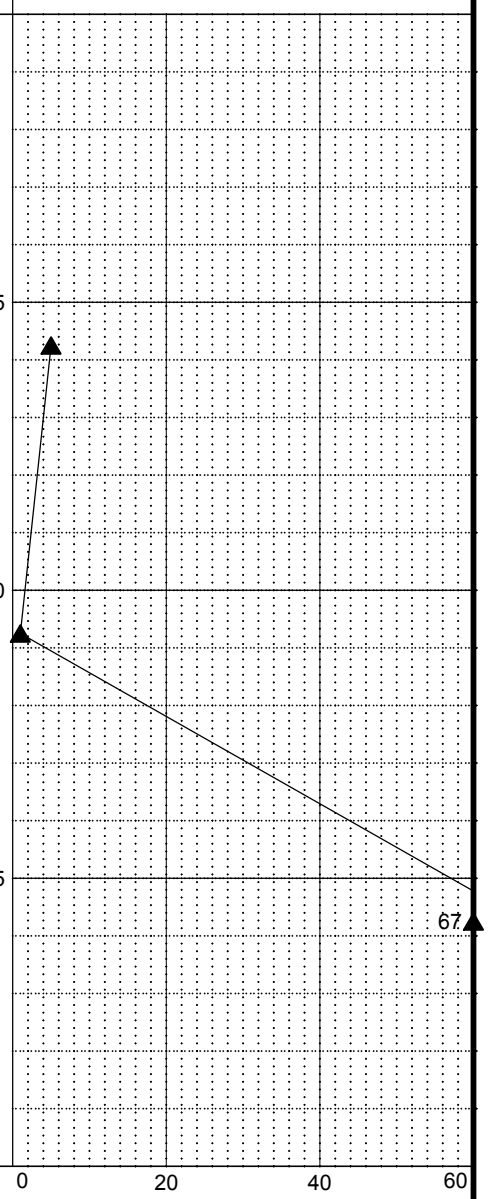
Total Depth:	20.8 ft.	Northing:	238,262 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.8 ft.	Easting:	1,277,781 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
Asphalt.						
Loose, brown, gravelly, silty SAND; moist; angular gravel in upper 5 feet, trace fine organics; (Hf) SM.	0.7			R-1		
- Air vac clearance to 5 feet.			0	S-1 *		5
- Faint petroleum odor below about 7-1/2 feet.				R-2		
Very soft, gray to gray-brown and mottled, sandy, clayey SILT, trace of gravel; wet; trace wood fragments, 1/2-inch-thick organic pockets, iron oxide staining, petroleum odor; (Hf) MH.	10.0		0.5	S-2	▽	10
			220	R-3 E		
Very dense, gray, slightly sandy to sandy SILT, trace of gravel; moist; diamict; (Qpgt) ML.	14.0		0.4	S-3 E		15
				R-4		

CONTINUED NEXT SHEET

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary. Groundwater level is the highest available measurement to date. Groundwater plots contain complete data sets.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-5-19

March 2020 21-1-22242-104

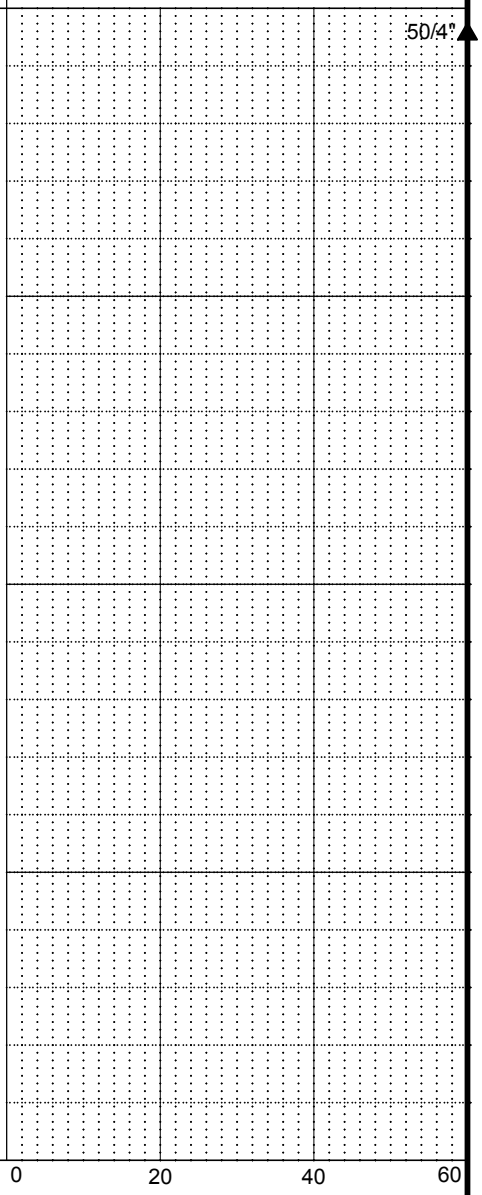
SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	20.8 ft.	Northing:	238,262 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.8 ft.	Easting:	1,277,781 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
			0.3	S-4		
BOTTOM OF BORING COMPLETED 8/24/2019	20.8					

PENETRATION RESISTANCE (blows/foot)
▲ Hammer Wt. & Drop: 140 lbs / 30 inches



◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-5-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

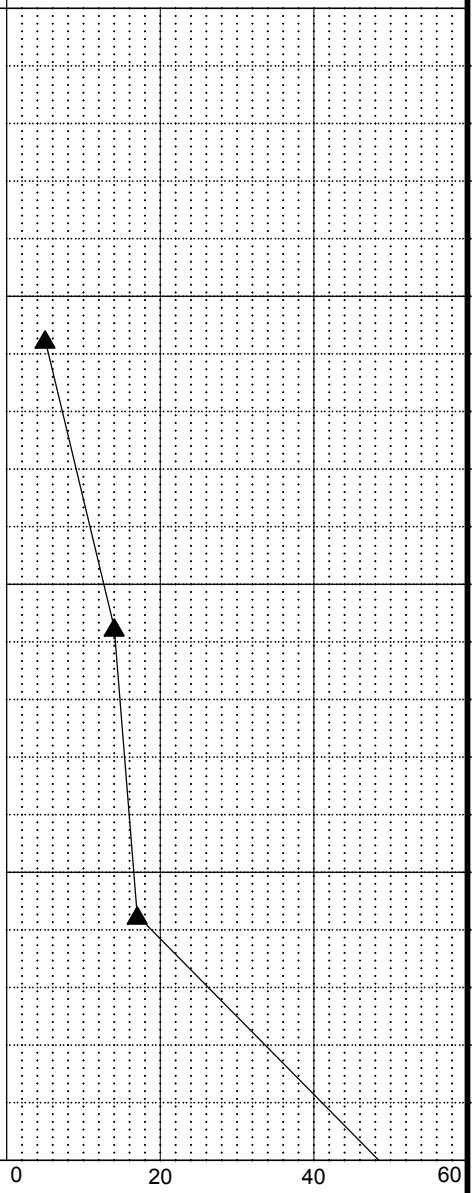
Total Depth:	25.3 ft.	Northing:	238,290 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.4 ft.	Easting:	1,277,903 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	PID, ppm	Samples	Ground-water
Asphalt.				
Loose, gray-brown, slightly silty, slightly gravelly SAND; moist; subrounded gravel; (Hf) SP-SM.	0.7		S-1	
- Air vac clearance to 5 feet.		0	S-2	
			R-1	
- Woody debris layer from 8 to 8.5 feet.	8.5			
Stiff, gray to yellow-brown, slightly fine sandy, silty CLAY; moist; (Qvrl) CL.		0	S-3	
	12.0	1577	R-2	
Medium dense, gray to gray-brown mottled with orange, slightly fine sandy SILT; moist; scattered silt and fine sand seams, trace brown organics, iron-oxide staining, strong petroleum odor; (Qvrl) ML.				
	15.0	1502	S-4	E
Medium dense, gray to dark gray, silty SAND; moist, wet seams at 19 feet; strong petroleum odor; (Qvat) SM. - Faint petroleum sheen on sample at about 16 feet. - Increased sand content below about 17 feet.			R-3	

CONTINUED NEXT SHEET

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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3. USCS designation is based on visual-manual classification and selected lab testing.
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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-6-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

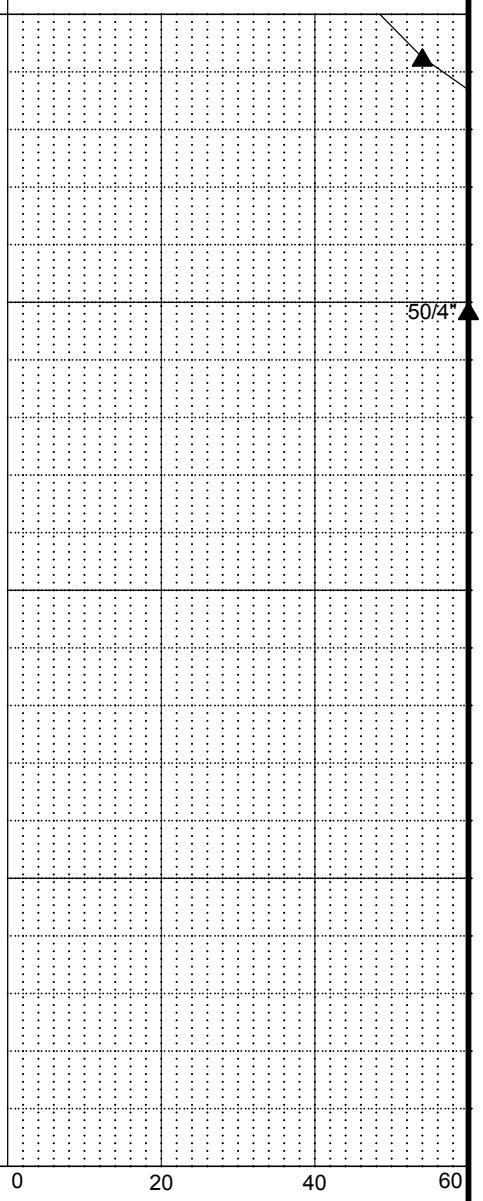
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	25.3 ft.	Northing:	238,290 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.4 ft.	Easting:	1,277,903 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
Very dense, gray, silty SAND, trace of gravel to sandy SILT, trace of gravel; wet; strong petroleum odor; (Qpgt) SM/ML.	20.0		357	S-5		
Very dense, gray, slightly gravelly, silty SAND; moist; diamict; (Qpgt) SM.	22.0			R-4		
BOTTOM OF BORING COMPLETED 8/25/2019	25.3			S-6 E		25
						30
						35

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-6-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	26 ft.	Northing:	238,225 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,832 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Description	Depth, ft.
Asphalt.	0.7
Very loose, brown, slightly gravelly, silty SAND; moist; rounded to angular gravel; (Hf) SM. - Air vac clearance to 5 feet. - Piece of brick at 5.5 feet.	8.5
Stiff, blue-gray and brown mottled, trace to slightly gravelly, slightly sandy, silty CLAY; moist; scattered iron-oxide staining, trace fine organics, petroleum odor; (Qvrl) CL.	11.5
Medium dense, gray-brown, trace to slightly silty SAND, trace of fine gravel; moist, wet below about 14 feet; strong petroleum odor; (Qvat) SP-SM.	15.0
Medium dense, gray-brown, slightly gravelly, silty SAND; moist to wet; brown 1/2-inch-thick brown organic pocket, strong petroleum odor; (Qvat) SM.	17.0
Very dense, gray, gravelly, silty SAND; moist; slight diamict texture; (Qpgt) SM.	

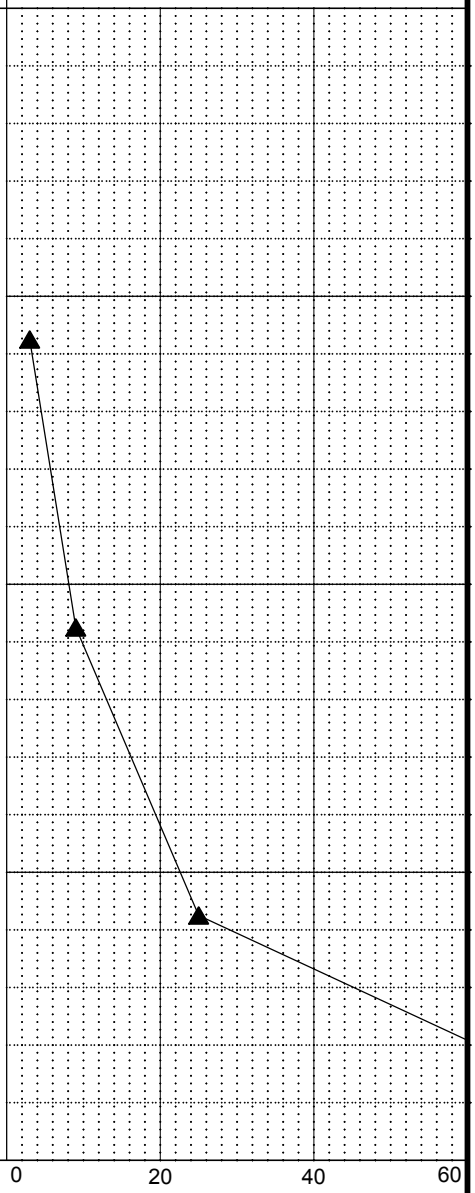
Symbol

PID, ppm	Samples
0.1	S-1
3.5	R-1
8.1	S-2
1348	R-2
6.5	S-3
1.5	R-3

Ground-water: E

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

CONTINUED NEXT SHEET

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-7-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

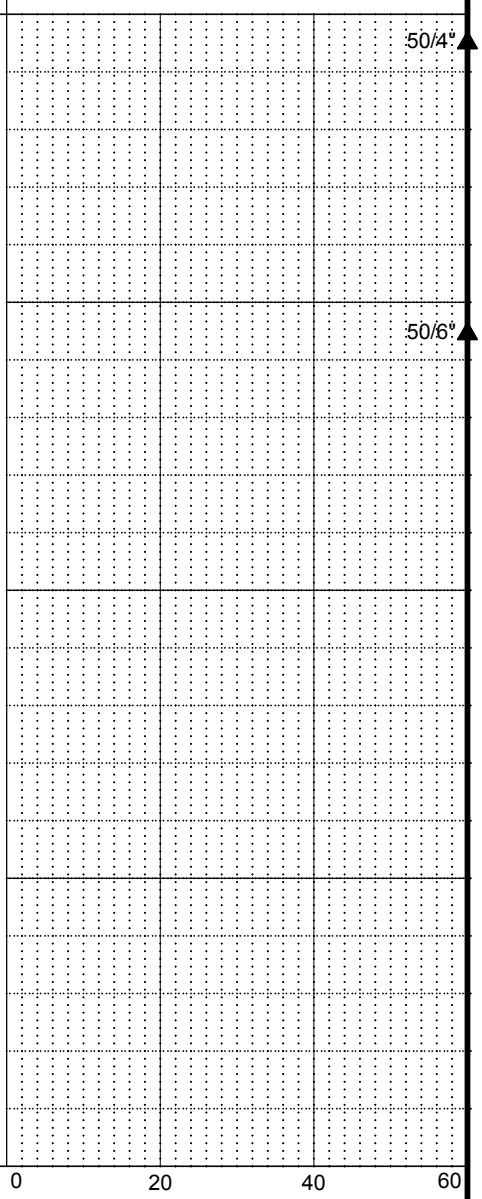
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

Total Depth:	26 ft.	Northing:	238,225 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,832 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
Very dense, gray, silty SAND to sandy SILT; moist to wet; (Qpgt) SM/ML. - Strong petroleum odor around 20 feet, but could be slough from upper unit.	20.0		243	S-4		
			2.4	R-4		
Very dense, gray, silty SAND, trace of gravel to slightly silty SAND, trace of gravel; moist; (Qpgt) SM/SP-SM.	23.0		3.5	S-5	E	
BOTTOM OF BORING COMPLETED 9/27/2019	26.0					

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-7-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

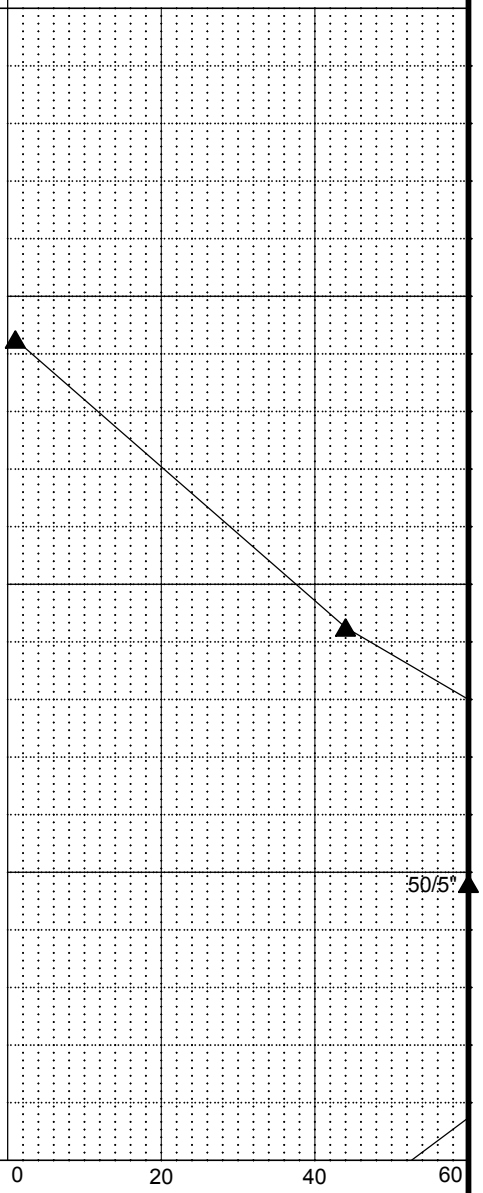
Total Depth:	21.5 ft.	Northing:	238,185 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59 ft.	Easting:	1,277,807 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.
Asphalt.	0.7
Very loose, brown, trace to slightly gravelly, silty SAND; moist; description based on limited visual observation of vac sidewall; (Hf) SM. - Air vac clearance to 5 feet.	5.4
Very loose, brown, sandy SILT; moist; trace organics; iron oxide staining; (Hf) ML. - 1-inch-thick layer of wood debris at 5.4 feet.	6.0
Very soft, gray to gray-brown mottled with orange, slightly sandy, silty CLAY, trace of fine gravel; moist; trace brown organics; (Qvrl) CL.	10.0
Dense, brown, gravelly, silty SAND; wet; (Qvat) SM.	14.0
Dense to very dense, gray, slightly gravelly, silty SAND; moist; diamict; (Qpgt) SM.	

CONTINUED NEXT SHEET

Samples	PID, ppm
S-1	0
R-1	0.1
S-2 E	0
R-2	0.1
S-3 E	0.1
R-3	0

Ground-water



NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-8-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

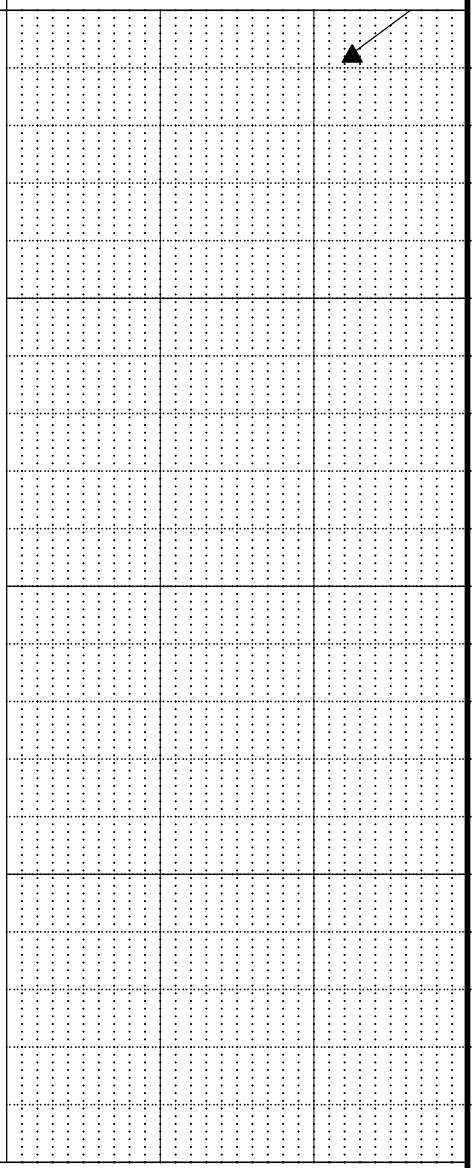
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN
REV 3

Total Depth:	21.5 ft.	Northing:	238,185 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59 ft.	Easting:	1,277,807 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
			0.1	S-4		
	21.5					
BOTTOM OF BORING COMPLETED 9/25/2019						

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-8-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

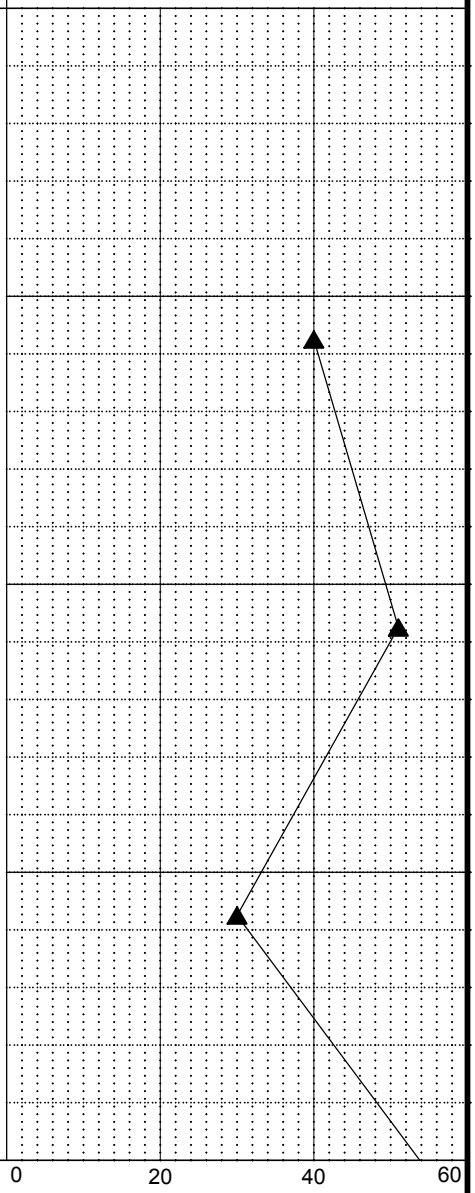
Total Depth:	25.4 ft.	Northing:	238,334 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60 ft.	Easting:	1,277,874 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
Asphalt.						
Brown, slightly silty, gravelly SAND; moist; metal debris locally, description based on limited visual observation of vac sidewall; (Hf) SM.	0.7					
- Air vac clearance to 5 feet.						
Dense, brown, silty SAND, trace of gravel; moist; trace organics; (Qvat) SM.	5.0		0	S-1		5
Dense to very dense, gray-brown, slightly gravelly, slightly silty SAND; moist; trace silt pockets at 7.5 feet, pockets of brown laminated silt and clay below 12.5 feet; (Qvat) SP-SM.	7.0			R-1		
			0	S-2		10
				R-2		
Medium dense to dense, gray to brown, silty SAND to sandy SILT, trace of gravel and clay; moist; scattered pockets of gray laminated clay and silt, diamict pocketrs below about 17 feet; (Qvat) SM/ML.	13.5		5.4	S-3		15
			92.7	R-3		
Very dense, gray, silty SAND; moist, wet at 22.5 feet; slight diamict locally, strong petrolum odor, faint sheen; (Qvd) SM.	18.0					

CONTINUED NEXT SHEET

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-9-19

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

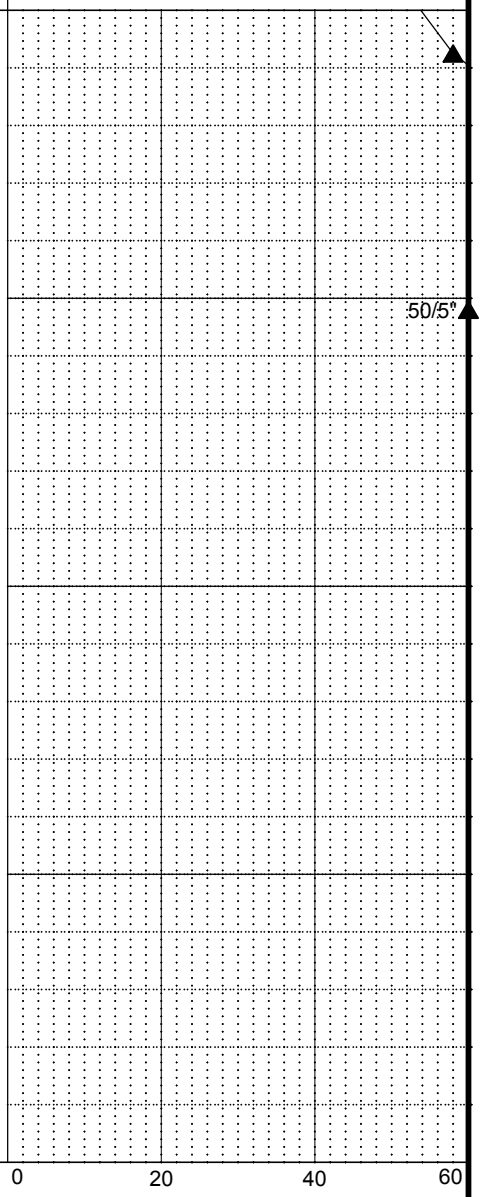
SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

Total Depth:	25.4 ft.	Northing:	238,334 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60 ft.	Easting:	1,277,874 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.
			614	S-4 E		
			622	R-4	▽	
Very dense, gray, slightly gravelly, sandy SILT, trace of clay; moist; diamict texture; (Qpgt) ML.	24.0					
	25.4		0.6	S-5 E		25
BOTTOM OF BORING COMPLETED 8/25/2019						

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: *140 lbs / 30 inches*



◇ % Fines (<0.075mm)

● Natural Water Content

NOTES

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Montlake Gas Station VCP
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2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-9-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

SR520_MASTER_LOG_E_2019 21-22242.GPJ SHAN_WIL.GDT 3/10/20 Log: JXS Rev: SAW Typ: LKN

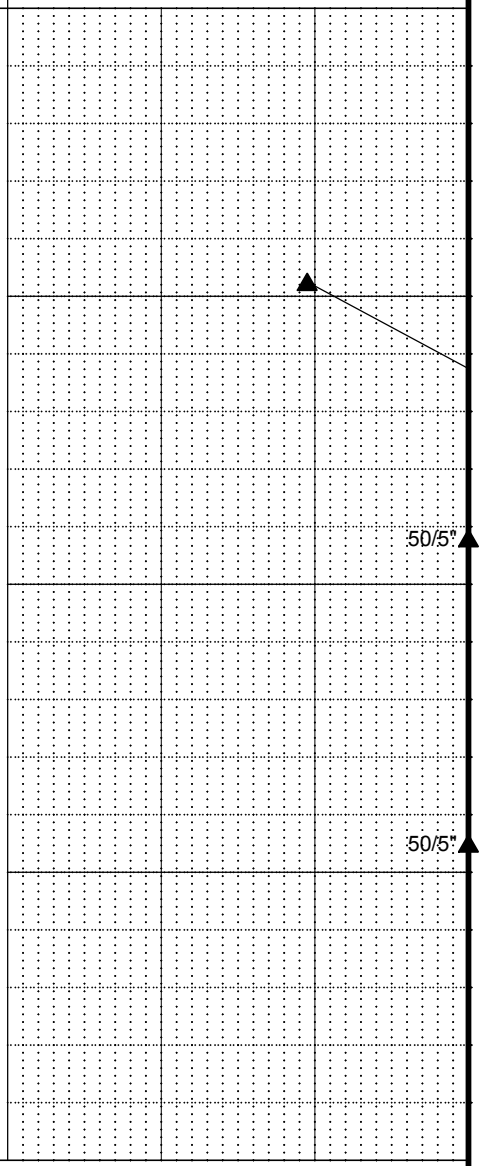
Total Depth:	15 ft.	Northing:	238,192 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.4 ft.	Easting:	1,277,884 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.
Dark brown and gray, slightly gravelly, silty SAND; moist; angular to subrounded gravel, aluminum fragments, iron-oxide staining; (Hf) SM.	4.0
Dense, gray to gray-brown and mottled orange, slightly fine sandy SILT, trace of gravel; moist to wet; scattered wet sand seams, iron-oxide staining; (Qvat) ML.	7.5
Very dense, gray, slightly gravelly, silty SAND; moist; diamict; (Qpgt) SM.	15.0
Soil Vapor Point monitoring well installed.	
BOTTOM OF BORING COMPLETED 9/24/2019	

Samples	PID, ppm
S-1	0
S-2	0
R-1	0.1
S-3	0
R-2	0.2
S-4	0

Ground-water: None Observed During Drilling

PENETRATION RESISTANCE (blows/foot)
▲ Hammer Wt. & Drop: 140 lbs / 30 inches



◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary. Groundwater level is the highest available measurement to date. Groundwater plots contain complete data sets.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SG-1-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Total Depth:	5.5 ft.	Northing:	238,191 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	59.6 ft.	Easting:	1,277,913 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	Samples	Ground-water	Depth, ft.	PENETRATION RESISTANCE (blows/foot) ▲ Hammer Wt. & Drop:
Brown, silty SAND; moist; description based on limited visual observation of sidewall; (Hf) SM. This boring drilled for Soil Vapor Point monitoring well installation.				None Observed During Drilling	5	0 20 40 60
BOTTOM OF BORING COMPLETED 9/24/2019	5.5				10 15	0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary. Groundwater level is the highest available measurement to date. Groundwater plots contain complete data sets.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SG-2-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Appendix K: Laboratory Reports for 2019 Data Gaps Investigation (324 Sheets)

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

September 6, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1908-301

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on August 26, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

Case Narrative

Samples were collected on August 24, 2019 and received by the laboratory on August 26, 2019. 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.

Volatiles EPA 8260D (soil) Analysis

Some MTCA Method A cleanup levels are non-achievable for samples SB-2-19:25 and SB-5-19:12.5 due to the necessary dilutions of the samples.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19:25**					
Laboratory ID:	08-301-03					
Gasoline	**37**	12	NWTPH-Gx	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***89***	***58-129***				
Client ID:	**SB-2-19:30**					
Laboratory ID:	08-301-04					
Gasoline	**160**	35	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***90***	***58-129***				
Client ID:	**SB-5-19:12.5**					
Laboratory ID:	08-301-05					
Gasoline	**300**	10	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***98***	***58-129***				
Client ID:	**SB-5-19:16.5**					
Laboratory ID:	08-301-06					
Gasoline	**ND**	6.6	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***84***	***58-129***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0827S1					
Gasoline	**ND**	5.0	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***80***	***58-129***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-311-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***79***	***76***	***58-129***			

Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19:25**					
Laboratory ID:	08-301-03					
Diesel Range Organics	**ND**	43	NWTPH-Dx	8-27-19	8-27-19	U1,M1
Lube Oil Range Organics	**ND**	59	NWTPH-Dx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***75***	***50-150***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0827S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	8-27-19	8-27-19	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***104***	***50-150***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-301-03										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	U1,M1
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						***75***	***66***	***50-150***			

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19:25**					
Laboratory ID:	08-301-03					
Benzene	0.39	0.068	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	0.068	EPA 8260D	8-27-19	8-27-19	
Toluene	0.58	0.34	EPA 8260D	8-27-19	8-27-19	
1,2-Dibromoethane	ND	0.068	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	2.2	0.068	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	9.7	0.14	EPA 8260D	8-27-19	8-27-19	
o-Xylene	3.3	0.068	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***92***	***76-131***				
Toluene-d8	***102***	***78-128***				
4-Bromofluorobenzene	***107***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19:30**					
Laboratory ID:	08-301-04					
Benzene	0.46	0.072	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.36	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	0.84	0.072	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	4.0	0.14	EPA 8260D	8-27-19	8-27-19	
o-Xylene	1.2	0.072	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***91***	***76-131***				
Toluene-d8	***97***	***78-128***				
4-Bromofluorobenzene	***98***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-5-19:12.5**					
Laboratory ID:	08-301-05					
Benzene	0.35	0.21	EPA 8260D	8-27-19	8-28-19	
1,2-Dichloroethane	ND	0.21	EPA 8260D	8-27-19	8-28-19	
Toluene	ND	1.1	EPA 8260D	8-27-19	8-28-19	
1,2-Dibromoethane	ND	0.21	EPA 8260D	8-27-19	8-28-19	
Ethylbenzene	17	0.21	EPA 8260D	8-27-19	8-28-19	
m,p-Xylene	3.1	0.43	EPA 8260D	8-27-19	8-28-19	
o-Xylene	0.44	0.21	EPA 8260D	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***100***	***76-131***				
Toluene-d8	***104***	***78-128***				
4-Bromofluorobenzene	***95***	***71-130***				

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Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-5-19:16.5**					
Laboratory ID:	08-301-06					
Benzene	0.0091	0.0010	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.0052	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	0.0025	0.0010	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	0.0026	0.0021	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***93***	***76-131***				
Toluene-d8	***99***	***78-128***				
4-Bromofluorobenzene	***99***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0827S1					
Benzene	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.0050	EPA 8260D	8-27-19	8-27-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.0020	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***93***	***76-131***				
Toluene-d8	***96***	***78-128***				
4-Bromofluorobenzene	***97***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0827S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0453**	**0.0448**	0.0500	0.0500	91	90	57-133	1	18	
Benzene	**0.0449**	**0.0436**	0.0500	0.0500	90	87	71-129	3	16	
Trichloroethene	**0.0541**	**0.0529**	0.0500	0.0500	108	106	71-122	2	16	
Toluene	**0.0508**	**0.0495**	0.0500	0.0500	102	99	74-125	3	15	
Chlorobenzene	**0.0480**	**0.0472**	0.0500	0.0500	96	94	72-120	2	14	
Surrogate:										
Dibromofluoromethane					***91***	***91***	***76-131***			
Toluene-d8					***98***	***100***	***78-128***			
4-Bromofluorobenzene					***95***	***100***	***71-130***			

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	08-301-07					
Benzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	2.0	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	1.0	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.40	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***107***	***75-127***				
Toluene-d8	***103***	***80-127***				
4-Bromofluorobenzene	***98***	***78-125***				

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Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0827W1					
Benzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	2.0	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	1.0	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.40	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***106***	***75-127***				
Toluene-d8	***108***	***80-127***				
4-Bromofluorobenzene	***98***	***78-125***				

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Laboratory Reference: 1908-301
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0827W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.15**	**9.03**	10.0	10.0	92	90	63-130	1	17	
Benzene	**9.43**	**9.49**	10.0	10.0	94	95	76-125	1	19	
Trichloroethene	**9.54**	**9.46**	10.0	10.0	95	95	76-121	1	18	
Toluene	**9.01**	**8.83**	10.0	10.0	90	88	80-124	2	18	
Chlorobenzene	**10.4**	**10.2**	10.0	10.0	104	102	75-120	2	19	
Surrogate:										
Dibromofluoromethane					***107***	***108***	***75-127***			
Toluene-d8					***104***	***103***	***80-127***			
4-Bromofluorobenzene					***100***	***98***	***78-125***			

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19:25**					
Laboratory ID:	08-301-03					
Benzo[a]anthracene	**ND**	0.0078	EPA 8270E/SIM	8-27-19	8-28-19	
Chrysene	**ND**	0.0078	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.0078	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.0078	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[a]pyrene	**ND**	0.0078	EPA 8270E/SIM	8-27-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0078	EPA 8270E/SIM	8-27-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.0078	EPA 8270E/SIM	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***74***	***40 - 111***				
Pyrene-d10	***91***	***40 - 110***				
Terphenyl-d14	***89***	***45 - 122***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-5-19:12.5**					
Laboratory ID:	08-301-05					
Benzo[a]anthracene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Chrysene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***76***	***40 - 111***				
Pyrene-d10	***80***	***40 - 110***				
Terphenyl-d14	***79***	***45 - 122***				

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Project: 21-1-22242-102

cPAHs EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0827S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***81***	***40 - 111***				
Pyrene-d10	***87***	***40 - 110***				
Terphenyl-d14	***91***	***45 - 122***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	08-302-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	**0.0851**	**0.0891**	0.0833	0.0833	ND	102	107	53 - 131	5	23	
Chrysene	**0.0796**	**0.0833**	0.0833	0.0833	ND	96	100	46 - 126	5	24	
Benzo[b]fluoranthene	**0.0758**	**0.0804**	0.0833	0.0833	ND	91	97	45 - 127	6	25	
Benzo(j,k)fluoranthene	**0.0817**	**0.0868**	0.0833	0.0833	ND	98	104	52 - 122	6	21	
Benzo[a]pyrene	**0.0773**	**0.0811**	0.0833	0.0833	ND	93	97	51 - 126	5	24	
Indeno(1,2,3-c,d)pyrene	**0.0742**	**0.0770**	0.0833	0.0833	ND	89	92	48 - 127	4	23	
Dibenz[a,h]anthracene	**0.0739**	**0.0776**	0.0833	0.0833	ND	89	93	51 - 124	5	22	
Surrogate:											
2-Fluorobiphenyl						***70***	***79***	***40 - 111***			
Pyrene-d10						***83***	***86***	***40 - 110***			
Terphenyl-d14						***86***	***86***	***45 - 122***			

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19:25**					
Laboratory ID:	08-301-03					
Arsenic	**ND**	12	EPA 6020B	8-29-19	8-29-19	
Barium	**21**	5.8	EPA 6020B	8-29-19	8-29-19	
Cadmium	**ND**	0.58	EPA 6020B	8-29-19	8-29-19	
Chromium	**16**	0.58	EPA 6020B	8-29-19	8-29-19	
Lead	**ND**	5.8	EPA 6020B	8-29-19	8-29-19	
Mercury	**ND**	0.29	EPA 7471B	8-30-19	8-30-19	
Selenium	**ND**	12	EPA 6020B	8-29-19	8-29-19	
Silver	**ND**	1.2	EPA 6020B	8-29-19	8-29-19	
Client ID:	**SB-5-19:12.5**					
Laboratory ID:	08-301-05					
Arsenic	**ND**	11	EPA 6020B	8-29-19	8-29-19	
Barium	**32**	5.7	EPA 6020B	8-29-19	8-29-19	
Cadmium	**ND**	0.57	EPA 6020B	8-29-19	8-29-19	
Chromium	**23**	0.57	EPA 6020B	8-29-19	8-29-19	
Lead	**ND**	5.7	EPA 6020B	8-29-19	8-29-19	
Mercury	**ND**	0.28	EPA 7471B	8-30-19	8-30-19	
Selenium	**ND**	11	EPA 6020B	8-29-19	8-29-19	
Silver	**ND**	1.1	EPA 6020B	8-29-19	8-29-19	

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

TOTAL METALS
EPA 6020B/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0829SM1					
Arsenic	**ND**	10	EPA 6020B	8-29-19	8-29-19	
Barium	**ND**	5.0	EPA 6020B	8-29-19	8-29-19	
Cadmium	**ND**	0.50	EPA 6020B	8-29-19	8-29-19	
Chromium	**ND**	0.50	EPA 6020B	8-29-19	8-29-19	
Lead	**ND**	5.0	EPA 6020B	8-29-19	8-29-19	
Selenium	**ND**	10	EPA 6020B	8-29-19	8-29-19	
Silver	**ND**	1.0	EPA 6020B	8-29-19	8-29-19	
Laboratory ID:	MB0830S1					
Mercury	**ND**	0.25	EPA 7471B	8-30-19	8-30-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-306-01										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**27.7**	**25.6**	NA	NA		NA		NA	8	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**17.3**	**16.6**	NA	NA		NA		NA	4	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	08-306-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	08-306-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**97.5**	**97.8**	100	100	ND	**98**	**98**	75-125	0	20	
Barium	**130**	**132**	100	100	27.7	**103**	**104**	75-125	1	20	
Cadmium	**48.3**	**50.8**	50.0	50.0	ND	**97**	**102**	75-125	5	20	
Chromium	**121**	**120**	100	100	17.3	**103**	**103**	75-125	0	20	
Lead	**233**	**236**	250	250	ND	**93**	**95**	75-125	1	20	
Selenium	**91.3**	**94.5**	100	100	ND	**91**	**95**	75-125	3	20	
Silver	**20.1**	**20.0**	25.0	25.0	ND	**80**	**80**	75-125	1	20	
Laboratory ID:	08-306-01										
Mercury	**0.527**	**0.514**	0.500	0.500	0.00640	**104**	**102**	80-120	2	20	

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-301
Project: 21-1-22242-102

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
SB-2-19:25	08-301-03	**14**	8-27-19
SB-2-19:30	08-301-04	**13**	8-27-19
SB-5-19:12.5	08-301-05	**12**	8-27-19
SB-5-19:16.5	08-301-06	**12**	8-27-19

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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

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OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Page 1 of 1

Company: Shannon & Wilson
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake VLP
Project Manager: Carole Leigh
Sampled by: Joseph Sawdam

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 08-301

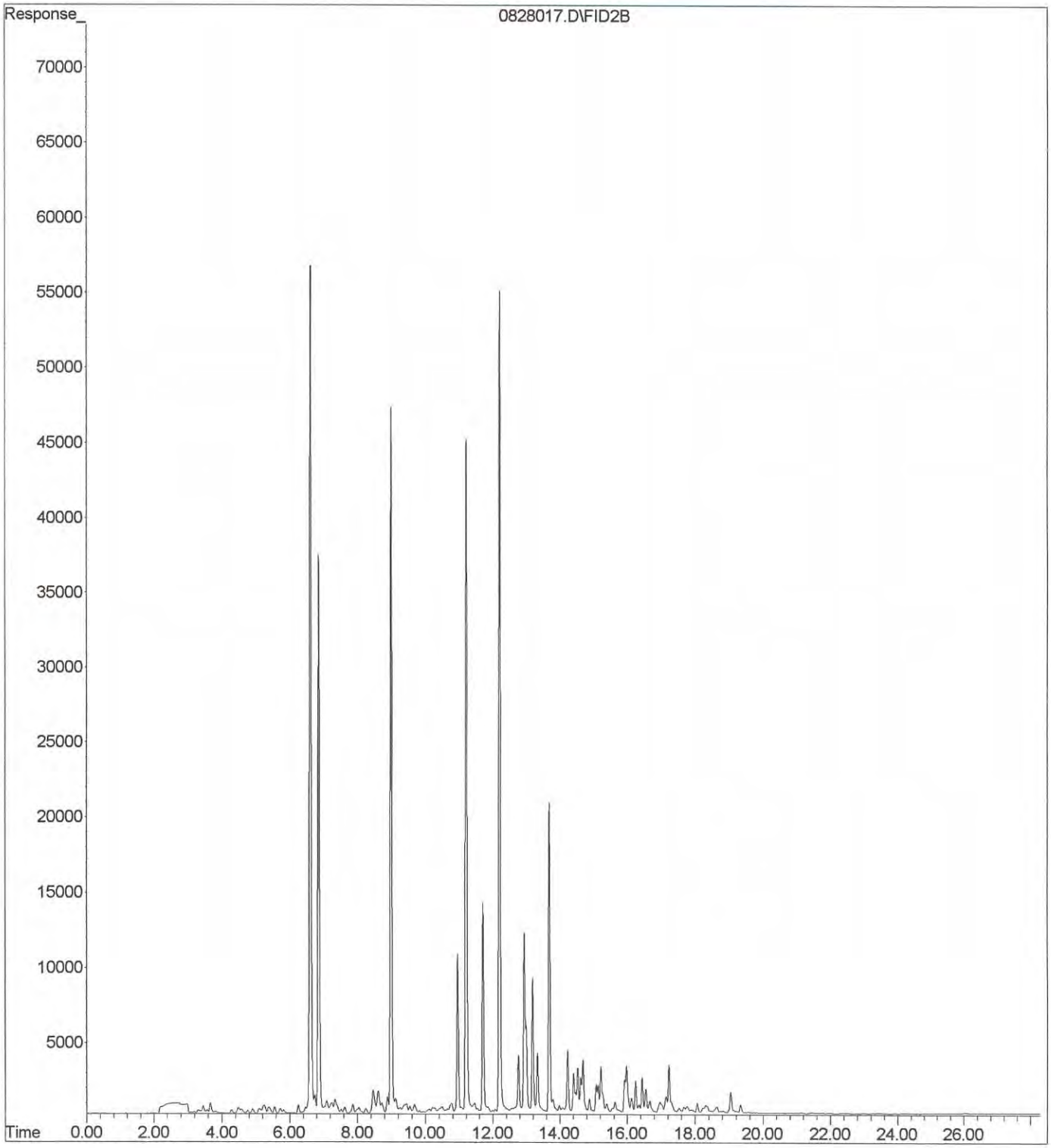
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX EDB EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) <PAHs Only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold	BTEX 8260C			% Moisture
1	SB-2-19:20	8/24	00:11	Soil	5		~~X~~	NO															X				
2	SB-2-19:22.5	↓	00:36	↓	4																		X				
3	SB-2-19:25	↓	00:28	↓	5	NO	~~X~~	X	X	X				X					X								b
4	SB-2-19:30	↓	01:05	↓				X																X			↓
5	SB-5-19:12.5	↓	02:15	↓				X		X				X					X								↓
6	SB-5-19:16.5	↓	02:15	↓				X																X			↓
7	Trip Blank	-	-	H_2O	1					X													~~X~~	DDM 8/26/2019			

	Signature	Company	Date	Time
Relinquished	[signature]	S&W	8/26	04:30
Received	[signature]	S+W	8/26	04:30
Relinquished	[signature]	S&W	8/26	11:10
Received	J. Isaacson	ARPM	8/26	11:10
Relinquished	J. Isaacson	ARPM	8/26/19	13:10
Received	[signature]	OSE	8/26/19	1310
Reviewed/Date		Reviewed/Date		

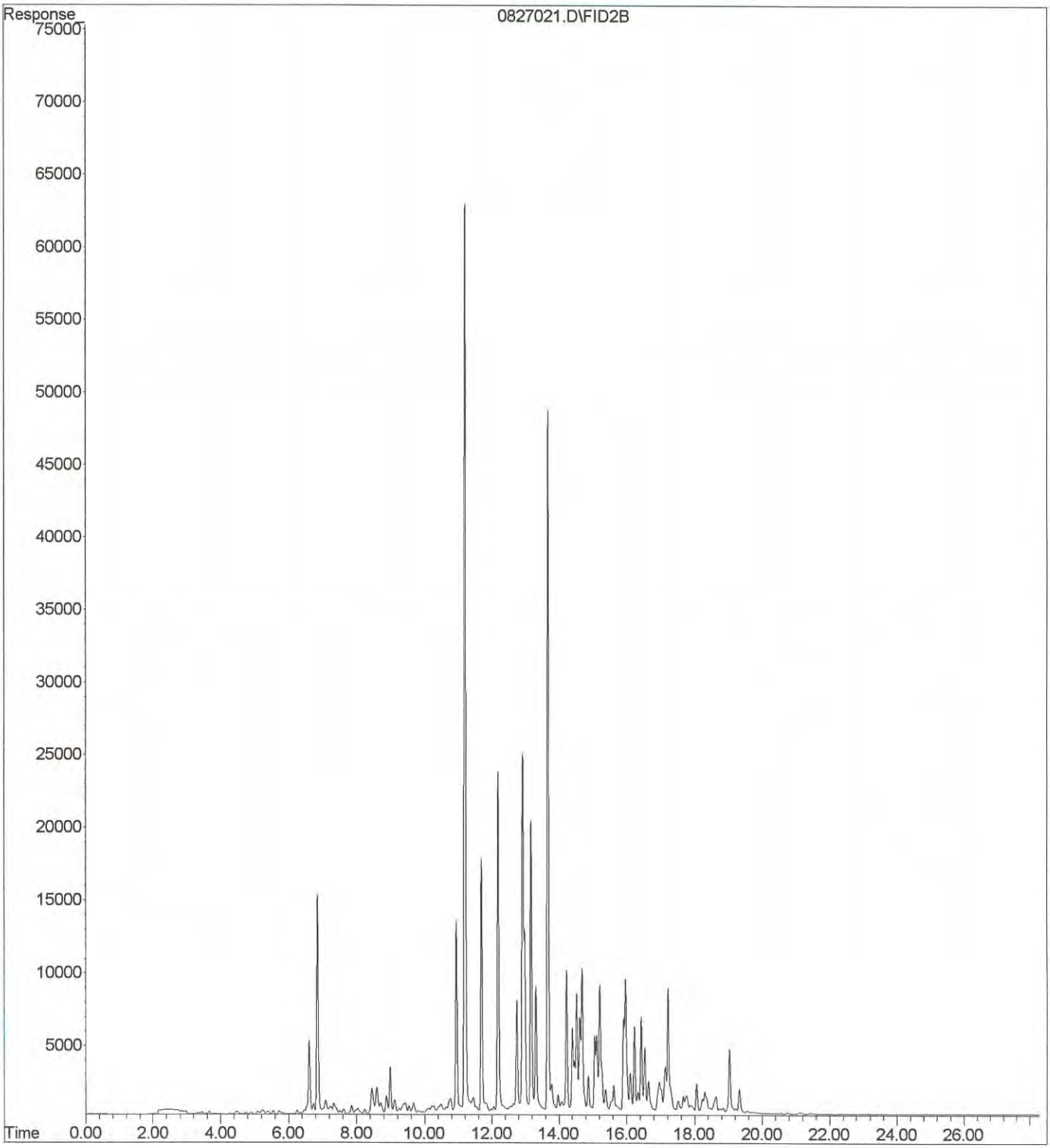
Comments/Special Instructions
~~Lab to filter dissolved metals~~ DS
Report to jxs@shannwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

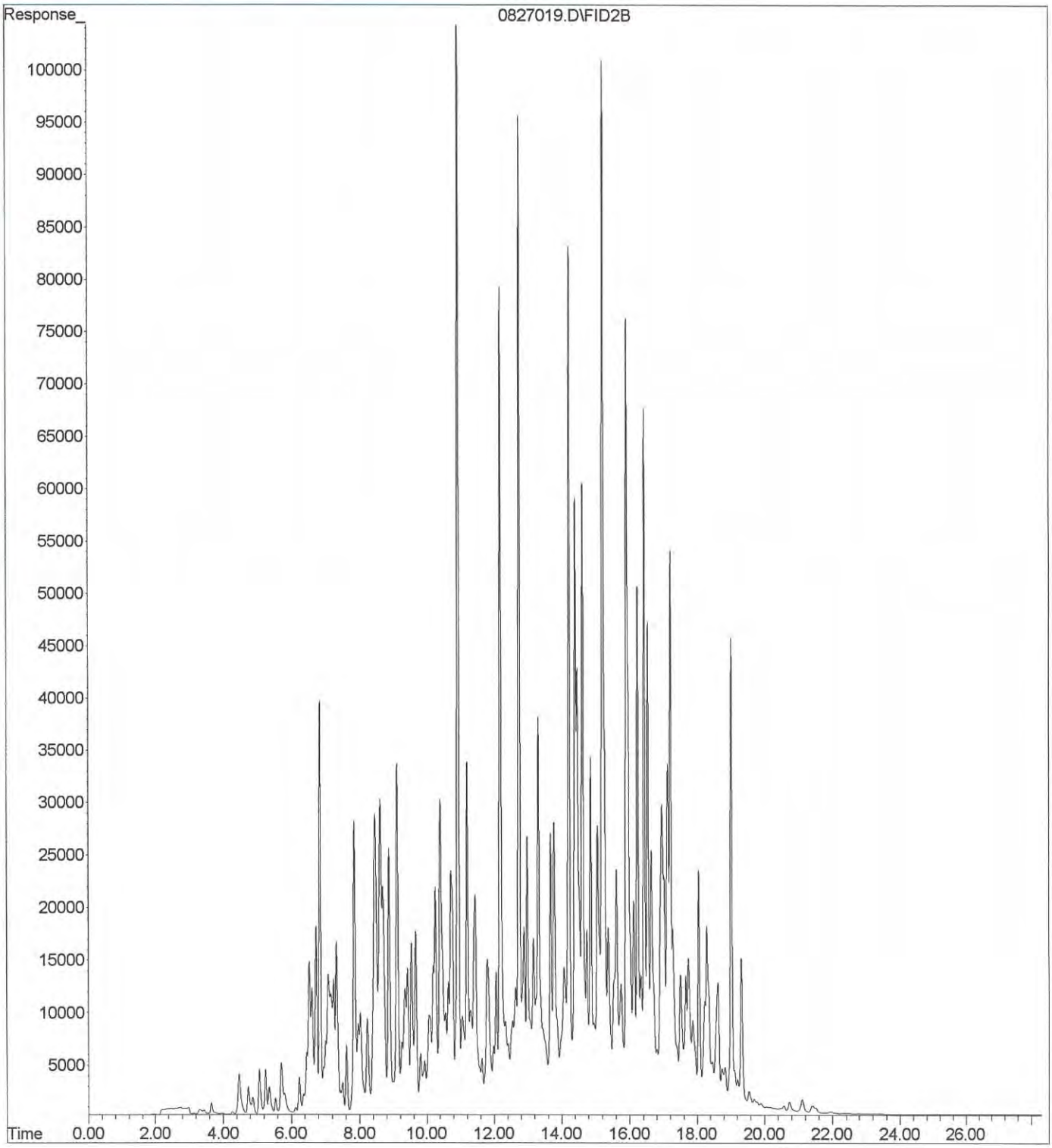
File : X:\BTEX\DARYL\DATA\D190828\0828017.D
Operator :
Acquired : 28 Aug 2019 18:39 using AcqMethod 190701B.M
Instrument : Daryl
Sample Name: 08-301-03s RR 1:100
Misc Info :
Vial Number: 17



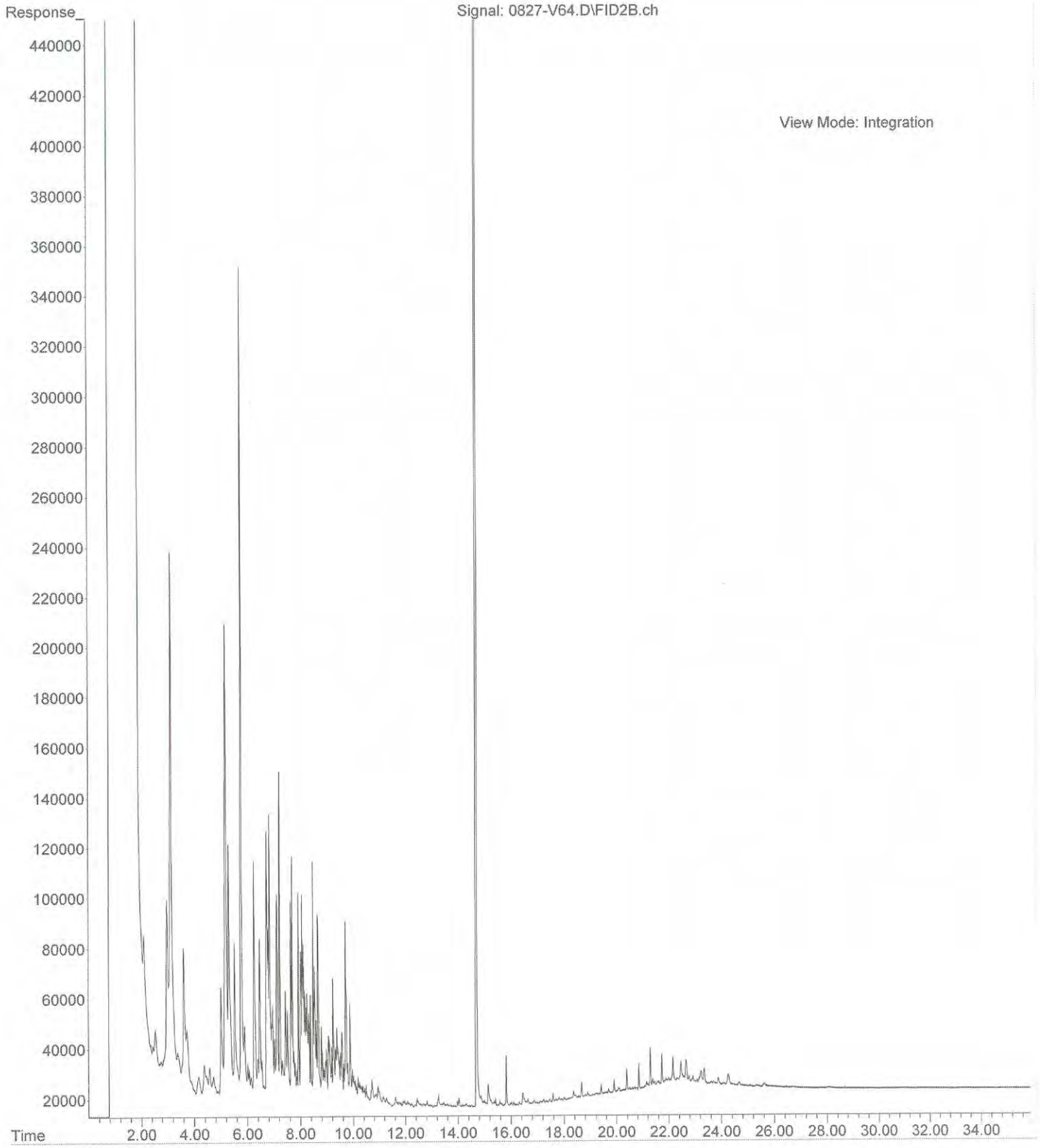
File : X:\BTEX\DARYL\DATA\D190827\0827021.D
Operator :
Acquired : 27 Aug 2019 23:13 using AcqMethod 190701B.M
Instrument : Daryl
Sample Name: 08-301-04s 1:250
Misc Info :
Vial Number: 21



File : X:\BTEX\DARYL\DATA\D190827\0827019.D
Operator :
Acquired : 27 Aug 2019 21:57 using AcqMethod 190701B.M
Instrument : Daryl
Sample Name: 08-301-05s 1:100
Misc Info :
Vial Number: 19



File :X:\DIESELS\VIGO\DATA\V190827.SEC\0827-V64.D
Operator : JT
Acquired : 27 Aug 2019 16:19 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 08-301-03
Misc Info :
Vial Number: 64



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

September 6, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1908-302

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on August 26, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

Case Narrative

Samples were collected on August 24 and 25, 2019 and received by the laboratory on August 26, 2019. 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.

Volatiles EPA 8260D (soil) Analysis

Some MTCA Method A cleanup levels are non-achievable for samples SB-9-19:20 and SB-6-19:16.5 due to the necessary dilutions of the samples.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-19:16.5**					
Laboratory ID:	08-302-01					
Gasoline	**ND**	12	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***96***	***58-129***				
Client ID:	**MW-4-19:26**					
Laboratory ID:	08-302-02					
Gasoline	**ND**	4.7	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***85***	***58-129***				
Client ID:	**SB-9-19:20**					
Laboratory ID:	08-302-03					
Gasoline	**410**	63	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***88***	***58-129***				
Client ID:	**SB-9-19:25**					
Laboratory ID:	08-302-04					
Gasoline	**ND**	5.6	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***94***	***58-129***				
Client ID:	**SB-6-19:16.5**					
Laboratory ID:	08-302-05					
Gasoline	**21**	11	NWTPH-Gx	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***87***	***58-129***				
Client ID:	**SB-6-19:25**					
Laboratory ID:	08-302-06					
Gasoline	**ND**	6.0	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***83***	***58-129***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0827S2					
Gasoline	**ND**	5.0	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***78***	***58-129***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-311-02										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***77***	***77***	***58-129***			

Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-19:16.5**					
Laboratory ID:	08-302-01					
Benzene	ND	0.00098	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	0.00098	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.0049	EPA 8260D	8-27-19	8-27-19	
1,2-Dibromoethane	ND	0.00098	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	0.0014	0.00098	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.0020	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.00098	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***98***	***76-131***				
Toluene-d8	***98***	***78-128***				
4-Bromofluorobenzene	***97***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-19:26**					
Laboratory ID:	08-302-02					
Benzene	ND	0.00078	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.0039	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.00078	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.0016	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.00078	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***95***	***76-131***				
Toluene-d8	***100***	***78-128***				
4-Bromofluorobenzene	***95***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-9-19:20**					
Laboratory ID:	08-302-03					
Benzene	ND	0.063	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	0.063	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.32	EPA 8260D	8-27-19	8-27-19	
1,2-Dibromoethane	ND	0.063	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	0.077	0.063	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	0.19	0.13	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.063	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***93***	***76-131***				
Toluene-d8	***101***	***78-128***				
4-Bromofluorobenzene	***97***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-9-19:25**					
Laboratory ID:	08-302-04					
Benzene	ND	0.0012	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.0060	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.0012	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.0024	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.0012	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***96***	***76-131***				
Toluene-d8	***98***	***78-128***				
4-Bromofluorobenzene	***91***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-6-19:16.5**					
Laboratory ID:	08-302-05					
Benzene	0.89	0.052	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	0.052	EPA 8260D	8-27-19	8-27-19	
Toluene	0.27	0.26	EPA 8260D	8-27-19	8-27-19	
1,2-Dibromoethane	ND	0.052	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	0.57	0.052	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	2.3	0.10	EPA 8260D	8-27-19	8-27-19	
o-Xylene	0.93	0.052	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***87***	***76-131***				
Toluene-d8	***103***	***78-128***				
4-Bromofluorobenzene	***98***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-6-19:25**					
Laboratory ID:	08-302-06					
Benzene	ND	0.0011	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.0053	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.0011	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.0021	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.0011	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***94***	***76-131***				
Toluene-d8	***94***	***78-128***				
4-Bromofluorobenzene	***86***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0827S1					
Benzene	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	0.0050	EPA 8260D	8-27-19	8-27-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.0020	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.0010	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***93***	***76-131***				
Toluene-d8	***96***	***78-128***				
4-Bromofluorobenzene	***97***	***71-130***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
SB/SBD QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0827S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0453**	**0.0448**	0.0500	0.0500	91	90	57-133	1	18	
Benzene	**0.0449**	**0.0436**	0.0500	0.0500	90	87	71-129	3	16	
Trichloroethene	**0.0541**	**0.0529**	0.0500	0.0500	108	106	71-122	2	16	
Toluene	**0.0508**	**0.0495**	0.0500	0.0500	102	99	74-125	3	15	
Chlorobenzene	**0.0480**	**0.0472**	0.0500	0.0500	96	94	72-120	2	14	
Surrogate:										
Dibromofluoromethane					***91***	***91***	***76-131***			
Toluene-d8					***98***	***100***	***78-128***			
4-Bromofluorobenzene					***95***	***100***	***71-130***			

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	08-302-07					
Benzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	2.0	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	1.0	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.40	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***105***	***75-127***				
Toluene-d8	***101***	***80-127***				
4-Bromofluorobenzene	***99***	***78-125***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0827W1					
Benzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	2.0	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	1.0	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.40	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***106***	***75-127***				
Toluene-d8	***108***	***80-127***				
4-Bromofluorobenzene	***98***	***78-125***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0827W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.15**	**9.03**	10.0	10.0	92	90	63-130	1	17	
Benzene	**9.43**	**9.49**	10.0	10.0	94	95	76-125	1	19	
Trichloroethene	**9.54**	**9.46**	10.0	10.0	95	95	76-121	1	18	
Toluene	**9.01**	**8.83**	10.0	10.0	90	88	80-124	2	18	
Chlorobenzene	**10.4**	**10.2**	10.0	10.0	104	102	75-120	2	19	
Surrogate:										
Dibromofluoromethane					***107***	***108***	***75-127***			
Toluene-d8					***104***	***103***	***80-127***			
4-Bromofluorobenzene					***100***	***98***	***78-125***			

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-19:16.5**					
Laboratory ID:	08-302-01					
Benzo[a]anthracene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Chrysene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270E/SIM	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***72***	***40 - 111***				
Pyrene-d10	***82***	***40 - 110***				
Terphenyl-d14	***88***	***45 - 122***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-9-19:20**					
Laboratory ID:	08-302-03					
Benzo[a]anthracene	**ND**	0.0071	EPA 8270E/SIM	8-27-19	8-28-19	
Chrysene	**ND**	0.0071	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.0071	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.0071	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[a]pyrene	**ND**	0.0071	EPA 8270E/SIM	8-27-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0071	EPA 8270E/SIM	8-27-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.0071	EPA 8270E/SIM	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***81***	***40 - 111***				
Pyrene-d10	***91***	***40 - 110***				
Terphenyl-d14	***84***	***45 - 122***				

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-6-19:16.5**					
Laboratory ID:	08-302-05					
Benzo[a]anthracene	**ND**	0.0077	EPA 8270E/SIM	8-27-19	8-28-19	
Chrysene	**ND**	0.0077	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.0077	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.0077	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[a]pyrene	**ND**	0.0077	EPA 8270E/SIM	8-27-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0077	EPA 8270E/SIM	8-27-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.0077	EPA 8270E/SIM	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***76***	***40 - 111***				
Pyrene-d10	***84***	***40 - 110***				
Terphenyl-d14	***88***	***45 - 122***				

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Laboratory Reference: 1908-302
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0827S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	8-27-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***81***	***40 - 111***				
Pyrene-d10	***87***	***40 - 110***				
Terphenyl-d14	***91***	***45 - 122***				

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Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
MS/MSD QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	08-302-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	**0.0851**	**0.0891**	0.0833	0.0833	ND	102	107	53 - 131	5	23	
Chrysene	**0.0796**	**0.0833**	0.0833	0.0833	ND	96	100	46 - 126	5	24	
Benzo[b]fluoranthene	**0.0758**	**0.0804**	0.0833	0.0833	ND	91	97	45 - 127	6	25	
Benzo(j,k)fluoranthene	**0.0817**	**0.0868**	0.0833	0.0833	ND	98	104	52 - 122	6	21	
Benzo[a]pyrene	**0.0773**	**0.0811**	0.0833	0.0833	ND	93	97	51 - 126	5	24	
Indeno(1,2,3-c,d)pyrene	**0.0742**	**0.0770**	0.0833	0.0833	ND	89	92	48 - 127	4	23	
Dibenz[a,h]anthracene	**0.0739**	**0.0776**	0.0833	0.0833	ND	89	93	51 - 124	5	22	
Surrogate:											
2-Fluorobiphenyl						***70***	***79***	***40 - 111***			
Pyrene-d10						***83***	***86***	***40 - 110***			
Terphenyl-d14						***86***	***86***	***45 - 122***			

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Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-19:16.5**					
Laboratory ID:	08-302-01					
Arsenic	**ND**	11	EPA 6020B	8-29-19	8-29-19	
Barium	**34**	5.7	EPA 6020B	8-29-19	8-29-19	
Cadmium	**ND**	0.57	EPA 6020B	8-29-19	8-29-19	
Chromium	**21**	0.57	EPA 6020B	8-29-19	8-29-19	
Lead	**ND**	5.7	EPA 6020B	8-29-19	8-29-19	
Mercury	**ND**	0.28	EPA 7471B	8-30-19	8-30-19	
Selenium	**ND**	11	EPA 6020B	8-29-19	8-29-19	
Silver	**ND**	1.1	EPA 6020B	8-29-19	8-29-19	
Client ID:	**SB-9-19:20**					
Laboratory ID:	08-302-03					
Arsenic	**ND**	11	EPA 6020B	8-29-19	8-29-19	
Barium	**28**	5.4	EPA 6020B	8-29-19	8-29-19	
Cadmium	**ND**	0.54	EPA 6020B	8-29-19	8-29-19	
Chromium	**20**	0.54	EPA 6020B	8-29-19	8-29-19	
Lead	**ND**	5.4	EPA 6020B	8-29-19	8-29-19	
Mercury	**ND**	0.27	EPA 7471B	8-30-19	8-30-19	
Selenium	**ND**	11	EPA 6020B	8-29-19	8-29-19	
Silver	**ND**	1.1	EPA 6020B	8-29-19	8-29-19	
Client ID:	**SB-6-19:16.5**					
Laboratory ID:	08-302-05					
Arsenic	**ND**	12	EPA 6020B	8-29-19	8-29-19	
Barium	**39**	5.8	EPA 6020B	8-29-19	8-29-19	
Cadmium	**ND**	0.58	EPA 6020B	8-29-19	8-29-19	
Chromium	**21**	0.58	EPA 6020B	8-29-19	8-29-19	
Lead	**ND**	5.8	EPA 6020B	8-29-19	8-29-19	
Mercury	**ND**	0.29	EPA 7471B	8-30-19	8-30-19	
Selenium	**ND**	12	EPA 6020B	8-29-19	8-29-19	
Silver	**ND**	1.2	EPA 6020B	8-29-19	8-29-19	

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Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

TOTAL METALS
EPA 6020B/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0829SM1					
Arsenic	**ND**	10	EPA 6020B	8-29-19	8-29-19	
Barium	**ND**	5.0	EPA 6020B	8-29-19	8-29-19	
Cadmium	**ND**	0.50	EPA 6020B	8-29-19	8-29-19	
Chromium	**ND**	0.50	EPA 6020B	8-29-19	8-29-19	
Lead	**ND**	5.0	EPA 6020B	8-29-19	8-29-19	
Selenium	**ND**	10	EPA 6020B	8-29-19	8-29-19	
Silver	**ND**	1.0	EPA 6020B	8-29-19	8-29-19	
Laboratory ID:	MB0830S1					
Mercury	**ND**	0.25	EPA 7471B	8-30-19	8-30-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-306-01										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**27.7**	**25.6**	NA	NA		NA		NA	8	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**17.3**	**16.6**	NA	NA		NA		NA	4	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	08-306-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	08-306-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**97.5**	**97.8**	100	100	ND	**98**	**98**	75-125	0	20	
Barium	**130**	**132**	100	100	27.7	**103**	**104**	75-125	1	20	
Cadmium	**48.3**	**50.8**	50.0	50.0	ND	**97**	**102**	75-125	5	20	
Chromium	**121**	**120**	100	100	17.3	**103**	**103**	75-125	0	20	
Lead	**233**	**236**	250	250	ND	**93**	**95**	75-125	1	20	
Selenium	**91.3**	**94.5**	100	100	ND	**91**	**95**	75-125	3	20	
Silver	**20.1**	**20.0**	25.0	25.0	ND	**80**	**80**	75-125	1	20	
Laboratory ID:	08-306-01										
Mercury	**0.527**	**0.514**	0.500	0.500	0.00640	**104**	**102**	80-120	2	20	

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

TOTAL ORGANIC CARBON
EPA 9060A

Matrix: Soil
Units: % Carbon

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-6-19:16.5**					
Laboratory ID:	08-302-05					
Total Organic Carbon	**ND**	0.042	EPA 9060A	8-30-19	8-30-19	

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

TOTAL ORGANIC CARBON
EPA 9060A
QUALITY CONTROL

Matrix: Soil
Units: % Carbon

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0830S1					
Total Organic Carbon	**ND**	0.042	EPA 9060A	8-30-19	8-30-19	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	08-302-05								
	ORIG	DUP							
Total Organic Carbon	**ND**	**ND**	NA	NA	NA	NA	NA	20	
SPIKE BLANK									
Laboratory ID:	SB0830S1								
	SB		SB		SB				
Total Organic Carbon	**43.0**		42.1	NA	102	90-121	NA	NA	

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Date of Report: September 6, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-302
Project: 21-1-22242-102

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
MW-4-19:16.5	08-302-01	**12**	8-27-19
MW-4-19:26	08-302-02	**11**	8-27-19
SB-9-19:20	08-302-03	**7**	8-27-19
SB-9-19:25	08-302-04	**8**	8-27-19
SB-6-19:16.5	08-302-05	**13**	8-27-19
SB-6-19:25	08-302-06	**5**	8-27-19

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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

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OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Page 1 of 1

Company: Shannon & Wilson
Project Number: 21-1-22242-102
Project Name: SR520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Joseph Sawdey

Turnaround Request (in working days) (Check One): ☐ Same Day ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ Standard (7 Days) ☐ _____ (other)

Laboratory Number: 08-302

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX EDB EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs Only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	BTEX 8260C	Total Organic Carbon	HOLD		% Moisture
1	MW-4-19:16.5	8/24	21:57	Soil	5			X		X				X					X								X
2	MW-4-19:26	"	22:30		1			X															X				
3	SB-9-19:20	8/25	01:28		1			X		X				X					X								
4	SB-9-19:25		01:43		1			X															X				
5	SB-6-19:16.5		22:00		1			X		X				X					X					X			
6	SB-6-19:25		22:45		1			X															X				
7	Trip Blank	—	—	H_2O	1					X																	

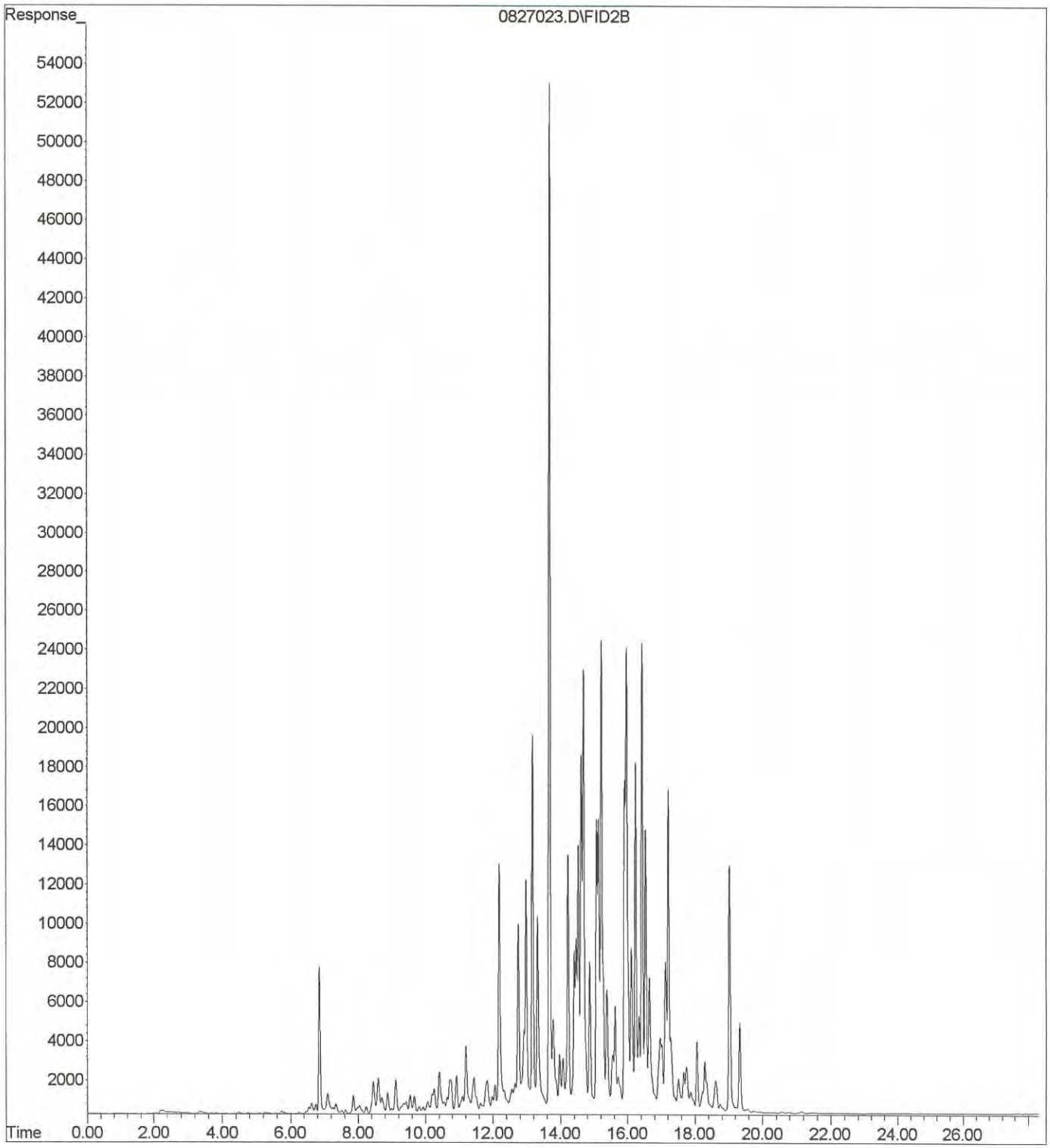
DDM 8/26/2019

	Signature	Company	Date	Time
Relinquished	[signature]	S&W	8/26	0430
Received	[signature]	S&W	8/26	0930
Relinquished	[signature]	S&W	8/26	11:10
Received	[signature]	ALPHA	8/26	11:10
Relinquished	[signature]	ALPHA	8/26/19	13:10
Received	[signature]	OSE	8/26/19	1310
Reviewed/Date		Reviewed/Date		

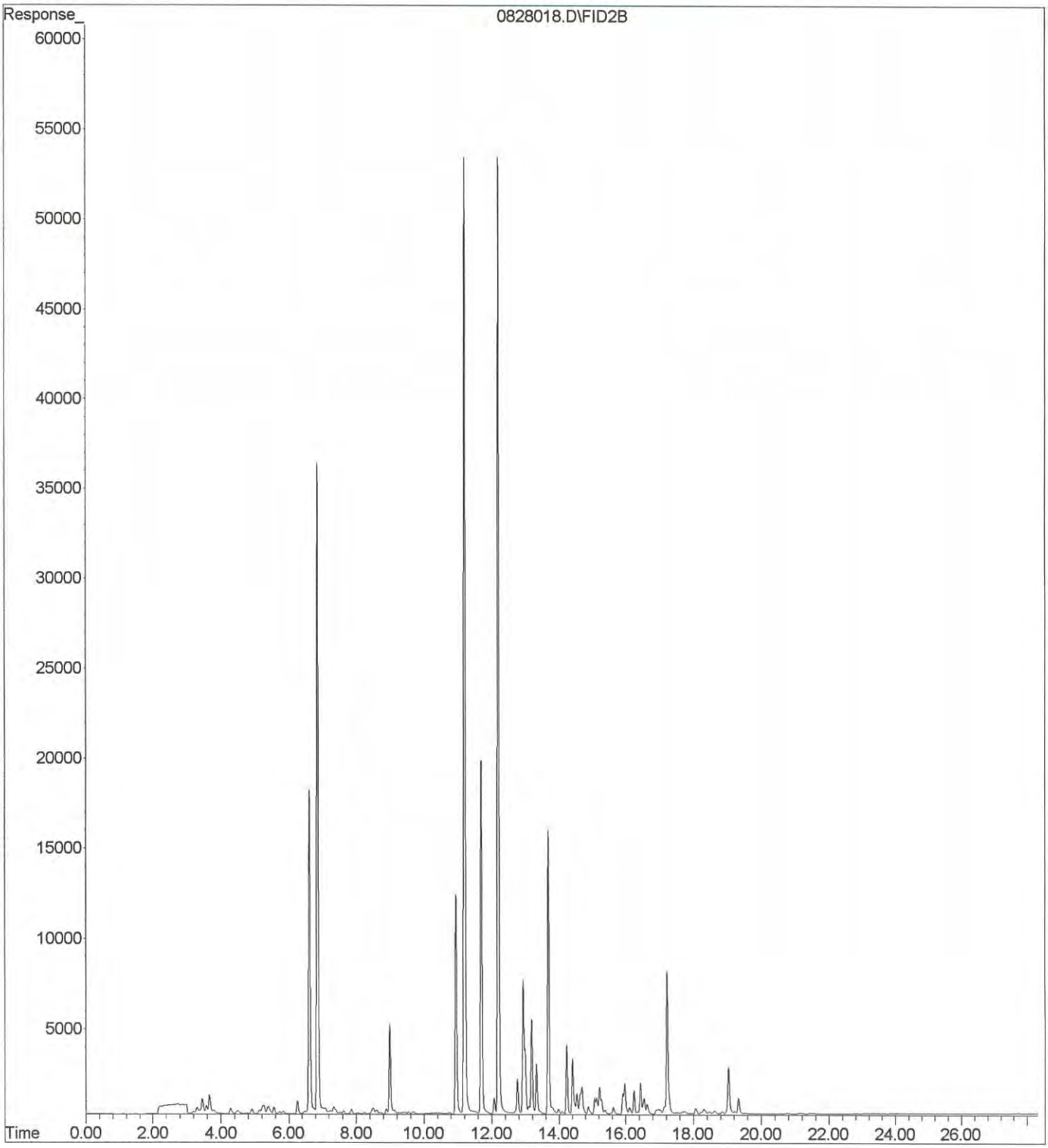
Comments/Special Instructions:
~~Lab to filter dissolved metals~~
Report to jxs@shanwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

File : X:\BTEX\DARYL\DATA\D190827\0827023.D
Operator :
Acquired : 28 Aug 2019 00:13 using AcqMethod 190701B.M
Instrument : Daryl
Sample Name: 08-302-03s 1:500
Misc Info :
Vial Number: 23



File : X:\BTEX\DARYL\DATA\D190828\0828018.D
Operator :
Acquired : 28 Aug 2019 19:09 using AcqMethod 190701B.M
Instrument : Daryl
Sample Name: 08-302-05s RR 1:100
Misc Info :
Vial Number: 18



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

September 3, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1908-303

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on August 26, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

Case Narrative

Samples were collected on August 24 and 25, 2019 and received by the laboratory on August 26, 2019. 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.

Volatiles EPA 8260C Analysis

The MTCA Method A cleanup level for EDC is non-achievable for samples SB-2-19, SB-9-19, and SB-6-19 due to the necessary dilutions of the samples.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19**					
Laboratory ID:	08-303-01					
Gasoline	**88000**	5000	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***98***	***59-122***				
Client ID:	**SB-9-19**					
Laboratory ID:	08-303-02					
Gasoline	**33000**	1000	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***102***	***59-122***				
Client ID:	**SB-6-19**					
Laboratory ID:	08-303-03					
Gasoline	**51000**	5000	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***100***	***59-122***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0827W1					
Gasoline	**ND**	100	NWTPH-Gx	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***90***	***59-122***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-303-02										
	ORIG	DUP									
Gasoline	**32900**	**31400**	NA	NA		NA		NA	5	30	
Surrogate:											
Fluorobenzene						***102***	***93***	***59-122***			

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

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:	**SB-2-19**					
Laboratory ID:	08-303-01					
Diesel Range Organics	**5.7**	0.30	NWTPH-Dx	8-28-19	8-28-19	M
Lube Oil Range Organics	**ND**	0.48	NWTPH-Dx	8-28-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***79***	***50-150***				
Client ID:	**SB-9-19**					
Laboratory ID:	08-303-02					
Diesel Range Organics	**7.4**	0.25	NWTPH-Dx	8-28-19	8-28-19	M
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	8-28-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***71***	***50-150***				
Client ID:	**SB-6-19**					
Laboratory ID:	08-303-03					
Diesel Range Organics	**3.6**	0.30	NWTPH-Dx	8-28-19	8-28-19	M
Lube Oil Range Organics	**ND**	0.48	NWTPH-Dx	8-28-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***81***	***50-150***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0828W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	8-28-19	8-28-19	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	8-28-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***81***	***50-150***				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	SB0828W1									
	ORIG	DUP								
Diesel Fuel #2	**0.833**	**0.807**	NA	NA		NA	NA	3	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						***86***	***81***	***50-150***		

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260C

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19**					
Laboratory ID:	08-303-01					
Benzene	2600	30	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	100	EPA 8260D	8-26-19	8-26-19	
Toluene	1200	50	EPA 8260D	8-26-19	8-26-19	
Ethylbenzene	3100	30	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	13000	60	EPA 8260D	8-27-19	8-27-19	
o-Xylene	4500	30	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***103***	***75-127***				
Toluene-d8	***100***	***80-127***				
4-Bromofluorobenzene	***96***	***78-125***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260C

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-9-19**					
Laboratory ID:	08-303-02					
Benzene	19	4.0	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	40	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	20	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	140	4.0	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	350	8.0	EPA 8260D	8-27-19	8-27-19	
o-Xylene	33	4.0	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***102***	***75-127***				
Toluene-d8	***107***	***80-127***				
4-Bromofluorobenzene	***101***	***78-125***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260C

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-6-19**					
Laboratory ID:	08-303-03					
Benzene	3400	20	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	100	EPA 8260D	8-26-19	8-26-19	
Toluene	430	50	EPA 8260D	8-26-19	8-26-19	
Ethylbenzene	2000	10	EPA 8260D	8-26-19	8-26-19	
m,p-Xylene	7000	40	EPA 8260D	8-27-19	8-27-19	
o-Xylene	1800	10	EPA 8260D	8-26-19	8-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***106***	***75-127***				
Toluene-d8	***101***	***80-127***				
4-Bromofluorobenzene	***97***	***78-125***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260C

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**Trip Blank**					
Laboratory ID:	08-303-04					
Benzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	2.0	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	1.0	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.40	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***104***	***75-127***				
Toluene-d8	***107***	***80-127***				
4-Bromofluorobenzene	***97***	***78-125***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260C
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0826W1					
Benzene	ND	0.20	EPA 8260D	8-26-19	8-26-19	
1,2-Dichloroethane	ND	2.0	EPA 8260D	8-26-19	8-26-19	
Toluene	ND	1.0	EPA 8260D	8-26-19	8-26-19	
Ethylbenzene	ND	0.20	EPA 8260D	8-26-19	8-26-19	
m,p-Xylene	ND	0.40	EPA 8260D	8-26-19	8-26-19	
o-Xylene	ND	0.20	EPA 8260D	8-26-19	8-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***100***	***75-127***				
Toluene-d8	***100***	***80-127***				
4-Bromofluorobenzene	***96***	***78-125***				
Laboratory ID:	MB0827W1					
Benzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
1,2-Dichloroethane	ND	2.0	EPA 8260D	8-27-19	8-27-19	
Toluene	ND	1.0	EPA 8260D	8-27-19	8-27-19	
Ethylbenzene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
m,p-Xylene	ND	0.40	EPA 8260D	8-27-19	8-27-19	
o-Xylene	ND	0.20	EPA 8260D	8-27-19	8-27-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***106***	***75-127***				
Toluene-d8	***108***	***80-127***				
4-Bromofluorobenzene	***98***	***78-125***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260C
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0826W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.29**	**9.15**	10.0	10.0	93	92	63-130	2	17	
Benzene	**8.54**	**8.49**	10.0	10.0	85	85	76-125	1	19	
Trichloroethene	**9.85**	**9.68**	10.0	10.0	99	97	76-121	2	18	
Toluene	**8.93**	**8.67**	10.0	10.0	89	87	80-124	3	18	
Chlorobenzene	**10.6**	**10.5**	10.0	10.0	106	105	75-120	1	19	
Surrogate:										
Dibromofluoromethane					***100***	***103***	***75-127***			
Toluene-d8					***100***	***100***	***80-127***			
4-Bromofluorobenzene					***98***	***96***	***78-125***			
Laboratory ID:	SB0827W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.15**	**9.03**	10.0	10.0	92	90	63-130	1	17	
Benzene	**9.43**	**9.49**	10.0	10.0	94	95	76-125	1	19	
Trichloroethene	**9.54**	**9.46**	10.0	10.0	95	95	76-121	1	18	
Toluene	**9.01**	**8.83**	10.0	10.0	90	88	80-124	2	18	
Chlorobenzene	**10.4**	**10.2**	10.0	10.0	104	102	75-120	2	19	
Surrogate:										
Dibromofluoromethane					***107***	***108***	***75-127***			
Toluene-d8					***104***	***103***	***80-127***			
4-Bromofluorobenzene					***100***	***98***	***78-125***			

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19**					
Laboratory ID:	08-303-01					
Benzo[a]anthracene	**0.043**	0.011	EPA 8270E/SIM	8-28-19	8-28-19	
Chrysene	**0.031**	0.011	EPA 8270E/SIM	8-28-19	8-28-19	
Benzo[b]fluoranthene	**0.021**	0.011	EPA 8270E/SIM	8-28-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.011	EPA 8270E/SIM	8-28-19	8-28-19	
Benzo[a]pyrene	**0.027**	0.011	EPA 8270E/SIM	8-28-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.011	EPA 8270E/SIM	8-28-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.011	EPA 8270E/SIM	8-28-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***61***	***27 - 106***				
Pyrene-d10	***78***	***35 - 98***				
Terphenyl-d14	***73***	***41 - 129***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-9-19**					
Laboratory ID:	08-303-02					
Benzo[a]anthracene	**ND**	0.036	EPA 8270E/SIM	8-28-19	8-29-19	
Chrysene	**ND**	0.036	EPA 8270E/SIM	8-28-19	8-29-19	
Benzo[b]fluoranthene	**ND**	0.036	EPA 8270E/SIM	8-28-19	8-29-19	
Benzo(j,k)fluoranthene	**ND**	0.036	EPA 8270E/SIM	8-28-19	8-29-19	
Benzo[a]pyrene	**ND**	0.036	EPA 8270E/SIM	8-28-19	8-29-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.036	EPA 8270E/SIM	8-28-19	8-29-19	
Dibenz[a,h]anthracene	**ND**	0.036	EPA 8270E/SIM	8-28-19	8-29-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***66***	***27 - 106***				
Pyrene-d10	***78***	***35 - 98***				
Terphenyl-d14	***73***	***41 - 129***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-6-19**					
Laboratory ID:	08-303-03					
Benzo[a]anthracene	**ND**	0.040	EPA 8270E/SIM	8-28-19	8-29-19	
Chrysene	**ND**	0.040	EPA 8270E/SIM	8-28-19	8-29-19	
Benzo[b]fluoranthene	**ND**	0.040	EPA 8270E/SIM	8-28-19	8-29-19	
Benzo(j,k)fluoranthene	**ND**	0.040	EPA 8270E/SIM	8-28-19	8-29-19	
Benzo[a]pyrene	**ND**	0.040	EPA 8270E/SIM	8-28-19	8-29-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.040	EPA 8270E/SIM	8-28-19	8-29-19	
Dibenz[a,h]anthracene	**ND**	0.040	EPA 8270E/SIM	8-28-19	8-29-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***43***	***27 - 106***				
Pyrene-d10	***59***	***35 - 98***				
Terphenyl-d14	***58***	***41 - 129***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM
METHOD BLANK QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Laboratory ID:	MB0828W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	8-28-19	8-28-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	8-28-19	8-28-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	8-28-19	8-28-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	8-28-19	8-28-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	8-28-19	8-28-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	8-28-19	8-28-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	8-28-19	8-28-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***65***	***27 - 106***				
Pyrene-d10	***84***	***35 - 98***				
Terphenyl-d14	***91***	***41 - 129***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

cPAHs EPA 8270D/SIM
SB/SBD QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0828W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.516**	**0.510**	0.500	0.500	103	102	59 - 127	1	24	
Chrysene	**0.490**	**0.464**	0.500	0.500	98	93	57 - 122	5	24	
Benzo[b]fluoranthene	**0.488**	**0.466**	0.500	0.500	98	93	58 - 123	5	26	
Benzo(j,k)fluoranthene	**0.513**	**0.505**	0.500	0.500	103	101	60 - 123	2	22	
Benzo[a]pyrene	**0.445**	**0.441**	0.500	0.500	89	88	54 - 121	1	24	
Indeno(1,2,3-c,d)pyrene	**0.463**	**0.443**	0.500	0.500	93	89	55 - 125	4	26	
Dibenz[a,h]anthracene	**0.463**	**0.452**	0.500	0.500	93	90	57 - 127	2	25	
Surrogate:										
2-Fluorobiphenyl					***62***	***61***	***27 - 106***			
Pyrene-d10					***88***	***81***	***35 - 98***			
Terphenyl-d14					***90***	***87***	***41 - 129***			

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19**					
Laboratory ID:	08-303-01					
Arsenic	**47**	3.3	EPA 200.8	8-28-19	8-29-19	
Barium	**1000**	28	EPA 200.8	8-28-19	8-29-19	
Cadmium	**ND**	4.4	EPA 200.8	8-28-19	8-29-19	
Chromium	**540**	11	EPA 200.8	8-28-19	8-29-19	
Lead	**35**	1.1	EPA 200.8	8-28-19	8-29-19	
Mercury	**ND**	0.50	EPA 7470A	8-29-19	8-29-19	
Selenium	**7.3**	5.6	EPA 200.8	8-28-19	8-29-19	
Silver	**ND**	11	EPA 200.8	8-28-19	8-29-19	
Client ID:	**SB-9-19**					
Laboratory ID:	08-303-02					
Arsenic	**59**	3.3	EPA 200.8	8-28-19	8-29-19	
Barium	**2100**	28	EPA 200.8	8-28-19	8-29-19	
Cadmium	**5.1**	4.4	EPA 200.8	8-28-19	8-29-19	
Chromium	**1100**	56	EPA 200.8	8-28-19	8-29-19	
Lead	**230**	1.1	EPA 200.8	8-28-19	8-29-19	
Mercury	**1.1**	0.50	EPA 7470A	8-29-19	8-29-19	
Selenium	**19**	5.6	EPA 200.8	8-28-19	8-29-19	
Silver	**ND**	11	EPA 200.8	8-28-19	8-29-19	
Client ID:	**SB-6-19**					
Laboratory ID:	08-303-03					
Arsenic	**75**	3.3	EPA 200.8	8-28-19	8-29-19	
Barium	**850**	28	EPA 200.8	8-28-19	8-29-19	
Cadmium	**ND**	4.4	EPA 200.8	8-28-19	8-29-19	
Chromium	**280**	11	EPA 200.8	8-28-19	8-29-19	
Lead	**30**	1.1	EPA 200.8	8-28-19	8-29-19	
Mercury	**ND**	0.50	EPA 7470A	8-29-19	8-29-19	
Selenium	**ND**	5.6	EPA 200.8	8-28-19	8-29-19	
Silver	**ND**	11	EPA 200.8	8-28-19	8-29-19	

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

TOTAL METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0828WM1					
Arsenic	**ND**	3.3	EPA 200.8	8-28-19	8-29-19	
Barium	**ND**	28	EPA 200.8	8-28-19	8-29-19	
Cadmium	**ND**	4.4	EPA 200.8	8-28-19	8-29-19	
Chromium	**ND**	11	EPA 200.8	8-28-19	8-29-19	
Lead	**ND**	1.1	EPA 200.8	8-28-19	8-29-19	
Selenium	**ND**	5.6	EPA 200.8	8-28-19	8-29-19	
Silver	**ND**	11	EPA 200.8	8-28-19	8-29-19	
Laboratory ID:	MB0829W1					
Mercury	**ND**	0.50	EPA 7470A	8-29-19	8-29-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-275-01										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	08-079-03										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	08-275-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**103**	**109**	111	111	ND	**93**	**99**	75-125	6	20	
Barium	**102**	**102**	111	111	ND	**92**	**92**	75-125	0	20	
Cadmium	**104**	**106**	111	111	ND	**93**	**95**	75-125	2	20	
Chromium	**102**	**105**	111	111	ND	**92**	**95**	75-125	3	20	
Lead	**97.3**	**98.7**	111	111	ND	**88**	**89**	75-125	1	20	
Selenium	**100**	**103**	111	111	ND	**90**	**93**	75-125	3	20	
Silver	**91.1**	**90.4**	111	111	ND	**82**	**82**	75-125	1	20	
Laboratory ID:	08-079-03										
Mercury	**11.9**	**12.3**	12.5	12.5	ND	**95**	**98**	75-125	3	20	

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19**					
Laboratory ID:	08-303-01					
Arsenic	**8.0**	3.0	EPA 200.8	8-26-19	8-27-19	
Barium	**75**	25	EPA 200.8	8-26-19	8-27-19	
Cadmium	**ND**	4.0	EPA 200.8	8-26-19	8-27-19	
Chromium	**ND**	10	EPA 200.8	8-26-19	8-27-19	
Lead	**ND**	1.0	EPA 200.8	8-26-19	8-27-19	
Mercury	**ND**	0.50	EPA 7470A	8-29-19	8-29-19	
Selenium	**ND**	5.0	EPA 200.8	8-26-19	8-27-19	
Silver	**ND**	10	EPA 200.8	8-26-19	8-27-19	
Client ID:	**SB-9-19**					
Laboratory ID:	08-303-02					
Arsenic	**5.1**	3.0	EPA 200.8	8-26-19	8-27-19	
Barium	**69**	25	EPA 200.8	8-26-19	8-27-19	
Cadmium	**ND**	4.0	EPA 200.8	8-26-19	8-27-19	
Chromium	**ND**	10	EPA 200.8	8-26-19	8-27-19	
Lead	**ND**	1.0	EPA 200.8	8-26-19	8-27-19	
Mercury	**ND**	0.50	EPA 7470A	8-29-19	8-29-19	
Selenium	**ND**	5.0	EPA 200.8	8-26-19	8-27-19	
Silver	**ND**	10	EPA 200.8	8-26-19	8-27-19	
Client ID:	**SB-6-19**					
Laboratory ID:	08-303-03					
Arsenic	**32**	3.0	EPA 200.8	8-26-19	8-27-19	
Barium	**60**	25	EPA 200.8	8-26-19	8-27-19	
Cadmium	**ND**	4.0	EPA 200.8	8-26-19	8-27-19	
Chromium	**ND**	10	EPA 200.8	8-26-19	8-27-19	
Lead	**ND**	1.0	EPA 200.8	8-26-19	8-27-19	
Mercury	**ND**	0.50	EPA 7470A	8-29-19	8-29-19	
Selenium	**ND**	5.0	EPA 200.8	8-26-19	8-27-19	
Silver	**ND**	10	EPA 200.8	8-26-19	8-27-19	

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

DISSOLVED METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0826F1					
Arsenic	**ND**	3.0	EPA 200.8	8-26-19	8-27-19	
Barium	**ND**	25	EPA 200.8	8-26-19	8-27-19	
Cadmium	**ND**	4.0	EPA 200.8	8-26-19	8-27-19	
Chromium	**ND**	10	EPA 200.8	8-26-19	8-27-19	
Lead	**ND**	1.0	EPA 200.8	8-26-19	8-27-19	
Selenium	**ND**	5.0	EPA 200.8	8-26-19	8-27-19	
Silver	**ND**	10	EPA 200.8	8-26-19	8-27-19	
Laboratory ID:	MB0829F1					
Mercury	**ND**	0.50	EPA 7470A	8-29-19	8-29-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	08-267-03										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**25.4**	**25.0**	NA	NA		NA		NA	2	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	08-303-03										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	08-267-03										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**82.2**	**80.6**	80.0	80.0	ND	**103**	**101**	75-125	2	20	
Barium	**102**	**100**	80.0	80.0	25.4	**95**	**93**	75-125	2	20	
Cadmium	**77.6**	**78.8**	80.0	80.0	ND	**97**	**99**	75-125	2	20	
Chromium	**81.2**	**80.2**	80.0	80.0	ND	**102**	**100**	75-125	1	20	
Lead	**77.2**	**76.8**	80.0	80.0	ND	**97**	**96**	75-125	1	20	
Selenium	**79.2**	**77.6**	80.0	80.0	ND	**99**	**97**	75-125	2	20	
Silver	**71.0**	**73.6**	80.0	80.0	ND	**89**	**92**	75-125	4	20	
Laboratory ID:	08-303-03										
Mercury	**12.1**	**12.1**	12.5	12.5	ND	**97**	**97**	75-125	0	20	

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

1,2-DIBROMOETHANE (EDB)
EPA 8011

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-2-19**					
Laboratory ID:	08-303-01					
EDB	**ND**	0.010	EPA 8011	8-28-19	8-29-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
TCMX	***48***	***25-143***				
Client ID:	**SB-9-19**					
Laboratory ID:	08-303-02					
EDB	**ND**	0.010	EPA 8011	8-28-19	8-29-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
TCMX	***83***	***25-143***				
Client ID:	**SB-6-19**					
Laboratory ID:	08-303-03					
EDB	**ND**	0.010	EPA 8011	8-28-19	8-29-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
TCMX	***48***	***25-143***				

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Date of Report: September 3, 2019
Samples Submitted: August 26, 2019
Laboratory Reference: 1908-303
Project: 21-1-22242-102

1,2-DIBROMOETHANE (EDB)
EPA 8011
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0828W1					
EDB	**ND**	0.010	EPA 8011	8-28-19	8-29-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
TCMX	***65***	***25-143***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB0828W1										
	SB	SBD	SB	SBD		SB	SBD				
EDB	**0.0842**	**0.0791**	0.100	0.100	N/A	**84**	**79**	57-124	6	15	
Surrogate:											
TCMX						***58***	***64***	***25-143***			

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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

OnSite Environmental Inc.

Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Page 1 of 1

Company: Shannon & Wilson
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Joseph Sawtey

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 08-303

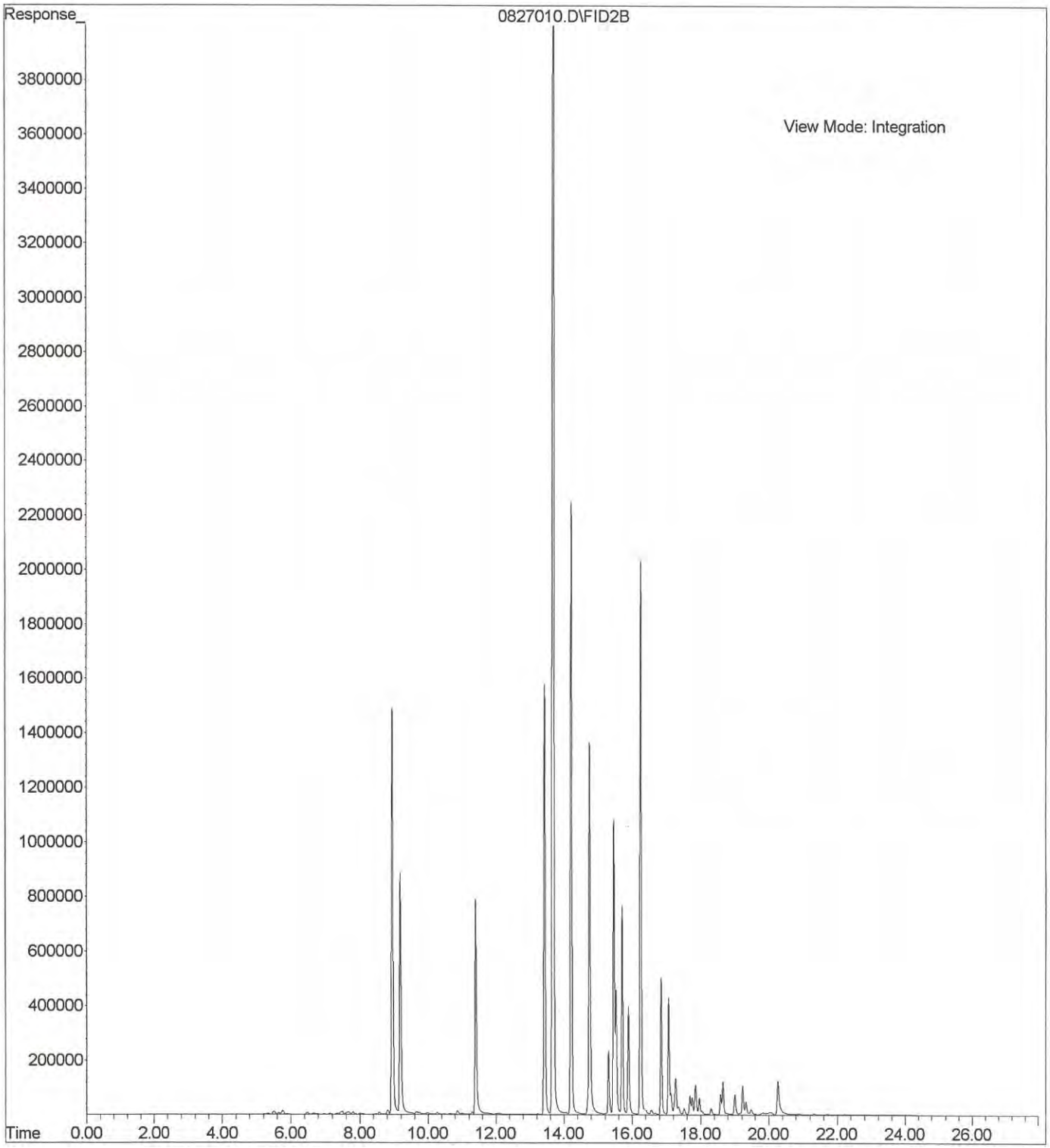
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX ~~EDB~~ EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs Only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals AND dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	HOLD			EDB 8011	% Moisture
1	SB-2-19	8/24	01:30	H_2O	11			X	X	X				X					X							X	
2	SB-9-19	8/25	02:15	↓	↓			X	X	X				X					X							X	
3	SB-6-19	"	23:30	↓	↓			X	X	X				X					X							X	
4	Trip Blank	—	—	↓	1					X													X				

	Signature	Company	Date	Time
Relinquished	[signature]	S&W	8/26	04:30
Received	[signature]	S&W	8/26	04:30
Relinquished	[signature]	S&W	8/26	11:10
Received	J. Isaacson	ALPHA	8/26	11:10
Relinquished	J. Isaacson	ALPHA	8/26/19	13:10
Received	[signature]	OSE	8/26/19	1310
Reviewed/Date		Reviewed/Date		

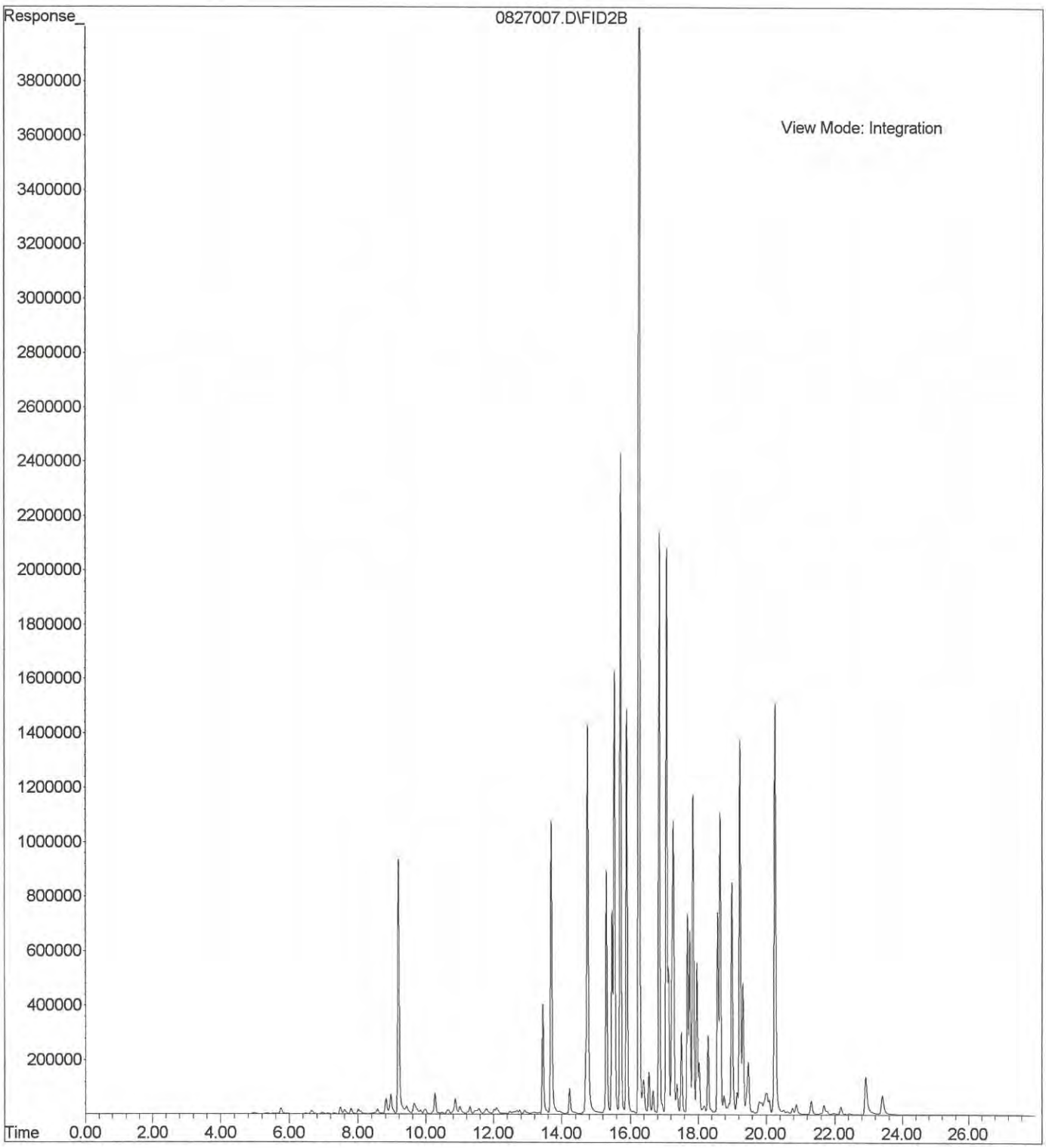
Comments/Special Instructions
Lab to filter dissolved metals
Report to jxs@shanwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

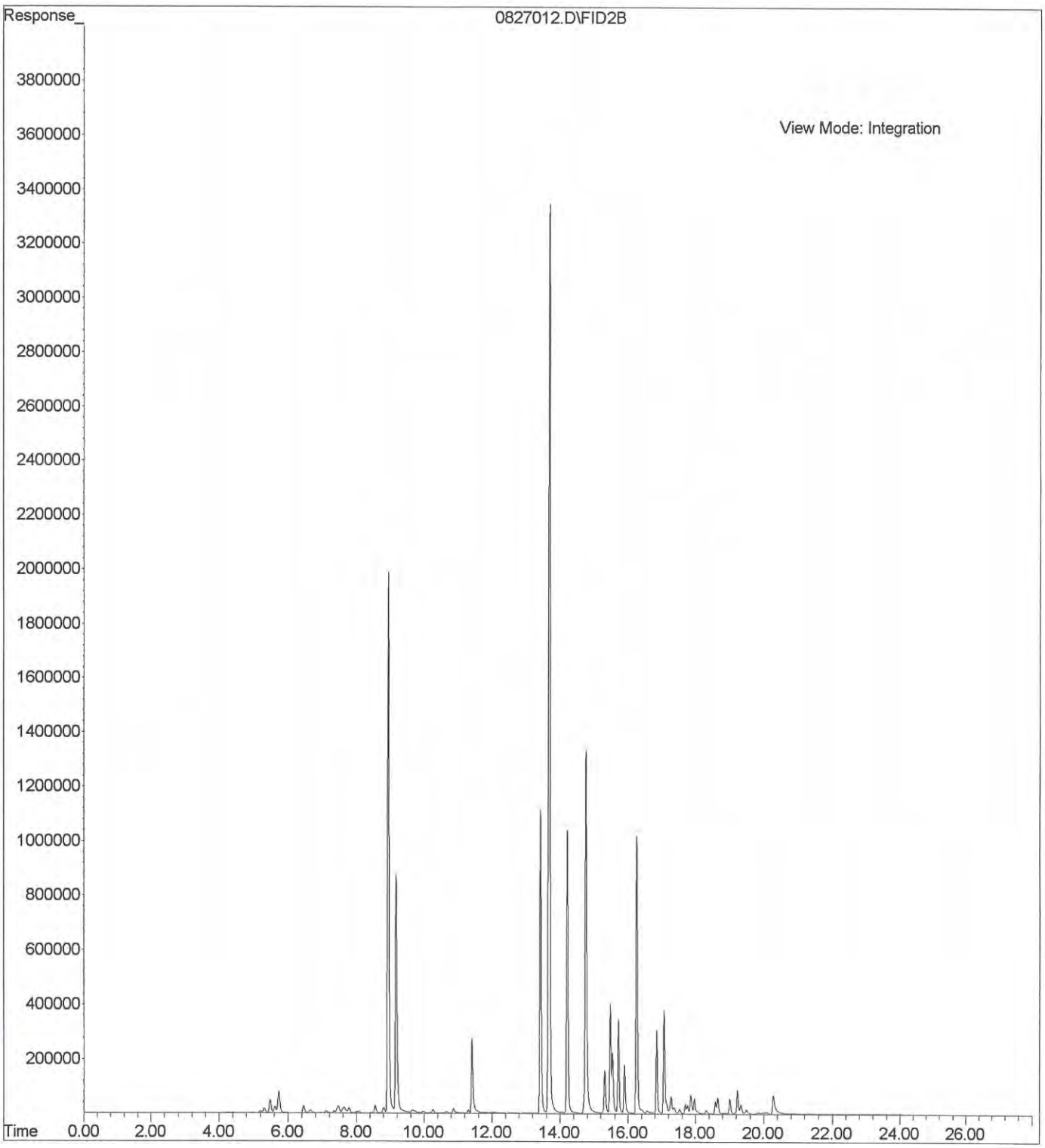
File : X:\BTEX\HOPE\DATA\H190827\0827010.D
Operator :
Acquired : 27 Aug 2019 17:55 using AcqMethod 190730B.M
Instrument : Hope
Sample Name: 08-303-01f 1:50
Misc Info :
Vial Number: 10



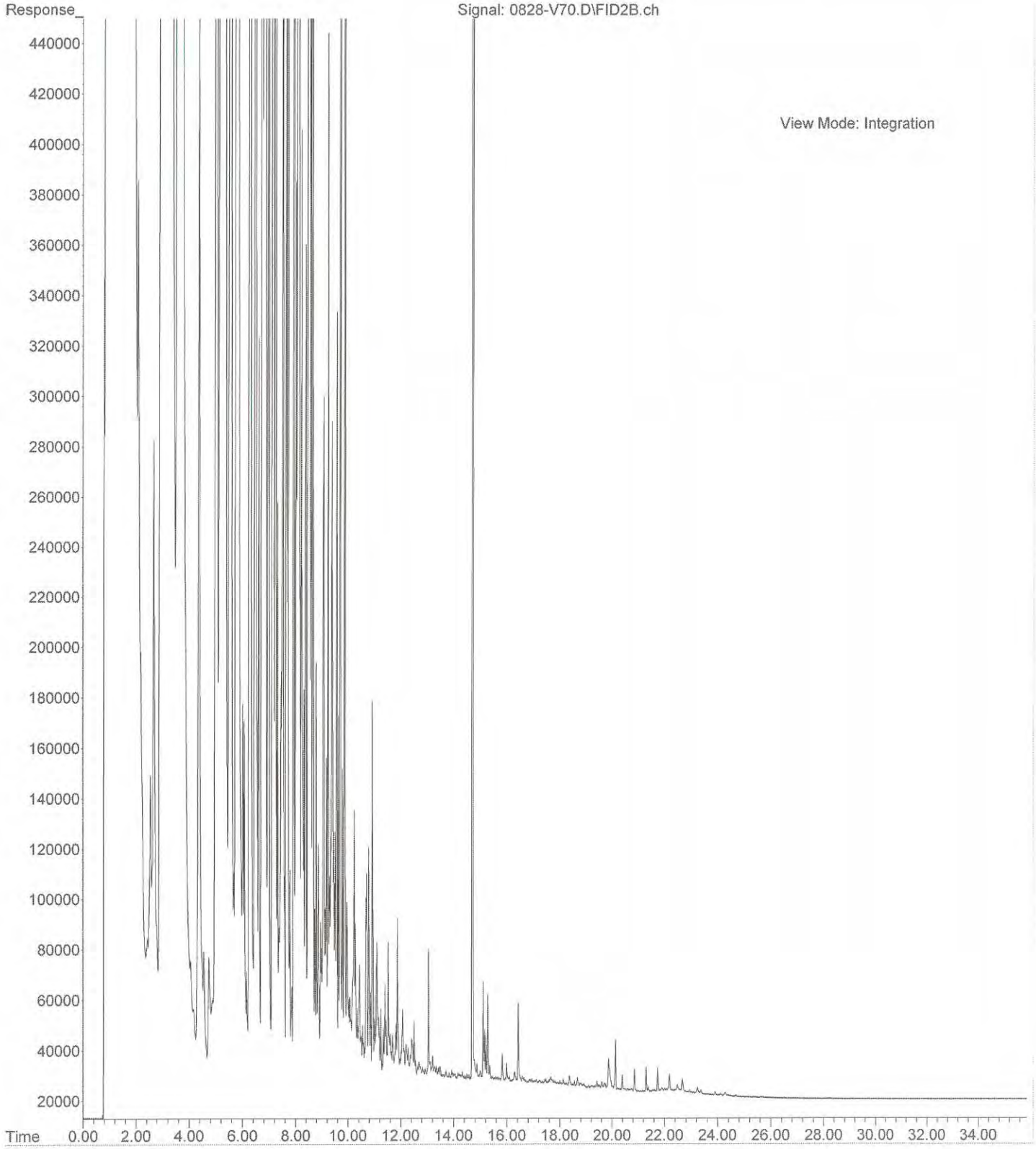
File : X:\BTEX\HOPE\DATA\H190827\0827007.D
Operator :
Acquired : 27 Aug 2019 16:10 using AcqMethod 190730B.M
Instrument : Hope
Sample Name: 08-303-02f 1:10
Misc Info :
Vial Number: 7



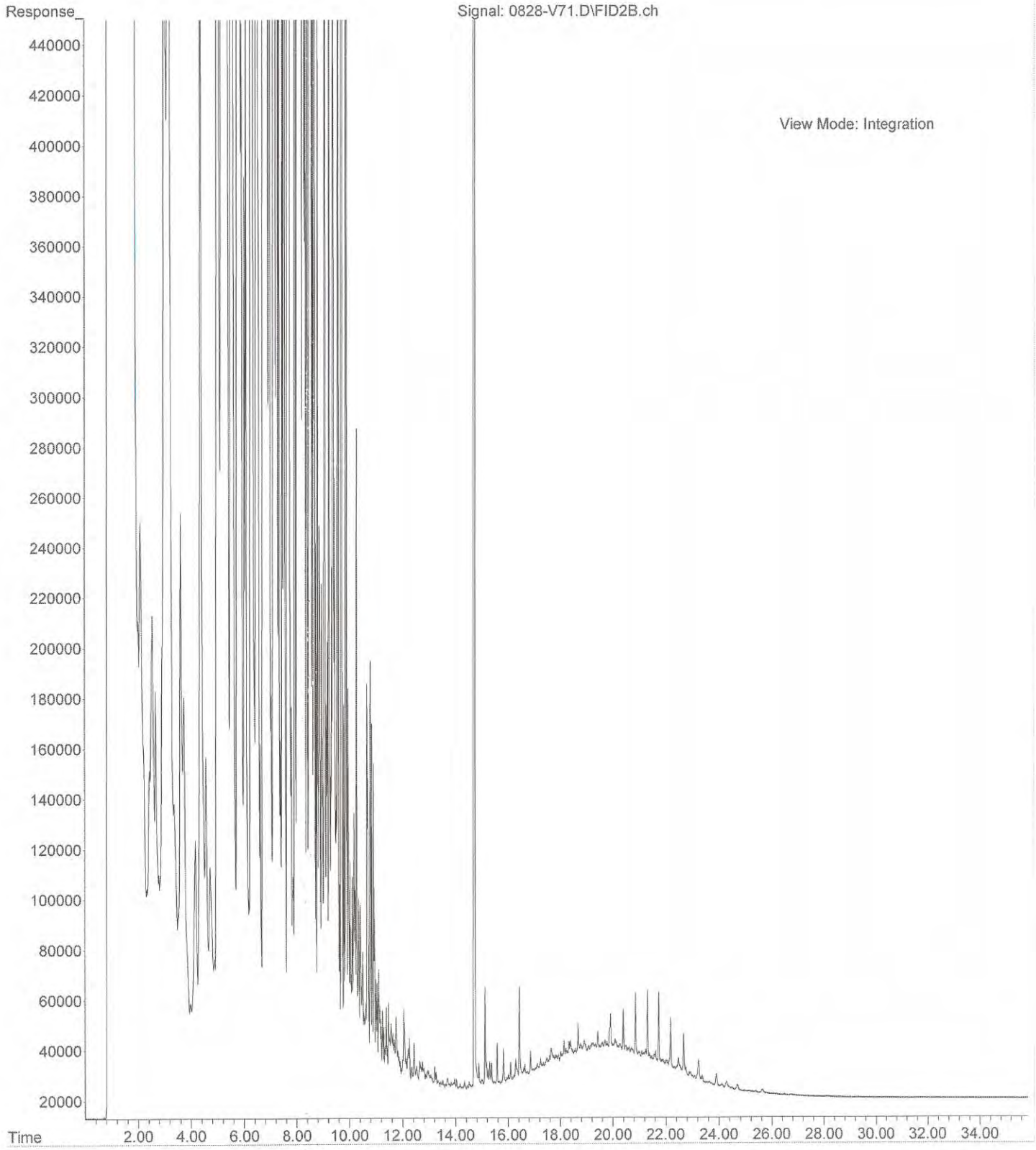
File : X:\BTEX\HOPE\DATA\H190827\0827012.D
Operator :
Acquired : 27 Aug 2019 19:11 using AcqMethod 190730B.M
Instrument : Hope
Sample Name: 08-303-03f 1:50
Misc Info :
Vial Number: 12



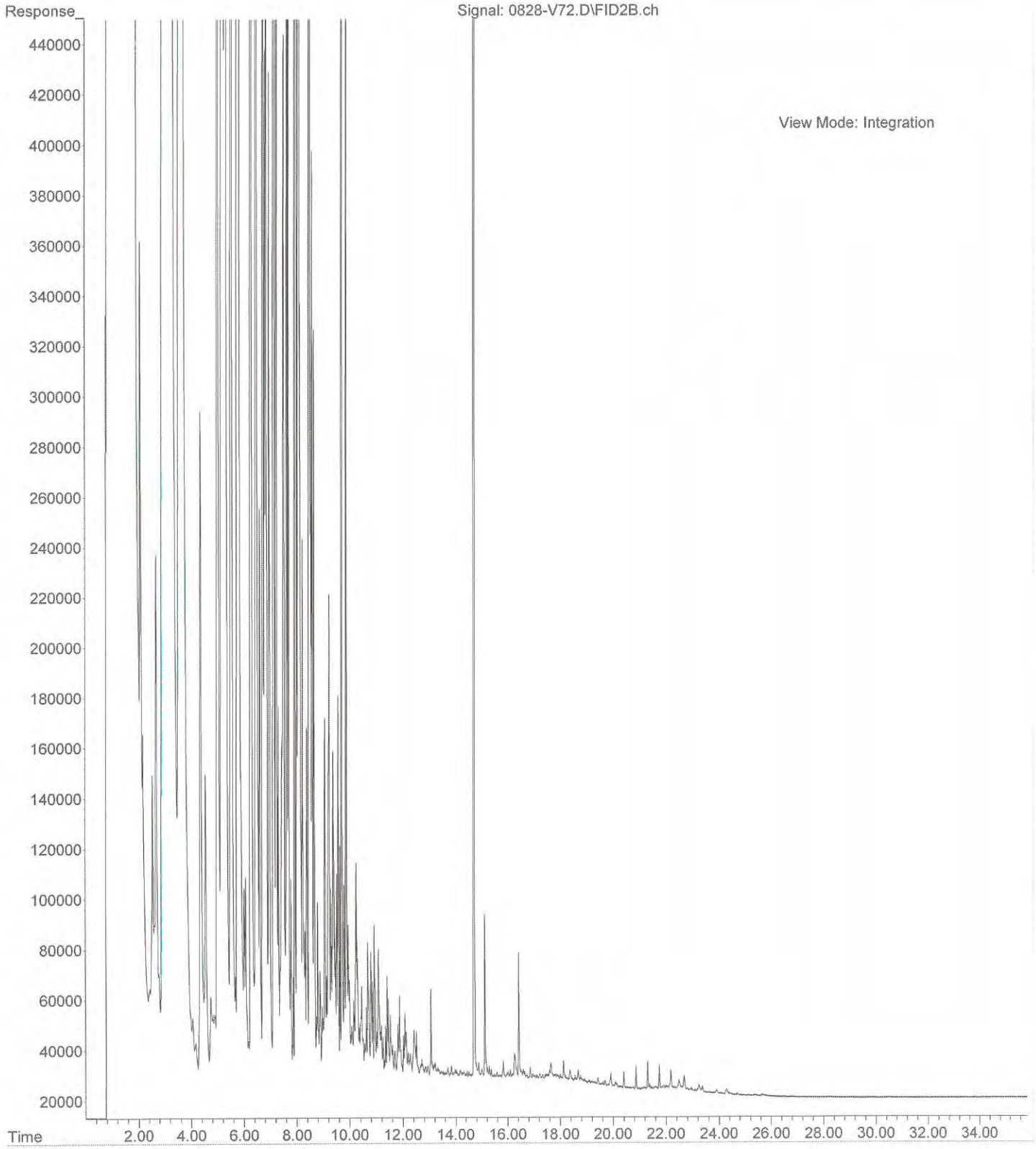
File :X:\DIESELS\VIGO\DATA\V190828.SEC\0828-V70.D
Operator : JT
Acquired : 28 Aug 2019 20:50 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 08-303-01
Misc Info :
Vial Number: 70



File :X:\DIESELS\VIGO\DATA\V190828.SEC\0828-V71.D
Operator : JT
Acquired : 28 Aug 2019 21:31 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 08-303-02
Misc Info :
Vial Number: 71



File :X:\DIESELS\VIGO\DATA\V190828.SEC\0828-V72.D
Operator : JT
Acquired : 28 Aug 2019 22:12 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 08-303-03
Misc Info :
Vial Number: 72



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

September 19, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1909-159

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on September 16, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

Case Narrative

Samples were collected on September 16, 2019 and received by the laboratory on September 16, 2019. 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.

Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-691p-16:GW1**					
Laboratory ID:	09-159-01					
Gasoline	**ND**	100	NWTPH-Gx	9-16-19	9-16-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***118***	***59-122***				
Client ID:	**H-667p-15:GW1**					
Laboratory ID:	09-159-02					
Gasoline	**ND**	100	NWTPH-Gx	9-16-19	9-16-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***107***	***59-122***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916W1					
Gasoline	**ND**	100	NWTPH-Gx	9-16-19	9-16-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***119***	***59-122***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-159-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***118***	***109***	***59-122***			

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

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:	**H-691p-16:GW1**					
Laboratory ID:	09-159-01					
Diesel Range Organics	**ND**	0.28	NWTPH-Dx	9-16-19	9-17-19	
Lube Oil Range Organics	**ND**	0.45	NWTPH-Dx	9-16-19	9-17-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***102***	***50-150***				
Client ID:	**H-667p-15:GW1**					
Laboratory ID:	09-159-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	9-16-19	9-17-19	
Lube Oil Range Organics	**ND**	0.42	NWTPH-Dx	9-16-19	9-17-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***98***	***50-150***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	9-16-19	9-17-19	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	9-16-19	9-17-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***94***	***50-150***				

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	SB0916W1									
	ORIG	DUP								
Diesel Fuel #2	**0.998**	**0.960**	NA	NA		NA	NA	4	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA	NA	NA	NA	
Surrogate:										
o-Terphenyl						***102 97***	***50-150***			

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-691p-16:GW1**					
Laboratory ID:	09-159-01					
Benzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Toluene	ND	1.0	EPA 8260D	9-17-19	9-17-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-17-19	9-17-19	
o-Xylene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***101***	***75-127***				
Toluene-d8	***108***	***80-127***				
4-Bromofluorobenzene	***94***	***78-125***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**H-667p-15:GW1**					
Laboratory ID:	09-159-02					
Benzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Toluene	ND	1.0	EPA 8260D	9-17-19	9-17-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-17-19	9-17-19	
o-Xylene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***114***	***75-127***				
Toluene-d8	***117***	***80-127***				
4-Bromofluorobenzene	***102***	***78-125***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**TRIP BLANK**					
Laboratory ID:	09-159-03					
Benzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Toluene	ND	1.0	EPA 8260D	9-17-19	9-17-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-17-19	9-17-19	
o-Xylene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***106***	***75-127***				
Toluene-d8	***108***	***80-127***				
4-Bromofluorobenzene	***95***	***78-125***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0917W2					
Benzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Toluene	ND	1.0	EPA 8260D	9-17-19	9-17-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-17-19	9-17-19	
o-Xylene	ND	0.20	EPA 8260D	9-17-19	9-17-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***112***	***75-127***				
Toluene-d8	***114***	***80-127***				
4-Bromofluorobenzene	***100***	***78-125***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: September 19, 2019
Samples Submitted: September 16, 2019
Laboratory Reference: 1909-159
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0917W2									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**8.94**	**8.08**	10.0	10.0	89	81	63-130	10	17	
Benzene	**9.62**	**8.89**	10.0	10.0	96	89	76-125	8	19	
Trichloroethene	**10.7**	**9.82**	10.0	10.0	107	98	76-121	9	18	
Toluene	**10.4**	**9.44**	10.0	10.0	104	94	80-124	10	18	
Chlorobenzene	**11.0**	**10.0**	10.0	10.0	110	100	75-120	10	19	
Surrogate:										
Dibromofluoromethane					***105***	***112***	***75-127***			
Toluene-d8					***107***	***110***	***80-127***			
4-Bromofluorobenzene					***93***	***101***	***78-125***			

This report pertains to the samples analyzed in accordance with the chain of custody,
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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: SHANNON & WILSON
Project Number: 21-1-22242-102
Project Name: SR520 MONTLAKE VCP
Project Manager: CAROLE LEIGH
Sampled by: DTR / CTC

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☑ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-159

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX - 8260C Only	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	H-691 p-16:GW1	9/16/19	1020	WATER	7			X	X	X																	
2	H-667 p-15:GW1	9/16/19	1215	WATER	7			X	X	X																	
3	TRIP BLANK	9/16/19	—	WATER	1					X																	

	Signature	Company	Date	Time
Relinquished	[signature]	SWI	9/16/19	1315
Received	[signature]	OSE	9/16/19	1315
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☑ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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

October 4, 2019

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

Re: Analytical Data for Project 21-1-22242-102; SR 520 Montlake VCP
Laboratory Reference No. 1909-249

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on September 24, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

Case Narrative

Samples were collected on September 23, 2019 and received by the laboratory on September 24, 2019. 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.

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-4-19:10.0**					
Laboratory ID:	09-249-01					
Gasoline	**ND**	5.7	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***88***	***58-129***				
Client ID:	**SB-4-19:16.0**					
Laboratory ID:	09-249-02					
Gasoline	**ND**	5.5	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***93***	***58-129***				
Client ID:	**MW-2-19:16.0**					
Laboratory ID:	09-249-05					
Gasoline	**ND**	6.2	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***95***	***58-129***				
Client ID:	**MW-2-19:20.5**					
Laboratory ID:	09-249-06					
Gasoline	**ND**	5.0	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***90***	***58-129***				
Client ID:	**SB-3-19:15.0**					
Laboratory ID:	09-249-09					
Gasoline	**ND**	5.1	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***96***	***58-129***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0926S2					
Gasoline	**ND**	5.0	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***87***	***58-129***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-274-02										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***86***	***88***	***58-129***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-4-19**					
Laboratory ID:	09-249-03					
Gasoline	**ND**	100	NWTPH-Gx	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***108***	***59-122***				
Client ID:	**SB-100-19**					
Laboratory ID:	09-249-04					
Gasoline	**ND**	400	NWTPH-Gx	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***106***	***59-122***				
Client ID:	**SB-3-19**					
Laboratory ID:	09-249-11					
Gasoline	**ND**	100	NWTPH-Gx	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***107***	***59-122***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0925W1					
Gasoline	**ND**	100	NWTPH-Gx	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***106***	***59-122***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-249-03										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***108***	***111***	***59-122***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

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:	**SB-3-19**					
Laboratory ID:	09-249-11					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	9-25-19	9-26-19	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	9-25-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***90***	***50-150***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0925W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	9-25-19	9-26-19	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	9-25-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
o-Terphenyl	***88***	***50-150***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	SB0925W1										
	ORIG	DUP									
Diesel Fuel #2	**1.06**	**0.962**	NA	NA		NA		NA	10	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						***110***	***102***	***50-150***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

EDB by EPA 8011

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19**					
Laboratory ID:	09-249-11					
EDB	**ND**	0.010	EPA 8011	10-3-19	10-3-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
TCMX	***71***	***25-143***				

Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

EDB by EPA 8011
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1003W1					
EDB	**ND**	0.010	EPA 8011	10-3-19	10-3-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
TCMX	***68***	***25-143***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB1003W1										
	SB	SBD	SB	SBD		SB	SBD				
EDB	**0.0763**	**0.0866**	0.100	0.100	N/A	**76**	**87**	57-124	13	15	
Surrogate:											
TCMX						***58***	***64***	***25-143***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-4-19:10.0**					
Laboratory ID:	09-249-01					
Benzene	ND	0.0013	EPA 8260D	9-26-19	9-26-19	
1,2-Dichloroethane	ND	0.0013	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	0.0066	EPA 8260D	9-26-19	9-26-19	
1,2-Dibromoethane	ND	0.0013	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.0013	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.0026	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.0013	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***104***	***76-131***				
Toluene-d8	***97***	***78-128***				
4-Bromofluorobenzene	***93***	***71-130***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-4-19:16.0**					
Laboratory ID:	09-249-02					
Benzene	ND	0.00095	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	0.0047	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.00095	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.0019	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.00095	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***103***	***76-131***				
Toluene-d8	***101***	***78-128***				
4-Bromofluorobenzene	***106***	***71-130***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2-19:16.0**					
Laboratory ID:	09-249-05					
Benzene	ND	0.0011	EPA 8260D	9-26-19	9-26-19	
1,2-Dichloroethane	ND	0.0011	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	0.0054	EPA 8260D	9-26-19	9-26-19	
1,2-Dibromoethane	ND	0.0011	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.0011	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.0022	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.0011	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***98***	***76-131***				
Toluene-d8	***100***	***78-128***				
4-Bromofluorobenzene	***105***	***71-130***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2-19:20.5**					
Laboratory ID:	09-249-06					
Benzene	ND	0.00074	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	0.0037	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.00074	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.0015	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.00074	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***108***	***76-131***				
Toluene-d8	***97***	***78-128***				
4-Bromofluorobenzene	***101***	***71-130***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19:15.0**					
Laboratory ID:	09-249-09					
Benzene	ND	0.00089	EPA 8260D	9-26-19	9-26-19	
1,2-Dichloroethane	ND	0.00089	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	0.0044	EPA 8260D	9-26-19	9-26-19	
1,2-Dibromoethane	ND	0.00089	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.00089	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.0018	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.00089	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***107***	***76-131***				
Toluene-d8	***101***	***78-128***				
4-Bromofluorobenzene	***106***	***71-130***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0926S1					
Benzene	ND	0.0010	EPA 8260D	9-26-19	9-26-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	0.0050	EPA 8260D	9-26-19	9-26-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.0010	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.0020	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.0010	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***100***	***76-131***				
Toluene-d8	***100***	***78-128***				
4-Bromofluorobenzene	***106***	***71-130***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0926S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0596**	**0.0594**	0.0500	0.0500	119	119	57-133	0	18	
Benzene	**0.0420**	**0.0427**	0.0500	0.0500	84	85	71-129	2	16	
Trichloroethene	**0.0554**	**0.0543**	0.0500	0.0500	111	109	71-122	2	16	
Toluene	**0.0506**	**0.0489**	0.0500	0.0500	101	98	74-125	3	15	
Chlorobenzene	**0.0515**	**0.0489**	0.0500	0.0500	103	98	72-120	5	14	
Surrogate:										
Dibromofluoromethane					***99***	***100***	***76-131***			
Toluene-d8					***101***	***97***	***78-128***			
4-Bromofluorobenzene					***108***	***107***	***71-130***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-4-19**					
Laboratory ID:	09-249-03					
Benzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	1.0	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***112***	***75-127***				
Toluene-d8	***110***	***80-127***				
4-Bromofluorobenzene	***86***	***78-125***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-100-19**					
Laboratory ID:	09-249-04					
Benzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	1.0	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***117***	***75-127***				
Toluene-d8	***113***	***80-127***				
4-Bromofluorobenzene	***83***	***78-125***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19**					
Laboratory ID:	09-249-11					
Benzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	1.0	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***119***	***75-127***				
Toluene-d8	***114***	***80-127***				
4-Bromofluorobenzene	***89***	***78-125***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0926W2					
Benzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Toluene	ND	1.0	EPA 8260D	9-26-19	9-26-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-26-19	9-26-19	
o-Xylene	ND	0.20	EPA 8260D	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***116***	***75-127***				
Toluene-d8	***113***	***80-127***				
4-Bromofluorobenzene	***80***	***78-125***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0926W2									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.17**	**8.14**	10.0	10.0	92	81	63-130	12	17	
Benzene	**9.53**	**8.54**	10.0	10.0	95	85	76-125	11	19	
Trichloroethene	**10.1**	**9.30**	10.0	10.0	101	93	76-121	8	18	
Toluene	**9.79**	**9.07**	10.0	10.0	98	91	80-124	8	18	
Chlorobenzene	**11.1**	**10.3**	10.0	10.0	111	103	75-120	7	19	
Surrogate:										
Dibromofluoromethane					***118***	***118***	***75-127***			
Toluene-d8					***112***	***112***	***80-127***			
4-Bromofluorobenzene					***86***	***84***	***78-125***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-4-19:10.0**					
Laboratory ID:	09-249-01					
Benzo[a]anthracene	**ND**	0.0078	EPA 8270E/SIM	9-25-19	9-25-19	
Chrysene	**ND**	0.0078	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[b]fluoranthene	**ND**	0.0078	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo(j,k)fluoranthene	**ND**	0.0078	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[a]pyrene	**ND**	0.0078	EPA 8270E/SIM	9-25-19	9-25-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0078	EPA 8270E/SIM	9-25-19	9-25-19	
Dibenz[a,h]anthracene	**ND**	0.0078	EPA 8270E/SIM	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***64***	***40 - 111***				
Pyrene-d10	***60***	***40 - 110***				
Terphenyl-d14	***63***	***45 - 122***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2-19:16.0**					
Laboratory ID:	09-249-05					
Benzo[a]anthracene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Chrysene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[b]fluoranthene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo(j,k)fluoranthene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[a]pyrene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***78***	***40 - 111***				
Pyrene-d10	***83***	***40 - 110***				
Terphenyl-d14	***82***	***45 - 122***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19:15.0**					
Laboratory ID:	09-249-09					
Benzo[a]anthracene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Chrysene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[b]fluoranthene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo(j,k)fluoranthene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[a]pyrene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270E/SIM	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***73***	***40 - 111***				
Pyrene-d10	***79***	***40 - 110***				
Terphenyl-d14	***82***	***45 - 122***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0925S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-25-19	9-25-19	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	9-25-19	9-25-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	9-25-19	9-25-19	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***98***	***40 - 111***				
Pyrene-d10	***92***	***40 - 110***				
Terphenyl-d14	***91***	***45 - 122***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-249-05										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	**0.0804**	**0.0770**	0.0833	0.0833	ND	97	92	53 - 131	4	23	
Chrysene	**0.0804**	**0.0770**	0.0833	0.0833	ND	97	92	46 - 126	4	24	
Benzo[b]fluoranthene	**0.0771**	**0.0750**	0.0833	0.0833	ND	93	90	45 - 127	3	25	
Benzo(j,k)fluoranthene	**0.0810**	**0.0741**	0.0833	0.0833	ND	97	89	52 - 122	9	21	
Benzo[a]pyrene	**0.0770**	**0.0691**	0.0833	0.0833	ND	92	83	51 - 126	11	24	
Indeno(1,2,3-c,d)pyrene	**0.0797**	**0.0708**	0.0833	0.0833	ND	96	85	48 - 127	12	23	
Dibenz[a,h]anthracene	**0.0774**	**0.0725**	0.0833	0.0833	ND	93	87	51 - 124	7	22	
Surrogate:											
2-Fluorobiphenyl						***88***	***89***	***40 - 111***			
Pyrene-d10						***88***	***85***	***40 - 110***			
Terphenyl-d14						***88***	***82***	***45 - 122***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19**					
Laboratory ID:	09-249-11					
Benzo[a]anthracene	**ND**	0.013	EPA 8270E/SIM	9-25-19	9-25-19	
Chrysene	**ND**	0.013	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[b]fluoranthene	**ND**	0.013	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo(j,k)fluoranthene	**ND**	0.013	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[a]pyrene	**ND**	0.013	EPA 8270E/SIM	9-25-19	9-25-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.013	EPA 8270E/SIM	9-25-19	9-25-19	
Dibenz[a,h]anthracene	**ND**	0.013	EPA 8270E/SIM	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***67***	***27 - 106***				
Pyrene-d10	***86***	***35 - 98***				
Terphenyl-d14	***92***	***41 - 129***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0925W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	9-25-19	9-25-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	9-25-19	9-25-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	9-25-19	9-25-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	9-25-19	9-25-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	9-25-19	9-25-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***59***	***27 - 106***				
Pyrene-d10	***96***	***35 - 98***				
Terphenyl-d14	***98***	***41 - 129***				

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0925W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.499**	**0.533**	0.500	0.500	100	107	59 - 127	7	24	
Chrysene	**0.503**	**0.524**	0.500	0.500	101	105	57 - 122	4	24	
Benzo[b]fluoranthene	**0.497**	**0.511**	0.500	0.500	99	102	58 - 123	3	26	
Benzo(j,k)fluoranthene	**0.485**	**0.524**	0.500	0.500	97	105	60 - 123	8	22	
Benzo[a]pyrene	**0.467**	**0.509**	0.500	0.500	93	102	54 - 121	9	24	
Indeno(1,2,3-c,d)pyrene	**0.509**	**0.548**	0.500	0.500	102	110	55 - 125	7	26	
Dibenz[a,h]anthracene	**0.489**	**0.528**	0.500	0.500	98	106	57 - 127	8	25	
Surrogate:										
2-Fluorobiphenyl					***58***	***70***	***27 - 106***			
Pyrene-d10					***80***	***87***	***35 - 98***			
Terphenyl-d14					***85***	***92***	***41 - 129***			

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-4-19:10.0**					
Laboratory ID:	09-249-01					
Arsenic	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Barium	**46**	2.9	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.58	EPA 6010D	9-26-19	9-26-19	
Chromium	**21**	0.58	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	5.8	EPA 6010D	9-26-19	9-26-19	
Mercury	**ND**	0.29	EPA 7471B	9-25-19	9-25-19	
Selenium	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.2	EPA 6010D	9-26-19	9-26-19	
Client ID:	**MW-2-19:16.0**					
Laboratory ID:	09-249-05					
Arsenic	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Barium	**31**	3.0	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.60	EPA 6010D	9-26-19	9-26-19	
Chromium	**20**	0.60	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	6.0	EPA 6010D	9-26-19	9-26-19	
Mercury	**ND**	0.30	EPA 7471B	9-25-19	9-25-19	
Selenium	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.2	EPA 6010D	9-26-19	9-26-19	
Client ID:	**SB-3-19:15.0**					
Laboratory ID:	09-249-09					
Arsenic	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Barium	**58**	3.0	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.60	EPA 6010D	9-26-19	9-26-19	
Chromium	**27**	0.60	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	6.0	EPA 6010D	9-26-19	9-26-19	
Mercury	**ND**	0.30	EPA 7471B	9-25-19	9-25-19	
Selenium	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.2	EPA 6010D	9-26-19	9-26-19	

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0926SM1					
Arsenic	**ND**	10	EPA 6010D	9-26-19	9-26-19	
Barium	**ND**	2.5	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.50	EPA 6010D	9-26-19	9-26-19	
Chromium	**ND**	0.50	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	5.0	EPA 6010D	9-26-19	9-26-19	
Selenium	**ND**	10	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.0	EPA 6010D	9-26-19	9-26-19	
Laboratory ID:	MB0925S1					
Mercury	**ND**	0.25	EPA 7471B	9-25-19	9-25-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-259-06										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**97.8**	**102**	NA	NA		NA		NA	4	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**15.4**	**17.0**	NA	NA		NA		NA	10	20	
Lead	**7.90**	**7.35**	NA	NA		NA		NA	7	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-260-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-259-06										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**97.3**	**96.4**	100	100	ND	**97**	**96**	75-125	1	20	
Barium	**196**	**203**	100	100	97.8	**99**	**105**	75-125	3	20	
Cadmium	**44.7**	**44.8**	50.0	50.0	ND	**89**	**90**	75-125	0	20	
Chromium	**112**	**111**	100	100	15.4	**97**	**96**	75-125	0	20	
Lead	**229**	**234**	250	250	7.90	**89**	**90**	75-125	2	20	
Selenium	**90.0**	**93.1**	100	100	ND	**90**	**93**	75-125	3	20	
Silver	**20.9**	**21.2**	25.0	25.0	ND	**83**	**85**	75-125	2	20	
Laboratory ID:	09-260-01										
Mercury	**0.531**	**0.487**	0.500	0.500	0.00500	**105**	**96**	80-120	9	20	

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19**					
Laboratory ID:	09-249-11					
Arsenic	**200**	3.3	EPA 200.8	9-27-19	9-27-19	
Barium	**8200**	28	EPA 200.8	9-27-19	9-27-19	
Cadmium	**ND**	4.4	EPA 200.8	9-27-19	9-27-19	
Chromium	**2300**	11	EPA 200.8	9-27-19	9-27-19	
Lead	**230**	1.1	EPA 200.8	9-27-19	9-27-19	
Mercury	**0.83**	0.50	EPA 7470A	9-30-19	9-30-19	
Selenium	**15**	5.6	EPA 200.8	9-27-19	9-27-19	
Silver	**ND**	11	EPA 200.8	9-27-19	9-27-19	

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

TOTAL METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0927WM1					
Arsenic	**ND**	3.3	EPA 200.8	9-27-19	9-27-19	
Barium	**ND**	28	EPA 200.8	9-27-19	9-27-19	
Cadmium	**ND**	4.4	EPA 200.8	9-27-19	9-27-19	
Chromium	**ND**	11	EPA 200.8	9-27-19	9-27-19	
Lead	**ND**	1.1	EPA 200.8	9-27-19	9-27-19	
Selenium	**ND**	5.6	EPA 200.8	9-27-19	9-27-19	
Silver	**ND**	11	EPA 200.8	9-27-19	9-27-19	
Laboratory ID:	MB0930W1					
Mercury	**ND**	0.50	EPA 7470A	9-30-19	9-30-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-096-06										
	ORIG	DUP									
Arsenic	**7.67**	**8.24**	NA	NA		NA		NA	7	20	
Barium	**41.3**	**42.7**	NA	NA		NA		NA	3	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-289-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-096-06										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**120**	**120**	111	111	7.67	**101**	**102**	75-125	0	20	
Barium	**142**	**152**	111	111	41.3	**90**	**100**	75-125	7	20	
Cadmium	**113**	**116**	111	111	ND	**102**	**104**	75-125	2	20	
Chromium	**109**	**112**	111	111	ND	**98**	**101**	75-125	2	20	
Lead	**104**	**109**	111	111	ND	**93**	**98**	75-125	5	20	
Selenium	**124**	**119**	111	111	ND	**112**	**108**	75-125	4	20	
Silver	**106**	**101**	111	111	ND	**95**	**91**	75-125	5	20	
Laboratory ID:	09-289-01										
Mercury	**11.6**	**11.6**	12.5	12.5	ND	**93**	**93**	75-125	0	20	

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19**					
Laboratory ID:	09-249-11					
Arsenic	**3.4**	3.0	EPA 200.8	9-24-19	9-25-19	
Barium	**29**	25	EPA 200.8	9-24-19	9-25-19	
Cadmium	**ND**	4.0	EPA 200.8	9-24-19	9-25-19	
Chromium	**ND**	10	EPA 200.8	9-24-19	9-25-19	
Lead	**ND**	1.0	EPA 200.8	9-24-19	9-25-19	
Mercury	**ND**	0.50	EPA 7470A	9-24-19	9-30-19	
Selenium	**ND**	5.0	EPA 200.8	9-24-19	9-25-19	
Silver	**ND**	10	EPA 200.8	9-24-19	9-25-19	

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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

DISSOLVED METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0924F1					
Arsenic	**ND**	3.0	EPA 200.8	9-24-19	9-25-19	
Barium	**ND**	25	EPA 200.8	9-24-19	9-25-19	
Cadmium	**ND**	4.0	EPA 200.8	9-24-19	9-25-19	
Chromium	**ND**	10	EPA 200.8	9-24-19	9-25-19	
Lead	**ND**	1.0	EPA 200.8	9-24-19	9-25-19	
Selenium	**ND**	5.0	EPA 200.8	9-24-19	9-25-19	
Silver	**ND**	10	EPA 200.8	9-24-19	9-25-19	
Laboratory ID:	MB0924F1					
Mercury	**ND**	0.50	EPA 7470A	9-24-19	9-30-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-096-04										
	ORIG	DUP									
Arsenic	**25.6**	**25.0**	NA	NA		NA		NA	2	20	
Barium	**45.2**	**45.0**	NA	NA		NA		NA	0	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**1.34**	**1.32**	NA	NA		NA		NA	1	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-249-11										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-096-04										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**106**	**110**	80.0	80.0	25.6	**101**	**106**	75-125	4	20	
Barium	**121**	**125**	80.0	80.0	45.2	**94**	**100**	75-125	3	20	
Cadmium	**76.0**	**78.0**	80.0	80.0	ND	**95**	**98**	75-125	3	20	
Chromium	**79.0**	**80.6**	80.0	80.0	ND	**99**	**101**	75-125	2	20	
Lead	**72.2**	**75.2**	80.0	80.0	1.34	**89**	**92**	75-125	4	20	
Selenium	**81.4**	**84.8**	80.0	80.0	ND	**102**	**106**	75-125	4	20	
Silver	**69.6**	**71.4**	80.0	80.0	ND	**87**	**89**	75-125	3	20	
Laboratory ID:	09-249-11										
Mercury	**11.6**	**11.8**	12.5	12.5	ND	**92**	**94**	75-125	2	20	

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 4, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249
Project: 21-1-22242-102; SR 520 Montlake VCP

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
SB-4-19:10.0	09-249-01	**14**	9-25-19
MW-2-19:16.0	09-249-05	**17**	9-25-19
SB-3-19:15.0	09-249-09	**17**	9-25-19

This report pertains to the samples analyzed in accordance with the chain of custody,
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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

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OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson, Inc.
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-249

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C EDB BTEX, EDB, EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold	~~BTEX~~ 8260C			% Moisture
1	~~SB-4-10.0~~ SB-4-19:10.0	9/23/19	1455	Soil	5			X		X				X					X					~~X~~ 8260			X
2	SB-4-19:16.0		1520	Soil	5			X																X			↓
3	SB-4-19		1530	Water	5			X																X			
4	SB-100-19		1530	Water	5			X																X			
5	MW-2-19:16.0		1145	Soil	5			X		X				X					X								X
6	MW-2-19:20.5		1215	Soil	5			X																X			↓
7	SB-3-19:10.0		0940	Soil	5																		X				
8	SB-101-19:10.0		0940	Soil	5																		X				
9	SB-3-19:15.0		0948	Soil	5			X		X				X					X								X
10	SB-3-19:16.5		1025	Soil	5																		X				

	Signature	Company	Date	Time
Relinquished	RYAN PETERSON	Shannon & Wilson	9/24/19	1002
Received		Speedy	9-24-19	1002
Relinquished		Speedy	9-24-19	1032
Received			9/24/19	1032
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab to filter for dissolved metals.
Report to JXS@shannwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson, Inc
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson

Turnaround Request (in working days) (Check One):
- [ ] Same Day
- [ ] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [x] Standard (7 Days)
- [ ] _____ (other)

Laboratory Number: 09-249

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX, EDB, EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold				% Moisture
11	SB-3-19	9/23/19	1054	Water	13			X	X	X				X					X								
12	TB-2 (trip blank)	9/23/19	–	Water	1																		X				

No Cooler

	Signature	Company	Date	Time
Relinquished	RYAN PETERSON	Shannon & Wilson	9/24/19	1000
Received	[signature]	Speedy	9-24-19	1000
Relinquished	[signature]	Speedy	9-24-19	1032
Received	[signature]	OSE	9/24/19	1032
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions:
Lab to filter for dissolved metals.
Report to JXS@shanwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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

October 14, 2019

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

Re: Analytical Data for Project 21-1-22242-102; SR 520 Montlake VCP
Laboratory Reference No. 1909-249B

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on September 24, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

Case Narrative

Samples were collected on September 23, 2019 and received by the laboratory on September 24, 2019. 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.

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19:10.0**					
Laboratory ID:	09-249-07					
Gasoline	**ND**	4.4	NWTPH-Gx	10-9-19	10-9-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***87***	***58-129***				

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Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1009S1					
Gasoline	**ND**	5.0	NWTPH-Gx	10-9-19	10-9-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***87***	***58-129***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-098-02										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***96***	***94***	***58-129***			

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Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
Page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19:10.0**					
Laboratory ID:	09-249-07					
Dichlorodifluoromethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Chloromethane	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
Vinyl Chloride	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Bromomethane	ND	0.0012	EPA 8260D	10-9-19	10-9-19	
Chloroethane	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
Trichlorofluoromethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,1-Dichloroethene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Acetone	0.055	0.0094	EPA 8260D	10-9-19	10-9-19	
Iodomethane	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
Carbon Disulfide	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Methylene Chloride	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
(trans) 1,2-Dichloroethene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Methyl t-Butyl Ether	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,1-Dichloroethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Vinyl Acetate	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
2,2-Dichloropropane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
(cis) 1,2-Dichloroethene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
2-Butanone	0.0075	0.0047	EPA 8260D	10-9-19	10-9-19	
Bromochloromethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Chloroform	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,1,1-Trichloroethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Carbon Tetrachloride	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,1-Dichloropropene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Benzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,2-Dichloroethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Trichloroethene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,2-Dichloropropane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Dibromomethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Bromodichloromethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
2-Chloroethyl Vinyl Ether	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
(cis) 1,3-Dichloropropene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Methyl Isobutyl Ketone	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
Toluene	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
(trans) 1,3-Dichloropropene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-3-19:10.0**					
Laboratory ID:	09-249-07					
1,1,2-Trichloroethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Tetrachloroethene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,3-Dichloropropane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
2-Hexanone	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
Dibromochloromethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,2-Dibromoethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Chlorobenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,1,1,2-Tetrachloroethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Ethylbenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
m,p-Xylene	ND	0.0019	EPA 8260D	10-9-19	10-9-19	
o-Xylene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Styrene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Bromoform	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
Isopropylbenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Bromobenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,1,2,2-Tetrachloroethane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,2,3-Trichloropropane	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
n-Propylbenzene	0.00098	0.00094	EPA 8260D	10-9-19	10-9-19	
2-Chlorotoluene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
4-Chlorotoluene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,3,5-Trimethylbenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
tert-Butylbenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,2,4-Trimethylbenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
sec-Butylbenzene	0.0018	0.00094	EPA 8260D	10-9-19	10-9-19	
1,3-Dichlorobenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
p-Isopropyltoluene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,4-Dichlorobenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
1,2-Dichlorobenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
n-Butylbenzene	0.00098	0.00094	EPA 8260D	10-9-19	10-9-19	
1,2-Dibromo-3-chloropropane	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
1,2,4-Trichlorobenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Hexachlorobutadiene	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
Naphthalene	ND	0.0047	EPA 8260D	10-9-19	10-9-19	
1,2,3-Trichlorobenzene	ND	0.00094	EPA 8260D	10-9-19	10-9-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***91***	***76-131***				
Toluene-d8	***100***	***78-128***				
4-Bromofluorobenzene	***108***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
Page 1 of 2

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1009S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Chloromethane	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Vinyl Chloride	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Bromomethane	ND	0.0013	EPA 8260D	10-9-19	10-9-19	
Chloroethane	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Acetone	ND	0.010	EPA 8260D	10-9-19	10-9-19	
Iodomethane	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Carbon Disulfide	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Methylene Chloride	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Vinyl Acetate	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
2-Butanone	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Bromochloromethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Chloroform	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Benzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Trichloroethene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Dibromomethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Bromodichloromethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Toluene	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL
Page 2 of 2

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1009S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Tetrachloroethene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
2-Hexanone	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Dibromochloromethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Chlorobenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Ethylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
m,p-Xylene	ND	0.0020	EPA 8260D	10-9-19	10-9-19	
o-Xylene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Styrene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Bromoform	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Isopropylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Bromobenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
n-Propylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
2-Chlorotoluene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
4-Chlorotoluene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
tert-Butylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
sec-Butylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
p-Isopropyltoluene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
n-Butylbenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
Naphthalene	ND	0.0050	EPA 8260D	10-9-19	10-9-19	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	10-9-19	10-9-19	

Surrogate:	***Percent Recovery***	***Control Limits***
Dibromofluoromethane	***92***	***76-131***
Toluene-d8	***98***	***78-128***
4-Bromofluorobenzene	***96***	***71-130***

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1009S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0381**	**0.0419**	0.0500	0.0500	76	84	57-133	10	18	
Benzene	**0.0359**	**0.0401**	0.0500	0.0500	72	80	71-129	11	16	
Trichloroethene	**0.0451**	**0.0452**	0.0500	0.0500	90	90	71-122	0	16	
Toluene	**0.0445**	**0.0440**	0.0500	0.0500	89	88	74-125	1	15	
Chlorobenzene	**0.0467**	**0.0462**	0.0500	0.0500	93	92	72-120	1	14	
Surrogate:										
Dibromofluoromethane					***80***	***90***	***76-131***			
Toluene-d8					***98***	***99***	***78-128***			
4-Bromofluorobenzene					***100***	***98***	***71-130***			

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 14, 2019
Samples Submitted: September 24, 2019
Laboratory Reference: 1909-249B
Project: 21-1-22242-102; SR 520 Montlake VCP

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
SB-3-19:10.0	09-249-07	**12**	10-9-19

This report pertains to the samples analyzed in accordance with the chain of custody,
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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

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OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson, Inc.
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-249

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C EDB BTEX, EDB, EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) SPAHs only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold	BTEX 8260C			% Moisture
1	~~SB-4-10.0~~ SB-4-19:10.0	9/23/19	1455	Soil	5			X		X				X					X					~~X~~	ISO DO		X
2	SB-4-19:16.0		1520	Soil	5			X																X			↓
3	SB-4-19		1530	Water	5			X																X			
4	SB-100-19		1530	Water	5			X																X			
5	MW-2-19:16.0		1145	Soil	5			X		X				X					X								X
6	MW-2-19:20.5		1215	Soil	5			X																X			↓
7	SB-3-19:10.0		0940	Soil	5			(X)															~~X~~	(X)			(X)
8	SB-101-19:10.0		0940	Soil	5																		X				
9	SB-3-19:15.0		0948	Soil	5			X		X				X					X								X
10	SB-3-19:16.5	↓	1025	Soil	5																		X				

	Signature	Company	Date	Time
Relinquished	[signature] RYAN PETERSON	Shannon & Wilson	9/24/19	1002
Received	[signature]	Speedy	9-24-19	1002
Relinquished	[signature]	Speedy	9-24-19	1032
Received	[signature]	[signature]	9/24/19	1032
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab to filter for dissolved metals.
Report to JXS@shannwil.com
(X) Added 10/8/19. DB (STA)

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson, Inc
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake UCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-249

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX, EDB, EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	total				% Moisture
11	SB-3-19	9/23/19	1054	Water	13			X	X	X				X					X								
12	TB-2 (trip blank)	9/23/19	–	Water	1																		X				

No further

	Signature	Company	Date	Time
Relinquished	RYAN PETERSON	Shannon & Wilson	9/24/19	1000
Received	[signature]	Speedy	9-24-19	1000
Relinquished	[signature]	Speedy	9-24-19	1032
Received	[signature]	OSE	9/24/19	1032
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Lab to filter for dissolved metals.
Report to JXS@shanwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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

October 3, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1909-276

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on September 25, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

Case Narrative

Samples were collected on September 24, 2019 and received by the laboratory on September 25, 2019. 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.

Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SG-1-19:5.0**					
Laboratory ID:	09-276-01					
Gasoline	**ND**	4.1	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***93***	***58-129***				
Client ID:	**SG-1-19:15.0**					
Laboratory ID:	09-276-02					
Gasoline	**ND**	4.3	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***92***	***58-129***				
Client ID:	**MW-1-19:15.0**					
Laboratory ID:	09-276-03					
Gasoline	**ND**	4.5	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***94***	***58-129***				
Client ID:	**MW-1-19:30.0**					
Laboratory ID:	09-276-04					
Gasoline	**ND**	3.6	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***94***	***58-129***				
Client ID:	**MW-100-19:15.0**					
Laboratory ID:	09-276-05					
Gasoline	**ND**	5.3	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***93***	***58-129***				

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0926S2					
Gasoline	**ND**	5.0	NWTPH-Gx	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***87***	***58-129***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-274-02										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***86***	***88***	***58-129***			

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SG-1-19:5.0**					
Laboratory ID:	09-276-01					
Benzene	ND	0.00080	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.00080	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0040	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.00080	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.00080	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0016	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.00080	EPA 8260D	9-30-19	9-30-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***99***	***76-131***				
Toluene-d8	***102***	***78-128***				
4-Bromofluorobenzene	***112***	***71-130***				

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SG-1-19:15.0**					
Laboratory ID:	09-276-02					
Benzene	ND	0.00070	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0035	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.00070	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0014	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.00070	EPA 8260D	9-30-19	9-30-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***101***	***76-131***				
Toluene-d8	***105***	***78-128***				
4-Bromofluorobenzene	***110***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-19:15.0**					
Laboratory ID:	09-276-03					
Benzene	ND	0.00062	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.00062	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0031	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.00062	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.00062	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0012	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.00062	EPA 8260D	9-30-19	9-30-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***101***	***76-131***				
Toluene-d8	***100***	***78-128***				
4-Bromofluorobenzene	***109***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-19:30.0**					
Laboratory ID:	09-276-04					
Benzene	ND	0.00079	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0039	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.00079	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0016	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.00079	EPA 8260D	9-30-19	9-30-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***99***	***76-131***				
Toluene-d8	***104***	***78-128***				
4-Bromofluorobenzene	***103***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-100-19:15.0**					
Laboratory ID:	09-276-05					
Benzene	ND	0.00089	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.00089	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0045	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.00089	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.00089	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0018	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.00089	EPA 8260D	9-30-19	9-30-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***104***	***76-131***				
Toluene-d8	***102***	***78-128***				
4-Bromofluorobenzene	***107***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0930S1					
Benzene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0050	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0020	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***103***	***76-131***				
Toluene-d8	***104***	***78-128***				
4-Bromofluorobenzene	***109***	***71-130***				

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0930S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0558**	**0.0540**	0.0500	0.0500	112	108	57-133	3	18	
Benzene	**0.0371**	**0.0360**	0.0500	0.0500	74	72	71-129	3	16	
Trichloroethene	**0.0521**	**0.0475**	0.0500	0.0500	104	95	71-122	9	16	
Toluene	**0.0459**	**0.0436**	0.0500	0.0500	92	87	74-125	5	15	
Chlorobenzene	**0.0446**	**0.0418**	0.0500	0.0500	89	84	72-120	6	14	
Surrogate:										
Dibromofluoromethane					***100***	***102***	***76-131***			
Toluene-d8					***103***	***100***	***78-128***			
4-Bromofluorobenzene					***113***	***109***	***71-130***			

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SG-1-19:5.0**					
Laboratory ID:	09-276-01					
Benzo[a]anthracene	**ND**	0.0075	EPA 8270E/SIM	9-26-19	9-26-19	
Chrysene	**ND**	0.0075	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[b]fluoranthene	**ND**	0.0075	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo(j,k)fluoranthene	**ND**	0.0075	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[a]pyrene	**ND**	0.0075	EPA 8270E/SIM	9-26-19	9-26-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0075	EPA 8270E/SIM	9-26-19	9-26-19	
Dibenz[a,h]anthracene	**ND**	0.0075	EPA 8270E/SIM	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***85***	***40 - 111***				
Pyrene-d10	***84***	***40 - 110***				
Terphenyl-d14	***87***	***45 - 122***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-19:15.0**					
Laboratory ID:	09-276-03					
Benzo[a]anthracene	**ND**	0.0079	EPA 8270E/SIM	9-26-19	9-26-19	
Chrysene	**ND**	0.0079	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[b]fluoranthene	**ND**	0.0079	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo(j,k)fluoranthene	**ND**	0.0079	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[a]pyrene	**ND**	0.0079	EPA 8270E/SIM	9-26-19	9-26-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0079	EPA 8270E/SIM	9-26-19	9-26-19	
Dibenz[a,h]anthracene	**ND**	0.0079	EPA 8270E/SIM	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***87***	***40 - 111***				
Pyrene-d10	***91***	***40 - 110***				
Terphenyl-d14	***99***	***45 - 122***				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-100-19:15.0**					
Laboratory ID:	09-276-05					
Benzo[a]anthracene	**ND**	0.0078	EPA 8270E/SIM	9-26-19	9-26-19	
Chrysene	**ND**	0.0078	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[b]fluoranthene	**ND**	0.0078	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo(j,k)fluoranthene	**ND**	0.0078	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[a]pyrene	**ND**	0.0078	EPA 8270E/SIM	9-26-19	9-26-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0078	EPA 8270E/SIM	9-26-19	9-26-19	
Dibenz[a,h]anthracene	**ND**	0.0078	EPA 8270E/SIM	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***93***	***40 - 111***				
Pyrene-d10	***88***	***40 - 110***				
Terphenyl-d14	***94***	***45 - 122***				

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0926S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-26-19	9-26-19	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-26-19	9-26-19	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	9-26-19	9-26-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	9-26-19	9-26-19	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-26-19	9-26-19	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***95***	***40 - 111***				
Pyrene-d10	***92***	***40 - 110***				
Terphenyl-d14	***98***	***45 - 122***				

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0926S1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.0892**	**0.0908**	0.0833	0.0833	107	109	64 - 127	2	15	
Chrysene	**0.0828**	**0.0859**	0.0833	0.0833	99	103	63 - 121	4	15	
Benzo[b]fluoranthene	**0.0785**	**0.0815**	0.0833	0.0833	94	98	61 - 122	4	15	
Benzo(j,k)fluoranthene	**0.0913**	**0.0926**	0.0833	0.0833	110	111	64 - 123	1	15	
Benzo[a]pyrene	**0.0818**	**0.0836**	0.0833	0.0833	98	100	62 - 122	2	15	
Indeno(1,2,3-c,d)pyrene	**0.0777**	**0.0792**	0.0833	0.0833	93	95	59 - 124	2	15	
Dibenz[a,h]anthracene	**0.0778**	**0.0797**	0.0833	0.0833	93	96	61 - 123	2	15	
Surrogate:										
2-Fluorobiphenyl					***94***	***99***	***40 - 111***			
Pyrene-d10					***93***	***93***	***40 - 110***			
Terphenyl-d14					***96***	***95***	***45 - 122***			

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SG-1-19:5.0**					
Laboratory ID:	09-276-01					
Arsenic	**ND**	11	EPA 6010D	9-26-19	9-26-19	
Barium	**41**	2.8	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.56	EPA 6010D	9-26-19	9-26-19	
Chromium	**25**	0.56	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	5.6	EPA 6010D	9-26-19	9-26-19	
Mercury	**ND**	0.28	EPA 7471B	9-27-19	9-27-19	
Selenium	**ND**	11	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.1	EPA 6010D	9-26-19	9-26-19	
Client ID:	**MW-1-19:15.0**					
Laboratory ID:	09-276-03					
Arsenic	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Barium	**51**	3.0	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.59	EPA 6010D	9-26-19	9-26-19	
Chromium	**22**	0.59	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	5.9	EPA 6010D	9-26-19	9-26-19	
Mercury	**ND**	0.30	EPA 7471B	9-27-19	9-27-19	
Selenium	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.2	EPA 6010D	9-26-19	9-26-19	
Client ID:	**MW-100-19:15.0**					
Laboratory ID:	09-276-05					
Arsenic	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Barium	**30**	2.9	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.58	EPA 6010D	9-26-19	9-26-19	
Chromium	**14**	0.58	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	5.8	EPA 6010D	9-26-19	9-26-19	
Mercury	**ND**	0.29	EPA 7471B	9-27-19	9-27-19	
Selenium	**ND**	12	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.2	EPA 6010D	9-26-19	9-26-19	

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0926SM1					
Arsenic	**ND**	10	EPA 6010D	9-26-19	9-26-19	
Barium	**ND**	2.5	EPA 6010D	9-26-19	9-26-19	
Cadmium	**ND**	0.50	EPA 6010D	9-26-19	9-26-19	
Chromium	**ND**	0.50	EPA 6010D	9-26-19	9-26-19	
Lead	**ND**	5.0	EPA 6010D	9-26-19	9-26-19	
Selenium	**ND**	10	EPA 6010D	9-26-19	9-26-19	
Silver	**ND**	1.0	EPA 6010D	9-26-19	9-26-19	
Laboratory ID:	MB0927S1					
Mercury	**ND**	0.25	EPA 7471B	9-27-19	9-27-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-259-06										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**97.8**	**102**	NA	NA		NA		NA	4	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**15.4**	**17.0**	NA	NA		NA		NA	10	20	
Lead	**7.90**	**7.35**	NA	NA		NA		NA	7	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-294-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-259-06										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**97.3**	**96.4**	100	100	ND	**97**	**96**	75-125	1	20	
Barium	**196**	**203**	100	100	97.8	**99**	**105**	75-125	3	20	
Cadmium	**44.7**	**44.8**	50.0	50.0	ND	**89**	**90**	75-125	0	20	
Chromium	**112**	**111**	100	100	15.4	**97**	**96**	75-125	0	20	
Lead	**229**	**234**	250	250	7.90	**89**	**90**	75-125	2	20	
Selenium	**90.0**	**93.1**	100	100	ND	**90**	**93**	75-125	3	20	
Silver	**20.9**	**21.2**	25.0	25.0	ND	**83**	**85**	75-125	2	20	
Laboratory ID:	09-294-01										
Mercury	**0.559**	**0.531**	0.500	0.500	0.0153	**109**	**103**	80-120	5	20	

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Date of Report: October 3, 2019
Samples Submitted: September 25, 2019
Laboratory Reference: 1909-276
Project: 21-1-22242-102

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
SG-1-19:5.0	09-276-01	**11**	9-26-19
SG-1-19:15.0	09-276-02	**7**	9-27-19
MW-1-19:15.0	09-276-03	**16**	9-26-19
MW-1-19:30.0	09-276-04	**11**	9-27-19
MW-100-19:15.0	09-276-05	**14**	9-26-19

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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

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OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson, Inc.
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake UCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-276

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX, EDB, EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals ~~not Dissolved~~	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold	BTEX 8260C			% Moisture
1	~~SG-1-19:15.0~~ SG-1-19:5.0	9/24/19	1035	Soil	5			X		X				X					X								X
2	SG-1-19:15.0	↓	1110	↓	5			X																X			
3	MW-1-19:15.0		1330		5			X		X				X					X								
4	MW-1-19:30.0		1522		5			X																X			
5	MW-100-19:15.0		1530		5			X		X				X					X								
6	TB-3 (trip blank)		–	H_2O	1																		X				

NO FURTHER

	Signature	Company	Date	Time
Relinquished	Ryan Peterson	Shannon & Wilson	9/25/19	1030
Received	#178	[illegible]	9/25/19	16:30
Relinquished	#178	[illegible]	9/25/19	11:05
Received	[illegible]	OSE	9/25/19	1105
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Report to JXS@shannwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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

October 3, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1909-287

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on September 26, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

Case Narrative

Samples were collected on September 25, 2019 and received by the laboratory on September 26, 2019. 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.

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-8-19:10.0**					
Laboratory ID:	09-287-01					
Gasoline	**ND**	4.2	NWTPH-Gx	9-27-19	9-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*112*	*58-129*				
Client ID:	**SB-8-19:15.0**					
Laboratory ID:	09-287-02					
Gasoline	**ND**	4.8	NWTPH-Gx	9-27-19	9-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*104*	*58-129*				
Client ID:	**SB-102-19:10.0**					
Laboratory ID:	09-287-04					
Gasoline	**ND**	5.4	NWTPH-Gx	9-27-19	9-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*58-129*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0927S2					
Gasoline	**ND**	5.0	NWTPH-Gx	9-27-19	9-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*58-129*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-287-04										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*109*	*108*	*58-129*			

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-8-19**					
Laboratory ID:	09-287-03					
Gasoline	**ND**	400	NWTPH-Gx	9-27-19	9-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*109*	*59-122*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0927W1					
Gasoline	**ND**	100	NWTPH-Gx	9-27-19	9-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*107*	*59-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-298-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*106*	*103*	*59-122*			

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-8-19:10.0**					
Laboratory ID:	09-287-01					
Benzene	ND	0.00071	EPA 8260D	10-1-19	10-1-19	
1,2-Dichloroethane	ND	0.00071	EPA 8260D	10-1-19	10-1-19	
Toluene	ND	0.0035	EPA 8260D	10-1-19	10-1-19	
1,2-Dibromoethane	ND	0.00071	EPA 8260D	10-1-19	10-1-19	
Ethylbenzene	ND	0.00071	EPA 8260D	10-1-19	10-1-19	
m,p-Xylene	ND	0.0014	EPA 8260D	10-1-19	10-1-19	
o-Xylene	ND	0.00071	EPA 8260D	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*76-131*				
Toluene-d8	*106*	*78-128*				
4-Bromofluorobenzene	*94*	*71-130*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-8-19:15.0**					
Laboratory ID:	09-287-02					
Benzene	ND	0.00092	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0046	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.00092	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0018	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.00092	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*107*	*76-131*				
Toluene-d8	*100*	*78-128*				
4-Bromofluorobenzene	*109*	*71-130*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-102-19:10.0**					
Laboratory ID:	09-287-04					
Benzene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0052	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0021	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*76-131*				
Toluene-d8	*104*	*78-128*				
4-Bromofluorobenzene	*111*	*71-130*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0930S1					
Benzene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	0.0050	EPA 8260D	9-30-19	9-30-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.0020	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.0010	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*76-131*				
Toluene-d8	*104*	*78-128*				
4-Bromofluorobenzene	*109*	*71-130*				
Laboratory ID:	MB1001S1					
Benzene	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
Toluene	ND	0.0050	EPA 8260D	10-1-19	10-1-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
Ethylbenzene	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
m,p-Xylene	ND	0.0020	EPA 8260D	10-1-19	10-1-19	
o-Xylene	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*76-131*				
Toluene-d8	*106*	*78-128*				
4-Bromofluorobenzene	*93*	*71-130*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0930S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0558**	**0.0540**	0.0500	0.0500	112	108	57-133	3	18	
Benzene	**0.0371**	**0.0360**	0.0500	0.0500	74	72	71-129	3	16	
Trichloroethene	**0.0521**	**0.0475**	0.0500	0.0500	104	95	71-122	9	16	
Toluene	**0.0459**	**0.0436**	0.0500	0.0500	92	87	74-125	5	15	
Chlorobenzene	**0.0446**	**0.0418**	0.0500	0.0500	89	84	72-120	6	14	
Surrogate:										
Dibromofluoromethane					*100*	*102*	*76-131*			
Toluene-d8					*103*	*100*	*78-128*			
4-Bromofluorobenzene					*113*	*109*	*71-130*			
Laboratory ID:	SB1001S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0483**	**0.0426**	0.0500	0.0500	97	85	57-133	13	18	
Benzene	**0.0451**	**0.0428**	0.0500	0.0500	90	86	71-129	5	16	
Trichloroethene	**0.0555**	**0.0512**	0.0500	0.0500	111	102	71-122	8	16	
Toluene	**0.0517**	**0.0477**	0.0500	0.0500	103	95	74-125	8	15	
Chlorobenzene	**0.0540**	**0.0481**	0.0500	0.0500	108	96	72-120	12	14	
Surrogate:										
Dibromofluoromethane					*98*	*103*	*76-131*			
Toluene-d8					*107*	*107*	*78-128*			
4-Bromofluorobenzene					*92*	*90*	*71-130*			

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-8-19**					
Laboratory ID:	09-287-03					
Benzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*106*	*75-127*				
Toluene-d8	*104*	*80-127*				
4-Bromofluorobenzene	*102*	*78-125*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0930W2					
Benzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Toluene	ND	1.0	EPA 8260D	9-30-19	9-30-19	
Ethylbenzene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
m,p-Xylene	ND	0.40	EPA 8260D	9-30-19	9-30-19	
o-Xylene	ND	0.20	EPA 8260D	9-30-19	9-30-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*75-127*				
Toluene-d8	*103*	*80-127*				
4-Bromofluorobenzene	*103*	*78-125*				

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Laboratory Reference: 1909-287
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0930W2									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.20**	**8.69**	10.0	10.0	92	87	63-130	6	17	
Benzene	**9.60**	**9.25**	10.0	10.0	96	93	76-125	4	19	
Trichloroethene	**10.4**	**10.1**	10.0	10.0	104	101	76-121	3	18	
Toluene	**9.80**	**9.49**	10.0	10.0	98	95	80-124	3	18	
Chlorobenzene	**11.1**	**10.4**	10.0	10.0	111	104	75-120	7	19	
Surrogate:										
Dibromofluoromethane					*101*	*101*	*75-127*			
Toluene-d8					*97*	*99*	*80-127*			
4-Bromofluorobenzene					*95*	*96*	*78-125*			

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-8-19:10.0**					
Laboratory ID:	09-287-01					
Benzo[a]anthracene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Chrysene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[b]fluoranthene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[a]pyrene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Dibenz[a,h]anthracene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*63*	*40 - 111*				
Pyrene-d10	*82*	*40 - 110*				
Terphenyl-d14	*83*	*45 - 122*				

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Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-102-19:10.0**					
Laboratory ID:	09-287-04					
Benzo[a]anthracene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Chrysene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[b]fluoranthene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[a]pyrene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Dibenz[a,h]anthracene	**ND**	0.0076	EPA 8270E/SIM	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*63*	*40 - 111*				
Pyrene-d10	*79*	*40 - 110*				
Terphenyl-d14	*84*	*45 - 122*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1001S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*75*	*40 - 111*				
Pyrene-d10	*87*	*40 - 110*				
Terphenyl-d14	*88*	*45 - 122*				

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-287-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	**0.0734**	**0.0732**	0.0833	0.0833	ND	88	88	53 - 131	0	23	
Chrysene	**0.0720**	**0.0701**	0.0833	0.0833	ND	86	84	46 - 126	3	24	
Benzo[b]fluoranthene	**0.0682**	**0.0719**	0.0833	0.0833	ND	82	86	45 - 127	5	25	
Benzo(j,k)fluoranthene	**0.0743**	**0.0679**	0.0833	0.0833	ND	89	82	52 - 122	9	21	
Benzo[a]pyrene	**0.0705**	**0.0696**	0.0833	0.0833	ND	85	84	51 - 126	1	24	
Indeno(1,2,3-c,d)pyrene	**0.0669**	**0.0669**	0.0833	0.0833	ND	80	80	48 - 127	0	23	
Dibenz[a,h]anthracene	**0.0676**	**0.0675**	0.0833	0.0833	ND	81	81	51 - 124	0	22	
Surrogate:											
2-Fluorobiphenyl						*66*	*72*	*40 - 111*			
Pyrene-d10						*75*	*74*	*40 - 110*			
Terphenyl-d14						*82*	*77*	*45 - 122*			

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-8-19:10.0**					
Laboratory ID:	09-287-01					
Arsenic	**ND**	11	EPA 6010D	9-27-19	9-27-19	
Barium	**38**	2.9	EPA 6010D	9-27-19	9-27-19	
Cadmium	**ND**	0.57	EPA 6010D	9-27-19	9-27-19	
Chromium	**18**	0.57	EPA 6010D	9-27-19	9-27-19	
Lead	**ND**	5.7	EPA 6010D	9-27-19	9-27-19	
Mercury	**ND**	0.29	EPA 7471B	9-27-19	9-27-19	
Selenium	**ND**	11	EPA 6010D	9-27-19	9-27-19	
Silver	**ND**	1.1	EPA 6010D	9-27-19	9-27-19	
Client ID:	**SB-102-19:10.0**					
Laboratory ID:	09-287-04					
Arsenic	**ND**	11	EPA 6010D	9-27-19	9-27-19	
Barium	**43**	2.8	EPA 6010D	9-27-19	9-27-19	
Cadmium	**ND**	0.57	EPA 6010D	9-27-19	9-27-19	
Chromium	**22**	0.57	EPA 6010D	9-27-19	9-27-19	
Lead	**ND**	5.7	EPA 6010D	9-27-19	9-27-19	
Mercury	**ND**	0.28	EPA 7471B	9-27-19	9-27-19	
Selenium	**ND**	11	EPA 6010D	9-27-19	9-27-19	
Silver	**ND**	1.1	EPA 6010D	9-27-19	9-27-19	

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0927SM1					
Arsenic	**ND**	10	EPA 6010D	9-27-19	9-27-19	
Barium	**ND**	2.5	EPA 6010D	9-27-19	9-27-19	
Cadmium	**ND**	0.50	EPA 6010D	9-27-19	9-27-19	
Chromium	**ND**	0.50	EPA 6010D	9-27-19	9-27-19	
Lead	**ND**	5.0	EPA 6010D	9-27-19	9-27-19	
Selenium	**ND**	10	EPA 6010D	9-27-19	9-27-19	
Silver	**ND**	1.0	EPA 6010D	9-27-19	9-27-19	
Laboratory ID:	MB0927S1					
Mercury	**ND**	0.25	EPA 7471B	9-27-19	9-27-19	

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-274-01										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**58.4**	**59.1**	NA	NA		NA		NA	1	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**29.1**	**28.2**	NA	NA		NA		NA	3	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-294-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-274-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**96.6**	**95.4**	100	100	ND	**97**	**95**	75-125	1	20	
Barium	**152**	**158**	100	100	58.4	**94**	**100**	75-125	4	20	
Cadmium	**45.7**	**45.5**	50.0	50.0	ND	**91**	**91**	75-125	0	20	
Chromium	**119**	**122**	100	100	29.1	**90**	**93**	75-125	2	20	
Lead	**232**	**230**	250	250	ND	**93**	**92**	75-125	1	20	
Selenium	**97.4**	**97.5**	100	100	ND	**97**	**98**	75-125	0	20	
Silver	**20.6**	**20.4**	25.0	25.0	ND	**82**	**81**	75-125	1	20	
Laboratory ID:	09-294-01										
Mercury	**0.559**	**0.531**	0.500	0.500	0.0153	**109**	**103**	80-120	5	20	

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Date of Report: October 3, 2019
Samples Submitted: September 26, 2019
Laboratory Reference: 1909-287
Project: 21-1-22242-102

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
SB-8-19:10.0	09-287-01	**12**	9-27-19
SB-8-19:15.0	09-287-02	**8**	9-27-19
SB-102-19:10.0	09-287-04	**12**	9-27-19

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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

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OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Page 1 of 1

Company: Shannon & Wilson, Inc.
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson

Turnaround Request (in working days) (Check One)
- [ ] Same Day
- [ ] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [x] Standard (7 Days)
- [ ] _____ (other)

Laboratory Number: 09-287

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX, EDC, EDB only	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals ~~and dissolved~~ D3	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold	BTEX 8260C			% Moisture
1	SB-8-19:10.0	9/25/19	1410	Soil	5			X		X				X					X								X
2	SB-8-19:15.0	↓	1440	Soil	5			X																X			X
3	SB-8-19		1520	Water	5			X																X			X
4	SB-102-19:10.0		1610	Soil	5			X		X				X					X								X
5	TB-3 (trip blank)		–	H2O	1																		X				

NO FURTHER

	Signature	Company	Date	Time
Relinquished	Ryan Peterson	Shannon & Wilson, Inc	9/26/19	1046
Received	#17	[illegible]	9/26/19	10:46
Relinquished	#17	[illegible]	9/26/19	11:50
Received	[illegible]	OSE	9/26/19	1150
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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

October 9, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1909-311

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on September 27, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

Case Narrative

Samples were collected on September 26 and 27, 2019 and received by the laboratory on September 27, 2019. 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.

NWTPH-Gx (soil) Analysis

The chromatograms for samples SB-7-19:15.0 and SB-102-19:15.0 are similar to mineral spirits.

NWTPH-Gx (water) Analysis

The chromatogram for sample SB-7-19 is similar to mineral spirits.

Volatiles EPA 8260D (soil) Analysis

The MTCA Method A clean-up level of 0.030 ppm for Benzene is not achievable for sample SB-102-19:15.0 due to the necessary dilution of the sample.

PAHs EPA 8270E/SIM (water) Analysis

Sample SB-7-19 had one surrogate recovery out of control limits. This is within allowance of our standard operating procedure as long as the recovery is above 10%.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-1-19:20.0**					
Laboratory ID:	09-311-02					
Hexane	**4.5**	2.6	NWTPH-VPH	10-2-19	10-2-19	
Gasoline	**310**	51	NWTPH-Gx	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*114*	*58-129*				
Client ID:	**SB-103-19:20.0**					
Laboratory ID:	09-311-04					
Gasoline	**100**	18	NWTPH-Gx	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*106*	*58-129*				
Client ID:	**SB-1-19:35.0**					
Laboratory ID:	09-311-05					
Gasoline	**ND**	7.1	NWTPH-Gx	10-2-19	10-7-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*58-129*				
Client ID:	**SB-7-19:15.0**					
Laboratory ID:	09-311-09					
Gasoline	**210**	31	NWTPH-Gx	10-2-19	10-2-19	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*58-129*				
Client ID:	**SB-102-19:15.0**					
Laboratory ID:	09-311-10					
Gasoline	**330**	38	NWTPH-Gx	10-2-19	10-2-19	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*58-129*				
Client ID:	**SB-7-19:25.0**					
Laboratory ID:	09-311-13					
Gasoline	**ND**	6.2	NWTPH-Gx	10-2-19	10-7-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*86*	*58-129*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1002S1					
Hexane	**ND**	0.25	NWTPH-VPH	10-2-19	10-2-19	
Gasoline	**ND**	5.0	NWTPH-Gx	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*88*	*58-129*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-264-02										
	ORIG	DUP									
Hexane	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*86*	*87*	*58-129*			

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Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19**					
Laboratory ID:	09-311-11					
Gasoline	**18000**	10000	NWTPH-Gx	10-2-19	10-2-19	Z
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*98*	*59-122*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1002W3					
Gasoline	**ND**	100	NWTPH-Gx	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*82*	*59-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-328-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*82*	*84*	*59-122*			

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

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:	**SB-7-19**					
Laboratory ID:	09-311-11					
Diesel Range Organics	**29**	1.1	NWTPH-Dx	10-1-19	10-1-19	M
Lube Oil	**7.9**	1.7	NWTPH-Dx	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*102*	*50-150*				

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Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1001W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	10-1-19	10-1-19	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*108*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-304-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*96*	*103*	*50-150*			

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-1-19:20.0**					
Laboratory ID:	09-311-02					
Benzene	2.2	0.051	EPA 8260D	10-1-19	10-2-19	
1,2-Dichloroethane	ND	0.051	EPA 8260D	10-1-19	10-2-19	
Toluene	ND	0.26	EPA 8260D	10-1-19	10-2-19	
1,2-Dibromoethane	ND	0.051	EPA 8260D	10-1-19	10-2-19	
Ethylbenzene	5.4	0.051	EPA 8260D	10-1-19	10-2-19	
m,p-Xylene	2.1	0.10	EPA 8260D	10-1-19	10-2-19	
o-Xylene	0.21	0.051	EPA 8260D	10-1-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*106*	*76-131*				
Toluene-d8	*103*	*78-128*				
4-Bromofluorobenzene	*92*	*71-130*				

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Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-103-19:20.0**					
Laboratory ID:	09-311-04					
Benzene	0.82	0.044	EPA 8260D	10-1-19	10-2-19	
1,2-Dichloroethane	ND	0.044	EPA 8260D	10-1-19	10-2-19	
Toluene	ND	0.22	EPA 8260D	10-1-19	10-2-19	
1,2-Dibromoethane	ND	0.044	EPA 8260D	10-1-19	10-2-19	
Ethylbenzene	0.77	0.044	EPA 8260D	10-1-19	10-2-19	
m,p-Xylene	0.78	0.087	EPA 8260D	10-1-19	10-2-19	
o-Xylene	0.16	0.044	EPA 8260D	10-1-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*97*	*76-131*				
Toluene-d8	*100*	*78-128*				
4-Bromofluorobenzene	*99*	*71-130*				

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Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-1-19:35.0**					
Laboratory ID:	09-311-05					
Benzene	0.0090	0.0011	EPA 8260D	10-3-19	10-3-19	
Toluene	ND	0.0057	EPA 8260D	10-3-19	10-3-19	
Ethylbenzene	0.018	0.0011	EPA 8260D	10-3-19	10-3-19	
m,p-Xylene	0.011	0.0023	EPA 8260D	10-3-19	10-3-19	
o-Xylene	0.0015	0.0011	EPA 8260D	10-3-19	10-3-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*76-131*				
Toluene-d8	*97*	*78-128*				
4-Bromofluorobenzene	*93*	*71-130*				

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Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19:15.0**					
Laboratory ID:	09-311-09					
Benzene	0.061	0.055	EPA 8260D	10-1-19	10-2-19	
1,2-Dichloroethane	ND	0.055	EPA 8260D	10-1-19	10-2-19	
Toluene	ND	0.27	EPA 8260D	10-1-19	10-2-19	
1,2-Dibromoethane	ND	0.055	EPA 8260D	10-1-19	10-2-19	
Ethylbenzene	ND	0.055	EPA 8260D	10-1-19	10-2-19	
m,p-Xylene	ND	0.11	EPA 8260D	10-1-19	10-2-19	
o-Xylene	ND	0.055	EPA 8260D	10-1-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*76-131*				
Toluene-d8	*102*	*78-128*				
4-Bromofluorobenzene	*82*	*71-130*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-102-19:15.0**					
Laboratory ID:	09-311-10					
Benzene	ND	0.068	EPA 8260D	10-1-19	10-2-19	
1,2-Dichloroethane	ND	0.068	EPA 8260D	10-1-19	10-2-19	
Toluene	ND	0.34	EPA 8260D	10-1-19	10-2-19	
1,2-Dibromoethane	ND	0.068	EPA 8260D	10-1-19	10-2-19	
Ethylbenzene	ND	0.068	EPA 8260D	10-1-19	10-2-19	
m,p-Xylene	ND	0.14	EPA 8260D	10-1-19	10-2-19	
o-Xylene	ND	0.068	EPA 8260D	10-1-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*76-131*				
Toluene-d8	*105*	*78-128*				
4-Bromofluorobenzene	*89*	*71-130*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19:25.0**					
Laboratory ID:	09-311-13					
Benzene	ND	0.0013	EPA 8260D	10-3-19	10-3-19	
Toluene	ND	0.0063	EPA 8260D	10-3-19	10-3-19	
Ethylbenzene	ND	0.0013	EPA 8260D	10-3-19	10-3-19	
m,p-Xylene	ND	0.0025	EPA 8260D	10-3-19	10-3-19	
o-Xylene	ND	0.0013	EPA 8260D	10-3-19	10-3-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*76-131*				
Toluene-d8	*96*	*78-128*				
4-Bromofluorobenzene	*89*	*71-130*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1001S1					
Benzene	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
Toluene	ND	0.0050	EPA 8260D	10-1-19	10-1-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
Ethylbenzene	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
m,p-Xylene	ND	0.0020	EPA 8260D	10-1-19	10-1-19	
o-Xylene	ND	0.0010	EPA 8260D	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*76-131*				
Toluene-d8	*106*	*78-128*				
4-Bromofluorobenzene	*93*	*71-130*				
Laboratory ID:	MB1003S1					
Benzene	ND	0.0010	EPA 8260D	10-3-19	10-3-19	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-3-19	10-3-19	
Toluene	ND	0.0050	EPA 8260D	10-3-19	10-3-19	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-3-19	10-3-19	
Ethylbenzene	ND	0.0010	EPA 8260D	10-3-19	10-3-19	
m,p-Xylene	ND	0.0020	EPA 8260D	10-3-19	10-3-19	
o-Xylene	ND	0.0010	EPA 8260D	10-3-19	10-3-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*98*	*76-131*				
Toluene-d8	*98*	*78-128*				
4-Bromofluorobenzene	*93*	*71-130*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1001S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0483**	**0.0426**	0.0500	0.0500	97	85	57-133	13	18	
Benzene	**0.0451**	**0.0428**	0.0500	0.0500	90	86	71-129	5	16	
Trichloroethene	**0.0555**	**0.0512**	0.0500	0.0500	111	102	71-122	8	16	
Toluene	**0.0517**	**0.0477**	0.0500	0.0500	103	95	74-125	8	15	
Chlorobenzene	**0.0540**	**0.0481**	0.0500	0.0500	108	96	72-120	12	14	
Surrogate:										
Dibromofluoromethane					*98*	*103*	*76-131*			
Toluene-d8					*107*	*107*	*78-128*			
4-Bromofluorobenzene					*92*	*90*	*71-130*			
Laboratory ID:	SB1003S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0421**	**0.0449**	0.0500	0.0500	84	90	57-133	6	18	
Benzene	**0.0451**	**0.0470**	0.0500	0.0500	90	94	71-129	4	16	
Trichloroethene	**0.0490**	**0.0506**	0.0500	0.0500	98	101	71-122	3	16	
Toluene	**0.0456**	**0.0468**	0.0500	0.0500	91	94	74-125	3	15	
Chlorobenzene	**0.0484**	**0.0509**	0.0500	0.0500	97	102	72-120	5	14	
Surrogate:										
Dibromofluoromethane					*94*	*96*	*76-131*			
Toluene-d8					*94*	*97*	*78-128*			
4-Bromofluorobenzene					*93*	*92*	*71-130*			

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19**					
Laboratory ID:	09-311-11					
Benzene	410	4.0	EPA 8260D	10-1-19	10-1-19	
1,2-Dichloroethane	ND	4.0	EPA 8260D	10-1-19	10-1-19	
Toluene	ND	20	EPA 8260D	10-1-19	10-1-19	
Ethylbenzene	25	4.0	EPA 8260D	10-1-19	10-1-19	
m,p-Xylene	ND	8.0	EPA 8260D	10-1-19	10-1-19	
o-Xylene	ND	4.0	EPA 8260D	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*99*	*75-127*				
Toluene-d8	*96*	*80-127*				
4-Bromofluorobenzene	*101*	*78-125*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1001W1					
Benzene	ND	0.20	EPA 8260D	10-1-19	10-1-19	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-1-19	10-1-19	
Toluene	ND	1.0	EPA 8260D	10-1-19	10-1-19	
Ethylbenzene	ND	0.20	EPA 8260D	10-1-19	10-1-19	
m,p-Xylene	ND	0.40	EPA 8260D	10-1-19	10-1-19	
o-Xylene	ND	0.20	EPA 8260D	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*108*	*75-127*				
Toluene-d8	*102*	*80-127*				
4-Bromofluorobenzene	*104*	*78-125*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1001W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**9.93**	**9.68**	10.0	10.0	99	97	63-130	3	17	
Benzene	**10.5**	**10.1**	10.0	10.0	105	101	76-125	4	19	
Trichloroethene	**9.81**	**9.50**	10.0	10.0	98	95	76-121	3	18	
Toluene	**9.72**	**9.33**	10.0	10.0	97	93	80-124	4	18	
Chlorobenzene	**10.6**	**10.2**	10.0	10.0	106	102	75-120	4	19	
Surrogate:										
Dibromofluoromethane					*108*	*109*	*75-127*			
Toluene-d8					*102*	*101*	*80-127*			
4-Bromofluorobenzene					*107*	*105*	*78-125*			

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

1,2-DIBROMOETHANE (EDB)
EPA 8011

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19**					
Laboratory ID:	09-311-11					
EDB	**ND**	0.010	EPA 8011	10-3-19	10-3-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*68*	*25-143*				

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Project: 21-1-22242-102

1,2-DIBROMOETHANE (EDB)
EPA 8011
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1003W1					
EDB	**ND**	0.010	EPA 8011	10-3-19	10-3-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*68*	*25-143*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	10-025-08										
	MS	MSD	MS	MSD		MS	MSD				
EDB	**0.0642**	**0.0608**	0.100	0.100	ND	**64**	**61**	60-140	5	20	
Surrogate:											
TCMX						*65*	*56*	*25-143*			

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-1-19:20.0**					
Laboratory ID:	09-311-02					
Benzo[a]anthracene	**ND**	0.0080	EPA 8270E/SIM	10-1-19	10-1-19	
Chrysene	**ND**	0.0080	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[b]fluoranthene	**ND**	0.0080	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0080	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[a]pyrene	**ND**	0.0080	EPA 8270E/SIM	10-1-19	10-1-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0080	EPA 8270E/SIM	10-1-19	10-1-19	
Dibenz[a,h]anthracene	**ND**	0.0080	EPA 8270E/SIM	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*61*	*40 - 111*				
Pyrene-d10	*77*	*40 - 110*				
Terphenyl-d14	*72*	*45 - 122*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-103-19:20.0**					
Laboratory ID:	09-311-04					
Benzo[a]anthracene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-1-19	
Chrysene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[b]fluoranthene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[a]pyrene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-1-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-1-19	
Dibenz[a,h]anthracene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*71*	*40 - 111*				
Pyrene-d10	*75*	*40 - 110*				
Terphenyl-d14	*80*	*45 - 122*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19:15.0**					
Laboratory ID:	09-311-09					
Benzo[a]anthracene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-2-19	
Chrysene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo[b]fluoranthene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo(j,k)fluoranthene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo[a]pyrene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-2-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-2-19	
Dibenz[a,h]anthracene	**ND**	0.0077	EPA 8270E/SIM	10-1-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*74*	*40 - 111*				
Pyrene-d10	*79*	*40 - 110*				
Terphenyl-d14	*81*	*45 - 122*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-102-19:15.0**					
Laboratory ID:	09-311-10					
Benzo[a]anthracene	**ND**	0.0078	EPA 8270E/SIM	10-1-19	10-2-19	
Chrysene	**ND**	0.0078	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo[b]fluoranthene	**ND**	0.0078	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo(j,k)fluoranthene	**ND**	0.0078	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo[a]pyrene	**ND**	0.0078	EPA 8270E/SIM	10-1-19	10-2-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0078	EPA 8270E/SIM	10-1-19	10-2-19	
Dibenz[a,h]anthracene	**ND**	0.0078	EPA 8270E/SIM	10-1-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*64*	*40 - 111*				
Pyrene-d10	*74*	*40 - 110*				
Terphenyl-d14	*77*	*45 - 122*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1001S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*75*	*40 - 111*				
Pyrene-d10	*87*	*40 - 110*				
Terphenyl-d14	*88*	*45 - 122*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES											
Laboratory ID:	09-287-01										
	MS	MSD	MS	MSD		MS	MSD				
Benzo[a]anthracene	**0.0734**	**0.0732**	0.0833	0.0833	ND	88	88	53 - 131	0	23	
Chrysene	**0.0720**	**0.0701**	0.0833	0.0833	ND	86	84	46 - 126	3	24	
Benzo[b]fluoranthene	**0.0682**	**0.0719**	0.0833	0.0833	ND	82	86	45 - 127	5	25	
Benzo(j,k)fluoranthene	**0.0743**	**0.0679**	0.0833	0.0833	ND	89	82	52 - 122	9	21	
Benzo[a]pyrene	**0.0705**	**0.0696**	0.0833	0.0833	ND	85	84	51 - 126	1	24	
Indeno(1,2,3-c,d)pyrene	**0.0669**	**0.0669**	0.0833	0.0833	ND	80	80	48 - 127	0	23	
Dibenz[a,h]anthracene	**0.0676**	**0.0675**	0.0833	0.0833	ND	81	81	51 - 124	0	22	
Surrogate:											
2-Fluorobiphenyl						*66*	*72*	*40 - 111*			
Pyrene-d10						*75*	*74*	*40 - 110*			
Terphenyl-d14						*82*	*77*	*45 - 122*			

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19**					
Laboratory ID:	09-311-11					
Benzo[a]anthracene	**1.6**	0.41	EPA 8270E/SIM	10-1-19	10-2-19	
Chrysene	**1.8**	0.41	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo[b]fluoranthene	**0.94**	0.41	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo(j,k)fluoranthene	**ND**	0.41	EPA 8270E/SIM	10-1-19	10-2-19	
Benzo[a]pyrene	**0.74**	0.41	EPA 8270E/SIM	10-1-19	10-2-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.41	EPA 8270E/SIM	10-1-19	10-2-19	
Dibenz[a,h]anthracene	**ND**	0.41	EPA 8270E/SIM	10-1-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*52*	*27 - 106*				
Pyrene-d10	*80*	*35 - 98*				
Terphenyl-d14	*18*	*41 - 129*				Q

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1001W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	10-1-19	10-1-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-1-19	10-1-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	10-1-19	10-1-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	10-1-19	10-1-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	10-1-19	10-1-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*68*	*27 - 106*				
Pyrene-d10	*86*	*35 - 98*				
Terphenyl-d14	*97*	*41 - 129*				

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Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

cPAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1001W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.445**	**0.413**	0.500	0.500	89	83	59 - 127	7	24	
Chrysene	**0.417**	**0.395**	0.500	0.500	83	79	57 - 122	5	24	
Benzo[b]fluoranthene	**0.404**	**0.409**	0.500	0.500	81	82	58 - 123	1	26	
Benzo(j,k)fluoranthene	**0.447**	**0.388**	0.500	0.500	89	78	60 - 123	14	22	
Benzo[a]pyrene	**0.381**	**0.364**	0.500	0.500	76	73	54 - 121	5	24	
Indeno(1,2,3-c,d)pyrene	**0.387**	**0.365**	0.500	0.500	77	73	55 - 125	6	26	
Dibenz[a,h]anthracene	**0.398**	**0.383**	0.500	0.500	80	77	57 - 127	4	25	
Surrogate:										
2-Fluorobiphenyl					*62*	*55*	*27 - 106*			
Pyrene-d10					*78*	*76*	*35 - 98*			
Terphenyl-d14					*92*	*86*	*41 - 129*			

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-1-19:20.0**					
Laboratory ID:	09-311-02					
Arsenic	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Barium	**30**	3.0	EPA 6010D	9-30-19	9-30-19	
Cadmium	**ND**	0.60	EPA 6010D	9-30-19	9-30-19	
Chromium	**23**	0.60	EPA 6010D	9-30-19	9-30-19	
Lead	**ND**	6.0	EPA 6010D	9-30-19	9-30-19	
Mercury	**ND**	0.30	EPA 7471B	10-1-19	10-1-19	
Selenium	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Silver	**ND**	1.2	EPA 6010D	9-30-19	9-30-19	
Client ID:	**SB-103-19:20.0**					
Laboratory ID:	09-311-04					
Arsenic	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Barium	**66**	2.9	EPA 6010D	9-30-19	9-30-19	
Cadmium	**ND**	0.58	EPA 6010D	9-30-19	9-30-19	
Chromium	**37**	0.58	EPA 6010D	9-30-19	9-30-19	
Lead	**ND**	5.8	EPA 6010D	9-30-19	9-30-19	
Mercury	**ND**	0.29	EPA 7471B	10-1-19	10-1-19	
Selenium	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Silver	**ND**	1.2	EPA 6010D	9-30-19	9-30-19	
Client ID:	**SB-7-19:15.0**					
Laboratory ID:	09-311-09					
Arsenic	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Barium	**49**	2.9	EPA 6010D	9-30-19	9-30-19	
Cadmium	**ND**	0.58	EPA 6010D	9-30-19	9-30-19	
Chromium	**26**	0.58	EPA 6010D	9-30-19	9-30-19	
Lead	**ND**	5.8	EPA 6010D	9-30-19	9-30-19	
Mercury	**ND**	0.29	EPA 7471B	10-1-19	10-1-19	
Selenium	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Silver	**ND**	1.2	EPA 6010D	9-30-19	9-30-19	

Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-102-19:15.0**					
Laboratory ID:	09-311-10					
Arsenic	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Barium	**43**	2.9	EPA 6010D	9-30-19	9-30-19	
Cadmium	**ND**	0.58	EPA 6010D	9-30-19	9-30-19	
Chromium	**22**	0.58	EPA 6010D	9-30-19	9-30-19	
Lead	**ND**	5.8	EPA 6010D	9-30-19	9-30-19	
Mercury	**ND**	0.29	EPA 7471B	10-1-19	10-1-19	
Selenium	**ND**	12	EPA 6010D	9-30-19	9-30-19	
Silver	**ND**	1.2	EPA 6010D	9-30-19	9-30-19	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0930SM1					
Arsenic	**ND**	10	EPA 6010D	9-30-19	9-30-19	
Barium	**ND**	2.5	EPA 6010D	9-30-19	9-30-19	
Cadmium	**ND**	0.50	EPA 6010D	9-30-19	9-30-19	
Chromium	**ND**	0.50	EPA 6010D	9-30-19	9-30-19	
Lead	**ND**	5.0	EPA 6010D	9-30-19	9-30-19	
Selenium	**ND**	10	EPA 6010D	9-30-19	9-30-19	
Silver	**ND**	1.0	EPA 6010D	9-30-19	9-30-19	
Laboratory ID:	MB1001S1					
Mercury	**ND**	0.25	EPA 7471B	10-1-19	10-1-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-324-03										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**48.1**	**46.5**	NA	NA		NA		NA	3	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**24.1**	**23.7**	NA	NA		NA		NA	2	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-311-10										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-324-03										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**90.0**	**92.2**	100	100	ND	**90**	**92**	75-125	2	20	
Barium	**147**	**142**	100	100	48.1	**99**	**94**	75-125	3	20	
Cadmium	**41.1**	**40.4**	50.0	50.0	ND	**82**	**81**	75-125	2	20	
Chromium	**115**	**113**	100	100	24.1	**91**	**89**	75-125	1	20	
Lead	**229**	**227**	250	250	ND	**92**	**91**	75-125	1	20	
Selenium	**90.3**	**85.7**	100	100	ND	**90**	**86**	75-125	5	20	
Silver	**20.5**	**20.4**	25.0	25.0	ND	**82**	**81**	75-125	0	20	
Laboratory ID:	09-311-10										
Mercury	**0.517**	**0.523**	0.500	0.500	0.0200	**99**	**101**	80-120	1	20	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19**					
Laboratory ID:	09-311-11					
Arsenic	**92**	3.3	EPA 200.8	9-30-19	9-30-19	
Barium	**850**	28	EPA 200.8	9-30-19	9-30-19	
Cadmium	**ND**	4.4	EPA 200.8	9-30-19	9-30-19	
Chromium	**290**	11	EPA 200.8	9-30-19	9-30-19	
Lead	**72**	1.1	EPA 200.8	9-30-19	9-30-19	
Mercury	**ND**	0.50	EPA 7470A	10-2-19	10-2-19	
Selenium	**ND**	5.6	EPA 200.8	9-30-19	9-30-19	
Silver	**ND**	11	EPA 200.8	9-30-19	10-1-19	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

TOTAL METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0930WM1					
Arsenic	**ND**	3.3	EPA 200.8	9-30-19	9-30-19	
Barium	**ND**	28	EPA 200.8	9-30-19	9-30-19	
Cadmium	**ND**	4.4	EPA 200.8	9-30-19	9-30-19	
Chromium	**ND**	11	EPA 200.8	9-30-19	9-30-19	
Lead	**ND**	1.1	EPA 200.8	9-30-19	9-30-19	
Selenium	**ND**	5.6	EPA 200.8	9-30-19	9-30-19	
Silver	**ND**	11	EPA 200.8	9-30-19	10-1-19	
Laboratory ID:	MB1002W1					
Mercury	**ND**	0.50	EPA 7470A	10-2-19	10-2-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-290-01										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-300-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-290-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**122**	**118**	111	111	ND	**110**	**106**	75-125	3	20	
Barium	**112**	**114**	111	111	ND	**101**	**102**	75-125	2	20	
Cadmium	**112**	**112**	111	111	ND	**101**	**101**	75-125	0	20	
Chromium	**110**	**107**	111	111	ND	**99**	**96**	75-125	3	20	
Lead	**109**	**112**	111	111	ND	**99**	**101**	75-125	2	20	
Selenium	**122**	**126**	111	111	ND	**110**	**113**	75-125	3	20	
Silver	**112**	**106**	111	111	ND	**101**	**95**	75-125	5	20	
Laboratory ID:	09-300-01										
Mercury	**11.3**	**12.3**	12.5	12.5	ND	**90**	**98**	75-125	8	20	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-7-19**					
Laboratory ID:	09-311-11					
Arsenic	**19**	3.0	EPA 200.8	9-27-19	9-30-19	
Barium	**65**	25	EPA 200.8	9-27-19	9-30-19	
Cadmium	**ND**	4.0	EPA 200.8	9-27-19	9-30-19	
Chromium	**ND**	10	EPA 200.8	9-27-19	9-30-19	
Lead	**ND**	1.0	EPA 200.8	9-27-19	9-30-19	
Mercury	**ND**	0.50	EPA 7470A	9-27-19	10-2-19	
Selenium	**ND**	5.0	EPA 200.8	9-27-19	9-30-19	
Silver	**ND**	10	EPA 200.8	9-27-19	10-1-19	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

DISSOLVED METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0927F1					
Arsenic	**ND**	3.0	EPA 200.8	9-27-19	9-30-19	
Barium	**ND**	25	EPA 200.8	9-27-19	9-30-19	
Cadmium	**ND**	4.0	EPA 200.8	9-27-19	9-30-19	
Chromium	**ND**	10	EPA 200.8	9-27-19	9-30-19	
Lead	**ND**	1.0	EPA 200.8	9-27-19	9-30-19	
Selenium	**ND**	5.0	EPA 200.8	9-27-19	9-30-19	
Silver	**ND**	10	EPA 200.8	9-27-19	10-1-19	
Laboratory ID:	MB0927F1					
Mercury	**ND**	0.50	EPA 7470A	9-27-19	10-2-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-311-01										
	ORIG	DUP									
Arsenic	**19.1**	**20.4**	NA	NA		NA		NA	7	20	
Barium	**65.2**	**66.4**	NA	NA		NA		NA	2	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-300-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	09-311-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**103**	**101**	80.0	80.0	19.1	**104**	**102**	75-125	2	20	
Barium	**140**	**149**	80.0	80.0	65.2	**93**	**105**	75-125	7	20	
Cadmium	**77.2**	**80.0**	80.0	80.0	ND	**97**	**100**	75-125	4	20	
Chromium	**79.8**	**82.4**	80.0	80.0	ND	**100**	**103**	75-125	3	20	
Lead	**71.6**	**75.8**	80.0	80.0	ND	**90**	**95**	75-125	6	20	
Selenium	**83.2**	**89.0**	80.0	80.0	ND	**104**	**111**	75-125	7	20	
Silver	**75.2**	**75.4**	80.0	80.0	ND	**94**	**94**	75-125	0	20	
Laboratory ID:	09-300-01										
Mercury	**11.2**	**12.6**	12.5	12.5	ND	**89**	**100**	75-125	12	20	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

TOTAL ORGANIC CARBON
EPA 9060A

Matrix: Soil
Units: % Carbon

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-1-19:20.0**					
Laboratory ID:	09-311-02					
Total Organic Carbon	**0.098**	0.042	EPA 9060A	10-2-19	10-2-19	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

TOTAL ORGANIC CARBON
EPA 9060A
QUALITY CONTROL

Matrix: Soil
Units: % Carbon

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1002S1					
Total Organic Carbon	**ND**	0.042	EPA 9060A	10-2-19	10-2-19	

Analyte	Result		Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE									
Laboratory ID:	09-311-02								
	ORIG	DUP							
Total Organic Carbon	**0.0978**	**0.0980**	NA	NA	NA	NA	0	20	
SPIKE BLANK									
Laboratory ID:	SB1002S1								
	SB		SB		SB				
Total Organic Carbon	**42.1**		42.1	NA	100	90-121	NA	NA	

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE PETROLEUM HYDROCARBONS

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**SB-1-19:20.0**					
Laboratory ID:	09-311-02					
Aliphatic C5-C6	**17**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aliphatic C6-C8	**130**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aliphatic C8-C10	**63**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aliphatic C10-C12	**25**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Total Aliphatic:	**240**		NWTPH-VPH	10-2-19	10-2-19	
Aromatic C8-C10	**62**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aromatic C10-C12	**51**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aromatic C12-C13	**54**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Total Aromatic:	**170**		NWTPH-VPH	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*114*	*60-129*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE PETROLEUM HYDROCARBONS
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1002S1					
Aliphatic C5-C6	**ND**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aliphatic C6-C8	**ND**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aliphatic C8-C10	**ND**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aliphatic C10-C12	**ND**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Total Aliphatic:	**NA**		NWTPH-VPH	10-2-19	10-2-19	
Aromatic C8-C10	**ND**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aromatic C10-C12	**ND**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Aromatic C12-C13	**ND**	5.0	NWTPH-VPH	10-2-19	10-2-19	
Total Aromatic:	**NA**		NWTPH-VPH	10-2-19	10-2-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*88*	*60-129*				

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

VOLATILE PETROLEUM HYDROCARBONS
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE										
Laboratory ID:	09-264-02									
	ORIG	DUP								
Aliphatic C5-C6	**ND**	**ND**	NA	NA		NA	NA	NA	30	
Aliphatic C6-C8	**ND**	**ND**	NA	NA		NA	NA	NA	30	
Aliphatic C8-C10	**ND**	**ND**	NA	NA		NA	NA	NA	30	
Aliphatic C10-C12	**ND**	**ND**	NA	NA		NA	NA	NA	30	
Total Aliphatic:	**NA**	**NA**	NA	NA		NA	NA	NA	30	
Aromatic C8-C10	**ND**	**ND**	NA	NA		NA	NA	NA	30	
Aromatic C10-C12	**ND**	**ND**	NA	NA		NA	NA	NA	30	
Aromatic C12-C13	**ND**	**ND**	NA	NA		NA	NA	NA	30	
Total Aromatic:	**NA**	**NA**	NA	NA		NA	NA	NA	30	
Surrogate:										
Fluorobenzene						*86*	*87*	*60-129*		

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Date of Report: October 9, 2019
Samples Submitted: September 27, 2019
Laboratory Reference: 1909-311
Project: 21-1-22242-102

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
SB-1-19:20.0	09-311-02	**17**	10-1-19
SB-103-19:20.0	09-311-04	**13**	10-1-19
SB-1-19:35.0	09-311-05	**14**	10-3-19
SB-7-19:15.0	09-311-09	**14**	10-1-19
SB-102-19:15.0	09-311-10	**14**	10-1-19
SB-7-19:25.0	09-311-13	**15**	10-1-19

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

OnSite Environmental Inc.

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.

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.

Z - The sample chromatogram is similar to mineral spirits.

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

October 9, 2019

Mr. David Baumeister
OnSite Environmental, Inc.
14648 NE 95th Street
Redmond, WA 98052

Dear Mr. Baumeister,

On September 30th, 1 sample was received by our laboratory and assigned our laboratory project number EV19090223. The project was identified as your Lab Ref #09-311 / Proj #21-1-22242-102. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

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ALS Group USA, Corp dba ALS Environmental

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CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental, Inc. 14648 NE 95th Street Redmond, WA 98052	DATE: ALS JOB#: ALS SAMPLE#:	10/9/2019 EV19090223 EV19090223-01
CLIENT CONTACT:	David Baumeister	DATE RECEIVED:	09/30/2019
CLIENT PROJECT:	Lab Ref #09-311 / Proj #21-1-22242-102	COLLECTION DATE:	9/26/2019 8:45:00 AM
CLIENT SAMPLE ID	SB-1-19:20.0	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	**79**	5.0	1	MG/KG	10/07/2019	EBS
>C10-C12 Aliphatics	NWEPH	**69**	5.0	1	MG/KG	10/07/2019	EBS
>C12-C16 Aliphatics	NWEPH	**16**	5.0	1	MG/KG	10/07/2019	EBS
>C16-C21 Aliphatics	NWEPH	**28**	5.0	1	MG/KG	10/07/2019	EBS
>C21-C34 Aliphatics	NWEPH	**320**	5.0	1	MG/KG	10/07/2019	EBS
>C8-C10 Aromatics	NWEPH	**32**	5.0	1	MG/KG	10/07/2019	EBS
>C10-C12 Aromatics	NWEPH	**60**	5.0	1	MG/KG	10/07/2019	EBS
>C12-C16 Aromatics	NWEPH	**22**	5.0	1	MG/KG	10/07/2019	EBS
>C16-C21 Aromatics	NWEPH	**25**	5.0	1	MG/KG	10/07/2019	EBS
>C21-C34 Aromatics	NWEPH	**200**	5.0	1	MG/KG	10/07/2019	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWEPH	**90.2**	10/07/2019	EBS
p-Terphenyl	NWEPH	**88.5**	10/07/2019	EBS

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CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental, Inc. 14648 NE 95th Street Redmond, WA 98052	DATE: ALS SDG#: WDOE ACCREDITATION:	10/9/2019 EV19090223 C601
CLIENT CONTACT:	David Baumeister		
CLIENT PROJECT:	Lab Ref #09-311 / Proj #21-1-22242-102		

LABORATORY BLANK RESULTS

MB-100119S - Batch 146204 - Soil by NWEPH

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C10-C12 Aliphatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C12-C16 Aliphatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C16-C21 Aliphatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C21-C34 Aliphatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C8-C10 Aromatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C10-C12 Aromatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C12-C16 Aromatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C16-C21 Aromatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS
>C21-C34 Aromatics	NWEPH	U	MG/KG	5.0	10/07/2019	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

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CERTIFICATE OF ANALYSIS

CLIENT:	OnSite Environmental, Inc. 14648 NE 95th Street Redmond, WA 98052	DATE: ALS SDG#: WDOE ACCREDITATION:	10/9/2019 EV19090223 C601
CLIENT CONTACT:	David Baumeister		
CLIENT PROJECT:	Lab Ref #09-311 / Proj #21-1-22242-102		

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 146204 - Soil by NWEPH

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
>C8-C10 Aliphatics - BS	NWEPH	**84.1**			70	130	10/07/2019	EBS
>C8-C10 Aliphatics - BSD	NWEPH	**87.9**	**4**		70	130	10/07/2019	EBS
>C10-C12 Aliphatics - BS	NWEPH	**89.4**			70	130	10/07/2019	EBS
>C10-C12 Aliphatics - BSD	NWEPH	**91.8**	**3**		70	130	10/07/2019	EBS
>C12-C16 Aliphatics - BS	NWEPH	**99.2**			70	130	10/07/2019	EBS
>C12-C16 Aliphatics - BSD	NWEPH	**98.5**	**1**		70	130	10/07/2019	EBS
>C16-C21 Aliphatics - BS	NWEPH	**103**			70	130	10/07/2019	EBS
>C16-C21 Aliphatics - BSD	NWEPH	**99.2**	**4**		70	130	10/07/2019	EBS
>C21-C34 Aliphatics - BS	NWEPH	**107**			70	130	10/07/2019	EBS
>C21-C34 Aliphatics - BSD	NWEPH	**102**	**4**		70	130	10/07/2019	EBS
>C8-C10 Aromatics - BS	NWEPH	**92.1**			70	130	10/07/2019	EBS
>C8-C10 Aromatics - BSD	NWEPH	**92.4**	**0**		70	130	10/07/2019	EBS
>C10-C12 Aromatics - BS	NWEPH	**90.8**			70	130	10/07/2019	EBS
>C10-C12 Aromatics - BSD	NWEPH	**90.0**	**1**		70	130	10/07/2019	EBS
>C12-C16 Aromatics - BS	NWEPH	**96.7**			70	130	10/07/2019	EBS
>C12-C16 Aromatics - BSD	NWEPH	**94.6**	**2**		70	130	10/07/2019	EBS
>C16-C21 Aromatics - BS	NWEPH	**103**			70	130	10/07/2019	EBS
>C16-C21 Aromatics - BSD	NWEPH	**99.3**	**4**		70	130	10/07/2019	EBS
>C21-C34 Aromatics - BS	NWEPH	**97.9**			70	130	10/07/2019	EBS
>C21-C34 Aromatics - BSD	NWEPH	**81.2**	**19**		70	130	10/07/2019	EBS

APPROVED BY

Laboratory Director

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EV190 90 223

OnSite Environmental Inc.

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

Laboratory: ALS Environmental

Attention: Rick Bagan

8620 Holly Drive Everett, WA 98208

Phone Number: (425) 356-2600

Turnaround Request

1 Day 2 Day 3 Day

Standard

Other:

Laboratory Reference #: 09-311

Project Manager: David Baumeister

email: dbaumeister@onsite-env.com

Project Number: 21-1-22242-102

Project Name: SR-520 Montlake VCP

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	Requested Analyses
1	SB-1-19:20.0	9/26/19	8:45	S	1	EPH

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished by:	[illegible]	OSE	9/30/19	1035	
Received by:	[illegible]	ALPHA	9/30/19	1035	
Relinquished by:	[illegible]	ALPHA	9/30/19	12:15	
Received by:	[illegible]	ALS	9/30/19	12:15 PM	
Relinquished by:					
Received by:					

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Analytical Laboratory Testing Services
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Chain of Custody

Company: Shannon & Wilson, Inc.
Project Number: 21-1-22242-102
Project Name: SR520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson and Joe Sawdey

Turnaround Request (in working days) (Check One): ☐ Same Day ☐ 1 Day ☐ 2 Days ☐ 3 Days ☒ Standard (7 Days) ☐ _____ (other)

Laboratory Number: 09-311

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX, EDC, EDB only	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAH only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved Pb	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold	BTEX 8260C	TOC 9060	Hexane 8270	% Moisture	EPH (w/PAH-EPA) + VPH (w/PAH-VPH)
1	TB-4 (trip blank)	9/26/19	—	H2O	1																		X					
2	SB-1-19:20.0	9/26/19	0825	Soil	6			X		X				X					X						X	X	X	X
3	SB-1-19:16.0		0845	Soil	4																		X					
4	SB-103-19:20.0		1025	Soil	5			X		X				X					X								X	
5	SB-1-19:35.0		1205	Soil	4			X																X			X	
6	SB-1-19:40.0		1300	Soil	5																		X					
7	SB-1-19:50.0		1405	Soil	5																		X					
8	SB-1-19:60.0		1515	Soil	5																		X					
9	SB-7-19:15.0	9/27/19	0855	Soil	5			X		X				X					X								X	
10	SB-102-19:15.0	9/27/19	~~1055~~ 1035	Soil	5			X		X				X					X								X	

	Signature	Company	Date	Time
Relinquished	[signature] RYAN PETERSON	Shannon & Wilson, Inc	9/27/19	12:12
Received	[signature]	[signature]	9/27/19	12:12
Relinquished	[signature]	[signature]	9/27/19	12:51
Received	[signature]	OSE	9/27/19	1251
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions: Report to JXS@shanwil.com

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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Chain of Custody

Page 2nd of 2nd

Company: Shannon & Wilson, Inc
Project Number: 21-1-22242-102
Project Name: SR 520 Montlake VCP
Project Manager: Carole Leigh
Sampled by: Ryan Peterson

Turnaround Request (in working days) (Check One)
- [ ] Same Day
- [ ] 1 Day
- [ ] 2 Days
- [ ] 3 Days
- [x] Standard (7 Days)
- [ ] _____ (other)

Laboratory Number: 09-311

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX, EDB only	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs only	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold	BTEX 8260C			% Moisture
11	SB-7-19	9/27/19	1015	Water	13			X	X	X				X					X								
12	TB-5 (trip blank)	↓	—	H_2O	1																		X				
13	SB-7-19:25.0	↓	0935	Soil	5			X																X			X
14	TB-6 (trip blank)	↓	—	H_2O	1																		X				

No further

	Signature	Company	Date	Time
Relinquished	RYAN PETERSON	Shannon & Wilson	9/27/19	1212
Received	# 17	[illegible]	9/27/19	12:12
Relinquished	# 17	[illegible]	9/27/19	1251
Received	[illegible]	OSE	9/27/19	1251
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Report to JXS@shannwil.com
Lab to filter for dissolved metals

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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

October 29, 2019

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 1910-250

Dear Carole:

Enclosed are the analytical results and associated quality control data for samples submitted on October 18, 2019.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

Case Narrative

Samples were collected on October 17, 2019 and received by the laboratory on October 18, 2019. 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.

Volatiles EPA 8260D Analysis

The MTCA Method A cleanup level for 1,2-Dichloroethane is not achievable for sample RW-1-101719 due to the necessary dilution of the sample.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-101719**					
Laboratory ID:	10-250-01					
Gasoline	**ND**	100	NWTPH-Gx	10-23-19	10-23-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*59-122*				
Client ID:	**MW-2-101719**					
Laboratory ID:	10-250-02					
Gasoline	**ND**	100	NWTPH-Gx	10-23-19	10-23-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*94*	*59-122*				
Client ID:	**MW-3-101719**					
Laboratory ID:	10-250-03					
Gasoline	**1400**	100	NWTPH-Gx	10-23-19	10-23-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*110*	*59-122*				
Client ID:	**MW-4-101719**					
Laboratory ID:	10-250-04					
Gasoline	**210**	100	NWTPH-Gx	10-23-19	10-23-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*59-122*				
Client ID:	**RW-1-101719**					
Laboratory ID:	10-250-05					
Gasoline	**33000**	1000	NWTPH-Gx	10-24-19	10-24-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*96*	*59-122*				
Client ID:	**DUP 101719**					
Laboratory ID:	10-250-06					
Gasoline	**190**	100	NWTPH-Gx	10-23-19	10-23-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*59-122*				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1023W2					
Gasoline	**ND**	100	NWTPH-Gx	10-23-19	10-23-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*95*	*59-122*				
Laboratory ID:	MB1024W1					
Gasoline	**ND**	100	NWTPH-Gx	10-24-19	10-24-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*59-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-240-02										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*95*	*97*	*59-122*			

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

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:	**MW-1-101719**					
Laboratory ID:	10-250-01					
Diesel Range Organics	**ND**	0.27	NWTPH-Dx	10-21-19	10-21-19	
Lube Oil Range Organics	**ND**	0.44	NWTPH-Dx	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*85*	*50-150*				
Client ID:	**MW-2-101719**					
Laboratory ID:	10-250-02					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	10-21-19	10-21-19	
Lube Oil Range Organics	**ND**	0.42	NWTPH-Dx	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*88*	*50-150*				
Client ID:	**MW-3-101719**					
Laboratory ID:	10-250-03					
Diesel Range Organics	**0.63**	0.26	NWTPH-Dx	10-21-19	10-21-19	M
Lube Oil Range Organics	**0.66**	0.42	NWTPH-Dx	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*55*	*50-150*				
Client ID:	**MW-4-101719**					
Laboratory ID:	10-250-04					
Diesel Range Organics	**ND**	0.28	NWTPH-Dx	10-21-19	10-21-19	
Lube Oil Range Organics	**ND**	0.44	NWTPH-Dx	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*83*	*50-150*				
Client ID:	**RW-1-101719**					
Laboratory ID:	10-250-05					
Diesel Range Organics	**4.3**	0.26	NWTPH-Dx	10-21-19	10-21-19	M
Lube Oil Range Organics	**0.71**	0.42	NWTPH-Dx	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				
Client ID:	**DUP 101719**					
Laboratory ID:	10-250-06					
Diesel Range Organics	**ND**	0.26	NWTPH-Dx	10-21-19	10-21-19	
Lube Oil Range Organics	**ND**	0.42	NWTPH-Dx	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*86*	*50-150*				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1021W1					
Diesel Range Organics	**ND**	0.25	NWTPH-Dx	10-21-19	10-21-19	
Lube Oil Range Organics	**ND**	0.40	NWTPH-Dx	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*96*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-250-01										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*85*	*84*	*50-150*			

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-101719**					
Laboratory ID:	10-250-01					
Benzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
1,2-Dichloroethane	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Toluene	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Ethylbenzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
m,p-Xylene	ND	0.40	EPA 8260D	10-22-19	10-22-19	
o-Xylene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*75-127*				
Toluene-d8	*103*	*80-127*				
4-Bromofluorobenzene	*100*	*78-125*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2-101719**					
Laboratory ID:	10-250-02					
Benzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
1,2-Dichloroethane	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Toluene	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Ethylbenzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
m,p-Xylene	ND	0.40	EPA 8260D	10-22-19	10-22-19	
o-Xylene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*109*	*75-127*				
Toluene-d8	*108*	*80-127*				
4-Bromofluorobenzene	*107*	*78-125*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3-101719**					
Laboratory ID:	10-250-03					
Benzene	98	0.80	EPA 8260D	10-22-19	10-22-19	
1,2-Dichloroethane	ND	4.0	EPA 8260D	10-22-19	10-22-19	
Toluene	ND	4.0	EPA 8260D	10-22-19	10-22-19	
Ethylbenzene	24	0.80	EPA 8260D	10-22-19	10-22-19	
m,p-Xylene	9.3	1.6	EPA 8260D	10-22-19	10-22-19	
o-Xylene	1.1	0.80	EPA 8260D	10-22-19	10-22-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*104*	*75-127*				
Toluene-d8	*102*	*80-127*				
4-Bromofluorobenzene	*100*	*78-125*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-101719**					
Laboratory ID:	10-250-04					
Benzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
1,2-Dichloroethane	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Toluene	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Ethylbenzene	0.23	0.20	EPA 8260D	10-22-19	10-22-19	
m,p-Xylene	0.55	0.40	EPA 8260D	10-22-19	10-22-19	
o-Xylene	0.37	0.20	EPA 8260D	10-22-19	10-22-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*101*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RW-1-101719**					
Laboratory ID:	10-250-05					
Benzene	8700	100	EPA 8260D	10-22-19	10-22-19	
1,2-Dichloroethane	ND	500	EPA 8260D	10-22-19	10-22-19	
Toluene	ND	500	EPA 8260D	10-22-19	10-22-19	
Ethylbenzene	2300	100	EPA 8260D	10-22-19	10-22-19	
m,p-Xylene	3400	200	EPA 8260D	10-22-19	10-22-19	
o-Xylene	720	100	EPA 8260D	10-22-19	10-22-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*103*	*75-127*				
Toluene-d8	*102*	*80-127*				
4-Bromofluorobenzene	*99*	*78-125*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 101719**					
Laboratory ID:	10-250-06					
Benzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
1,2-Dichloroethane	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Toluene	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Ethylbenzene	0.22	0.20	EPA 8260D	10-22-19	10-22-19	
m,p-Xylene	0.41	0.40	EPA 8260D	10-22-19	10-22-19	
o-Xylene	0.30	0.20	EPA 8260D	10-22-19	10-22-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*100*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1022W2					
Benzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
1,2-Dichloroethane	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Toluene	ND	1.0	EPA 8260D	10-22-19	10-22-19	
Ethylbenzene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
m,p-Xylene	ND	0.40	EPA 8260D	10-22-19	10-22-19	
o-Xylene	ND	0.20	EPA 8260D	10-22-19	10-22-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*75-127*				
Toluene-d8	*101*	*80-127*				
4-Bromofluorobenzene	*100*	*78-125*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1022W2									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**8.07**	**8.04**	10.0	10.0	81	80	63-130	0	17	
Benzene	**8.80**	**8.73**	10.0	10.0	88	87	76-125	1	19	
Trichloroethene	**9.34**	**9.27**	10.0	10.0	93	93	76-121	1	18	
Toluene	**9.28**	**9.30**	10.0	10.0	93	93	80-124	0	18	
Chlorobenzene	**9.90**	**9.73**	10.0	10.0	99	97	75-120	2	19	
Surrogate:										
Dibromofluoromethane					*105*	*104*	*75-127*			
Toluene-d8					*102*	*102*	*80-127*			
4-Bromofluorobenzene					*100*	*99*	*78-125*			

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

1,2-DIBROMOETHANE (EDB)
EPA 8011

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-101719**					
Laboratory ID:	10-250-01					
EDB	**ND**	0.0097	EPA 8011	10-27-19	10-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*109*	*25-143*				
Client ID:	**MW-2-101719**					
Laboratory ID:	10-250-02					
EDB	**ND**	0.0096	EPA 8011	10-27-19	10-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*111*	*25-143*				
Client ID:	**MW-3-101719**					
Laboratory ID:	10-250-03					
EDB	**ND**	0.0096	EPA 8011	10-27-19	10-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*43*	*25-143*				
Client ID:	**MW-4-101719**					
Laboratory ID:	10-250-04					
EDB	**ND**	0.0097	EPA 8011	10-27-19	10-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*85*	*25-143*				
Client ID:	**RW-1-101719**					
Laboratory ID:	10-250-05					
EDB	**ND**	0.0095	EPA 8011	10-27-19	10-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*94*	*25-143*				
Client ID:	**DUP 101719**					
Laboratory ID:	10-250-06					
EDB	**ND**	0.0097	EPA 8011	10-27-19	10-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*83*	*25-143*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

1,2-DIBROMOETHANE (EDB)
EPA 8011
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1027W1					
EDB	**ND**	0.010	EPA 8011	10-27-19	10-27-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
TCMX	*103*	*25-143*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB1027W1										
	SB	SBD	SB	SBD		SB	SBD				
EDB	**0.105**	**0.104**	0.100	0.100	N/A	**105**	**104**	57-124	1	15	
DBCP	**0.125**	**0.121**	0.100	0.100	N/A	**125**	**121**	70-127	3	15	
Surrogate:											
TCMX						*113*	*106*	*25-143*			

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-101719**					
Laboratory ID:	10-250-01					
Benzo[a]anthracene	**ND**	0.0095	EPA 8270E/SIM	10-21-19	10-21-19	
Chrysene	**ND**	0.0095	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[b]fluoranthene	**ND**	0.0095	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo(j,k)fluoranthene	**ND**	0.0095	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[a]pyrene	**ND**	0.0095	EPA 8270E/SIM	10-21-19	10-21-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0095	EPA 8270E/SIM	10-21-19	10-21-19	
Dibenz[a,h]anthracene	**ND**	0.0095	EPA 8270E/SIM	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*43*	*27 - 106*				
Pyrene-d10	*67*	*35 - 98*				
Terphenyl-d14	*71*	*41 - 129*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-2-101719**					
Laboratory ID:	10-250-02					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*48*	*27 - 106*				
Pyrene-d10	*66*	*35 - 98*				
Terphenyl-d14	*71*	*41 - 129*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3-101719**					
Laboratory ID:	10-250-03					
Benzo[a]anthracene	**ND**	0.011	EPA 8270E/SIM	10-21-19	10-21-19	
Chrysene	**ND**	0.011	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[b]fluoranthene	**ND**	0.011	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo(j,k)fluoranthene	**ND**	0.011	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[a]pyrene	**ND**	0.011	EPA 8270E/SIM	10-21-19	10-21-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.011	EPA 8270E/SIM	10-21-19	10-21-19	
Dibenz[a,h]anthracene	**ND**	0.011	EPA 8270E/SIM	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*37*	*27 - 106*				
Pyrene-d10	*69*	*35 - 98*				
Terphenyl-d14	*73*	*41 - 129*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-101719**					
Laboratory ID:	10-250-04					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*42*	*27 - 106*				
Pyrene-d10	*76*	*35 - 98*				
Terphenyl-d14	*83*	*41 - 129*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**RW-1-101719**					
Laboratory ID:	10-250-05					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*30*	*27 - 106*				
Pyrene-d10	*50*	*35 - 98*				
Terphenyl-d14	*49*	*41 - 129*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**DUP 101719**					
Laboratory ID:	10-250-06					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*40*	*27 - 106*				
Pyrene-d10	*73*	*35 - 98*				
Terphenyl-d14	*72*	*41 - 129*				

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1021W1					
Benzo[a]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Chrysene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[b]fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo(j,k)fluoranthene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Benzo[a]pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Indeno(1,2,3-c,d)pyrene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Dibenz[a,h]anthracene	**ND**	0.010	EPA 8270E/SIM	10-21-19	10-21-19	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*44*	*27 - 106*				
Pyrene-d10	*67*	*35 - 98*				
Terphenyl-d14	*71*	*41 - 129*				

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1021W2									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.352**	**0.400**	0.500	0.500	70	80	59 - 127	13	24	
Chrysene	**0.333**	**0.386**	0.500	0.500	67	77	57 - 122	15	24	
Benzo[b]fluoranthene	**0.325**	**0.363**	0.500	0.500	65	73	58 - 123	11	26	
Benzo(j,k)fluoranthene	**0.365**	**0.418**	0.500	0.500	73	84	60 - 123	14	22	
Benzo[a]pyrene	**0.335**	**0.381**	0.500	0.500	67	76	54 - 121	13	24	
Indeno(1,2,3-c,d)pyrene	**0.346**	**0.399**	0.500	0.500	69	80	55 - 125	14	26	
Dibenz[a,h]anthracene	**0.337**	**0.386**	0.500	0.500	67	77	57 - 127	14	25	
Surrogate:										
2-Fluorobiphenyl					*71*	*55*	*27 - 106*			
Pyrene-d10					*68*	*76*	*35 - 98*			
Terphenyl-d14					*71*	*82*	*41 - 129*			

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-101719**					
Laboratory ID:	10-250-01					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-23-19	
Barium	**ND**	28	EPA 200.8	10-23-19	10-23-19	
Cadmium	**ND**	4.4	EPA 200.8	10-23-19	10-23-19	
Chromium	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Lead	**ND**	1.1	EPA 200.8	10-23-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-22-19	10-22-19	
Selenium	**ND**	5.6	EPA 200.8	10-23-19	10-23-19	
Silver	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Client ID:	**MW-2-101719**					
Laboratory ID:	10-250-02					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-23-19	
Barium	**ND**	28	EPA 200.8	10-23-19	10-23-19	
Cadmium	**ND**	4.4	EPA 200.8	10-23-19	10-23-19	
Chromium	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Lead	**ND**	1.1	EPA 200.8	10-23-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-22-19	10-22-19	
Selenium	**ND**	5.6	EPA 200.8	10-23-19	10-23-19	
Silver	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Client ID:	**MW-3-101719**					
Laboratory ID:	10-250-03					
Arsenic	**17**	3.3	EPA 200.8	10-23-19	10-23-19	
Barium	**130**	28	EPA 200.8	10-23-19	10-23-19	
Cadmium	**ND**	4.4	EPA 200.8	10-23-19	10-23-19	
Chromium	**29**	11	EPA 200.8	10-23-19	10-23-19	
Lead	**5.3**	1.1	EPA 200.8	10-23-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-22-19	10-22-19	
Selenium	**ND**	5.6	EPA 200.8	10-23-19	10-23-19	
Silver	**ND**	11	EPA 200.8	10-23-19	10-23-19	

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

TOTAL METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-101719**					
Laboratory ID:	10-250-04					
Arsenic	**5.9**	3.3	EPA 200.8	10-23-19	10-23-19	
Barium	**45**	28	EPA 200.8	10-23-19	10-23-19	
Cadmium	**ND**	4.4	EPA 200.8	10-23-19	10-23-19	
Chromium	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Lead	**ND**	1.1	EPA 200.8	10-23-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-22-19	10-22-19	
Selenium	**ND**	5.6	EPA 200.8	10-23-19	10-23-19	
Silver	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Client ID:	**RW-1-101719**					
Laboratory ID:	10-250-05					
Arsenic	**100**	3.3	EPA 200.8	10-23-19	10-23-19	
Barium	**120**	28	EPA 200.8	10-23-19	10-23-19	
Cadmium	**ND**	4.4	EPA 200.8	10-23-19	10-23-19	
Chromium	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Lead	**3.1**	1.1	EPA 200.8	10-23-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-22-19	10-22-19	
Selenium	**ND**	5.6	EPA 200.8	10-23-19	10-23-19	
Silver	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Client ID:	**DUP 101719**					
Laboratory ID:	10-250-06					
Arsenic	**6.7**	3.3	EPA 200.8	10-23-19	10-23-19	
Barium	**44**	28	EPA 200.8	10-23-19	10-23-19	
Cadmium	**ND**	4.4	EPA 200.8	10-23-19	10-23-19	
Chromium	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Lead	**ND**	1.1	EPA 200.8	10-23-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-22-19	10-22-19	
Selenium	**ND**	5.6	EPA 200.8	10-23-19	10-23-19	
Silver	**ND**	11	EPA 200.8	10-23-19	10-23-19	

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

TOTAL METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1023WM1					
Arsenic	**ND**	3.3	EPA 200.8	10-23-19	10-23-19	
Barium	**ND**	28	EPA 200.8	10-23-19	10-23-19	
Cadmium	**ND**	4.4	EPA 200.8	10-23-19	10-23-19	
Chromium	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Lead	**ND**	1.1	EPA 200.8	10-23-19	10-23-19	
Selenium	**ND**	5.6	EPA 200.8	10-23-19	10-23-19	
Silver	**ND**	11	EPA 200.8	10-23-19	10-23-19	
Laboratory ID:	MB1022W1					
Mercury	**ND**	0.50	EPA 7470A	10-22-19	10-22-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-217-10										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	10-240-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	10-217-10										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**115**	**122**	111	111	ND	**103**	**110**	75-125	6	20	
Barium	**108**	**114**	111	111	ND	**97**	**103**	75-125	5	20	
Cadmium	**113**	**115**	111	111	ND	**102**	**104**	75-125	2	20	
Chromium	**111**	**117**	111	111	ND	**100**	**106**	75-125	5	20	
Lead	**98.7**	**104**	111	111	ND	**89**	**94**	75-125	5	20	
Selenium	**109**	**115**	111	111	ND	**98**	**104**	75-125	6	20	
Silver	**107**	**108**	111	111	ND	**97**	**97**	75-125	1	20	
Laboratory ID:	10-240-01										
Mercury	**12.0**	**12.4**	12.5	12.5	ND	**96**	**99**	75-125	3	20	

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-1-101719**					
Laboratory ID:	10-250-01					
Arsenic	**ND**	3.0	EPA 200.8	10-18-19	10-23-19	
Barium	**ND**	25	EPA 200.8	10-18-19	10-23-19	
Cadmium	**ND**	4.0	EPA 200.8	10-18-19	10-23-19	
Chromium	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Lead	**ND**	1.0	EPA 200.8	10-18-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-18-19	10-22-19	
Selenium	**ND**	5.0	EPA 200.8	10-18-19	10-23-19	
Silver	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Client ID:	**MW-2-101719**					
Laboratory ID:	10-250-02					
Arsenic	**ND**	3.0	EPA 200.8	10-18-19	10-23-19	
Barium	**ND**	25	EPA 200.8	10-18-19	10-23-19	
Cadmium	**ND**	4.0	EPA 200.8	10-18-19	10-23-19	
Chromium	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Lead	**ND**	1.0	EPA 200.8	10-18-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-18-19	10-22-19	
Selenium	**ND**	5.0	EPA 200.8	10-18-19	10-23-19	
Silver	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Client ID:	**MW-3-101719**					
Laboratory ID:	10-250-03					
Arsenic	**7.4**	3.0	EPA 200.8	10-18-19	10-23-19	
Barium	**46**	25	EPA 200.8	10-18-19	10-23-19	
Cadmium	**ND**	4.0	EPA 200.8	10-18-19	10-23-19	
Chromium	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Lead	**ND**	1.0	EPA 200.8	10-18-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-18-19	10-22-19	
Selenium	**ND**	5.0	EPA 200.8	10-18-19	10-23-19	
Silver	**ND**	10	EPA 200.8	10-18-19	10-23-19	

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

DISSOLVED METALS
EPA 200.8/7470A

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-4-101719**					
Laboratory ID:	10-250-04					
Arsenic	**5.1**	3.0	EPA 200.8	10-18-19	10-23-19	
Barium	**42**	25	EPA 200.8	10-18-19	10-23-19	
Cadmium	**ND**	4.0	EPA 200.8	10-18-19	10-23-19	
Chromium	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Lead	**ND**	1.0	EPA 200.8	10-18-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-18-19	10-22-19	
Selenium	**ND**	5.0	EPA 200.8	10-18-19	10-23-19	
Silver	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Client ID:	**RW-1-101719**					
Laboratory ID:	10-250-05					
Arsenic	**88**	3.0	EPA 200.8	10-18-19	10-23-19	
Barium	**70**	25	EPA 200.8	10-18-19	10-23-19	
Cadmium	**ND**	4.0	EPA 200.8	10-18-19	10-23-19	
Chromium	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Lead	**ND**	1.0	EPA 200.8	10-18-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-18-19	10-22-19	
Selenium	**ND**	5.0	EPA 200.8	10-18-19	10-23-19	
Silver	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Client ID:	**DUP 101719**					
Laboratory ID:	10-250-06					
Arsenic	**6.7**	3.0	EPA 200.8	10-18-19	10-23-19	
Barium	**40**	25	EPA 200.8	10-18-19	10-23-19	
Cadmium	**ND**	4.0	EPA 200.8	10-18-19	10-23-19	
Chromium	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Lead	**ND**	1.0	EPA 200.8	10-18-19	10-23-19	
Mercury	**ND**	0.50	EPA 7470A	10-18-19	10-22-19	
Selenium	**ND**	5.0	EPA 200.8	10-18-19	10-23-19	
Silver	**ND**	10	EPA 200.8	10-18-19	10-23-19	

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Date of Report: October 29, 2019
Samples Submitted: October 18, 2019
Laboratory Reference: 1910-250
Project: 21-1-22242-102

DISSOLVED METALS
EPA 200.8/7470A
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1018F1					
Arsenic	**ND**	3.0	EPA 200.8	10-18-19	10-23-19	
Barium	**ND**	25	EPA 200.8	10-18-19	10-23-19	
Cadmium	**ND**	4.0	EPA 200.8	10-18-19	10-23-19	
Chromium	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Lead	**ND**	1.0	EPA 200.8	10-18-19	10-23-19	
Selenium	**ND**	5.0	EPA 200.8	10-18-19	10-23-19	
Silver	**ND**	10	EPA 200.8	10-18-19	10-23-19	
Laboratory ID:	MB1018F1					
Mercury	**ND**	0.50	EPA 7470A	10-18-19	10-22-19	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-250-06										
	ORIG	DUP									
Arsenic	**6.72**	**6.64**	NA	NA		NA		NA	1	20	
Barium	**40.4**	**39.2**	NA	NA		NA		NA	3	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	10-250-01										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	10-250-06										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**88.2**	**87.2**	80.0	80.0	6.72	**102**	**101**	75-125	1	20	
Barium	**112**	**112**	80.0	80.0	40.4	**90**	**89**	75-125	0	20	
Cadmium	**79.6**	**80.0**	80.0	80.0	ND	**100**	**100**	75-125	1	20	
Chromium	**75.4**	**76.8**	80.0	80.0	ND	**94**	**96**	75-125	2	20	
Lead	**73.4**	**72.6**	80.0	80.0	ND	**92**	**91**	75-125	1	20	
Selenium	**85.0**	**88.0**	80.0	80.0	ND	**106**	**110**	75-125	3	20	
Silver	**70.6**	**70.6**	80.0	80.0	ND	**88**	**88**	75-125	0	20	
Laboratory ID:	10-250-01										
Mercury	**11.8**	**11.8**	12.5	12.5	ND	**94**	**95**	75-125	0	20	

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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

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OnSite Environmental Inc.

Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson
Project Number: 21-1-22242-102
Project Name: Montlake VCP
Project Manager: Carole Leigh
Sampled by: JXS / KMP

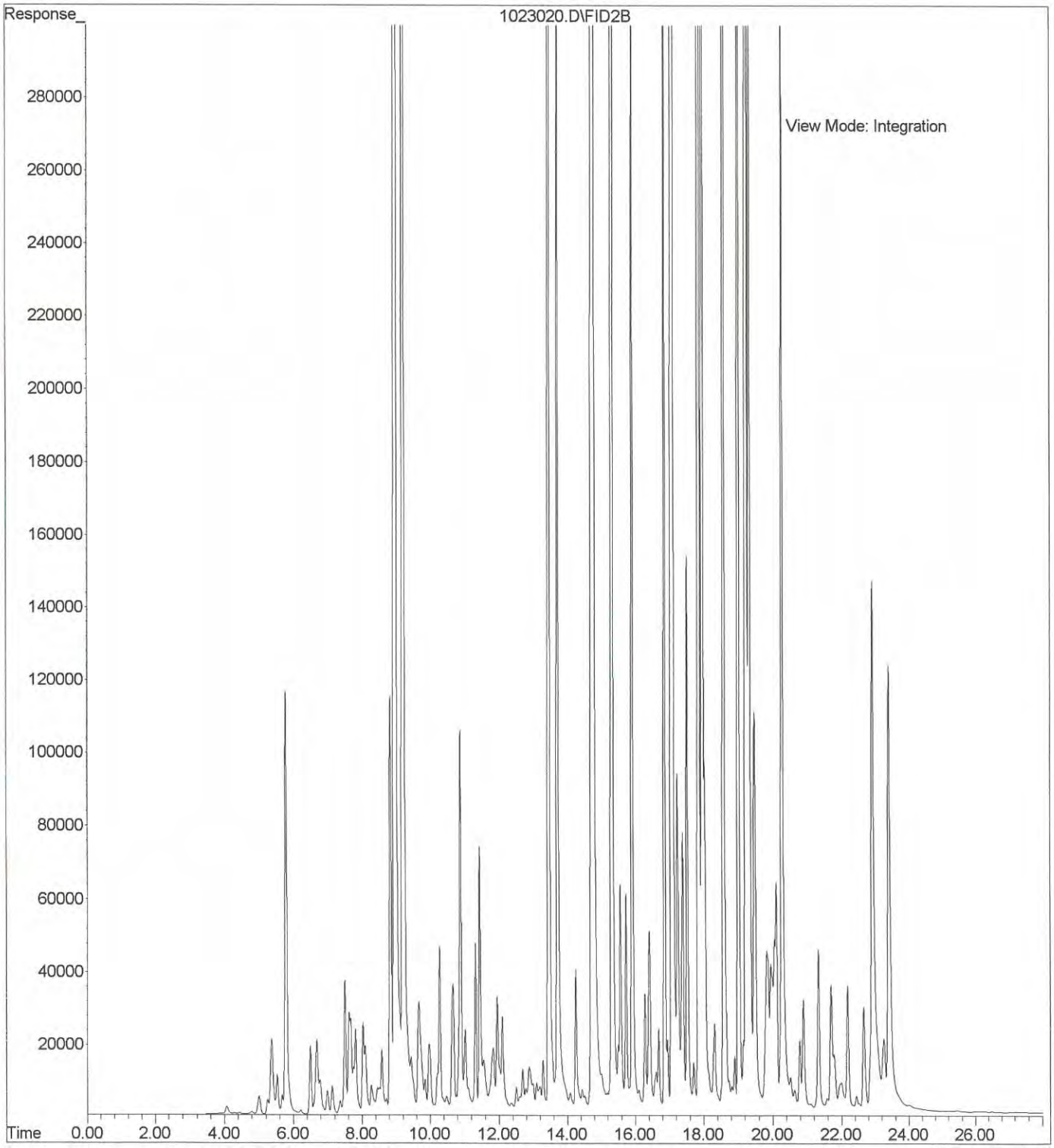
Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 10-250

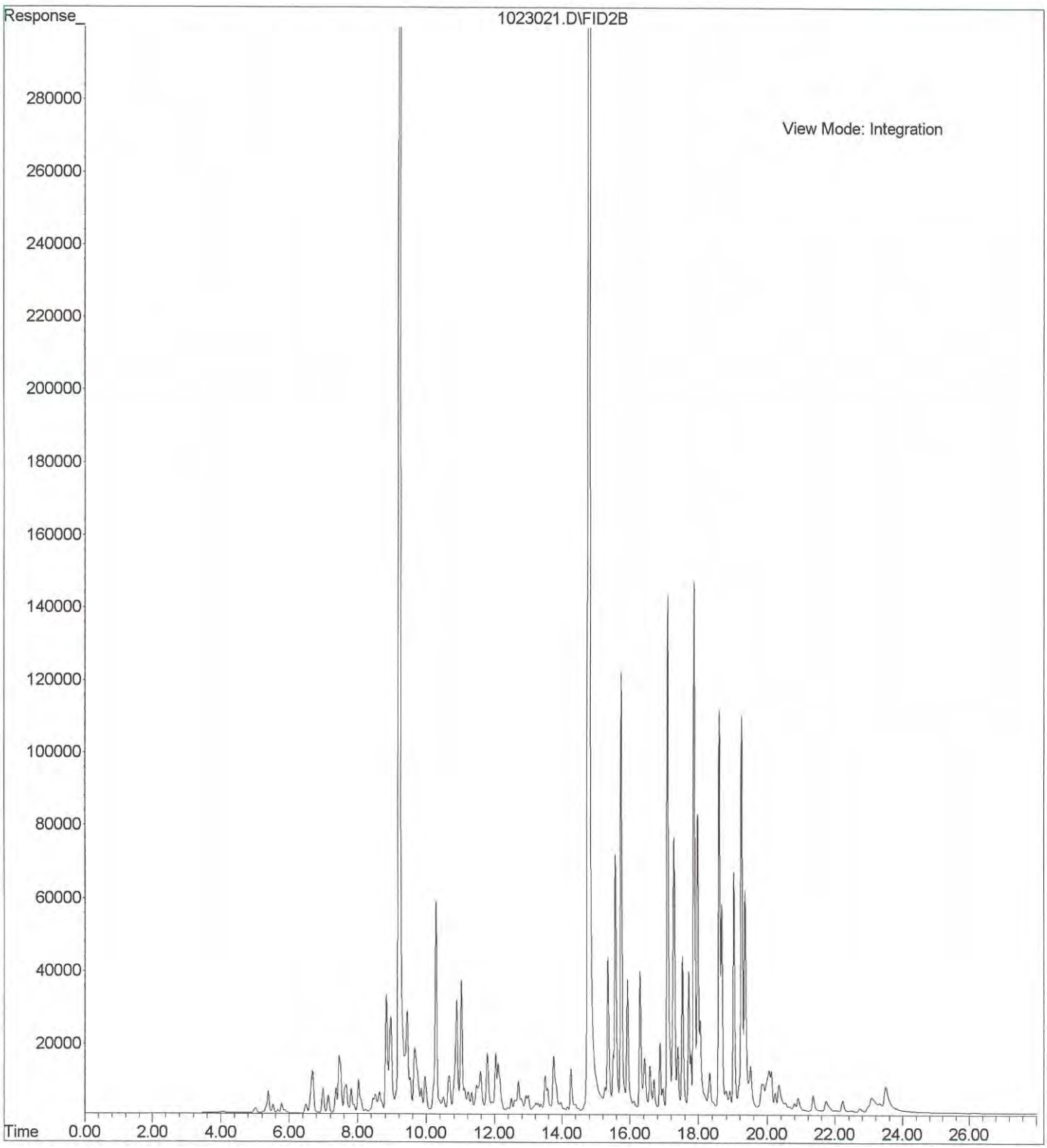
Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX + EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	~~Semi-volatiles 8270D/SIM~~ (with low-level PAHs) cPAHs only	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals and dissolved	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A				Hold	% Moisture
1	MW-1 101719	10/17	1540	H_2O	13			X	X	X		X	X						X								
2	MW-2 101719	↓	1700	↓	↓			↓	↓	↓		↓	↓						↓								
3	MW-3 101719		2250																								
4	MW-4 101719		2045																								
5	RW-1 101719		1815																								
6	DUP 101719	↓	-		↓			↓	↓	↓		↓	↓						↓								
7	Trip Blank	-	-	↓	3																					X	

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	[signature]	SWI	10/18	1210	Lab to filter dissolved metals
Received	[signature]	SWI	10/18	1210	
Relinquished	[signature]	SWI	10/19	10:42	AM
Received	#178	Speed AIR	10/19	10:42	AM
Relinquished	#178	Speed AIR	10/19	12:10	PM
Received	[signature]	OSE	10/18/19	1210	Data Package: Standard ☐ Level III ☐ Level IV ☐
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

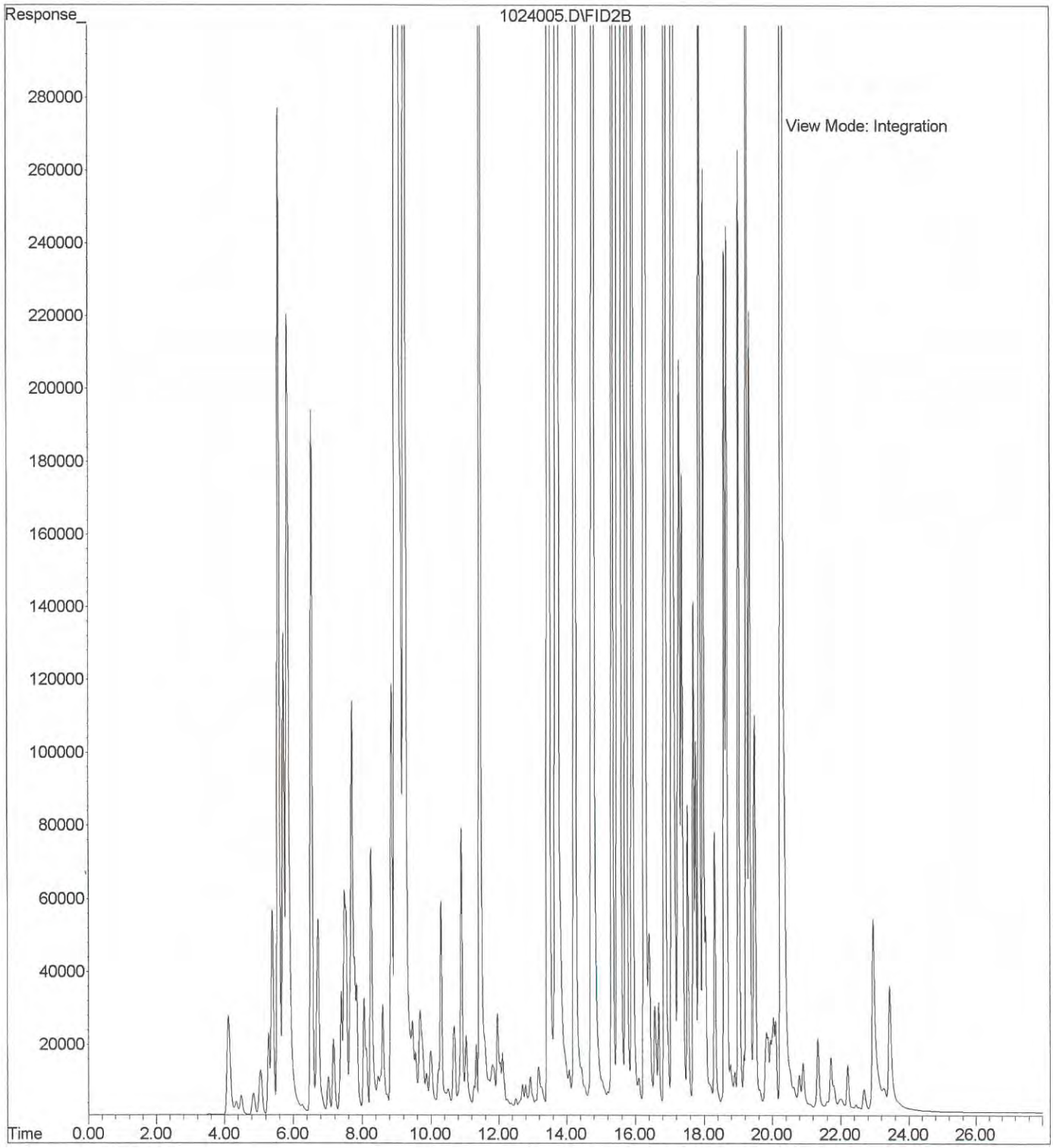
File : X:\BTEX\HOPE\DATA\H191023\1023020.D
Operator :
Acquired : 23 Oct 2019 23:11 using AcqMethod 191022B.M
Instrument : Hope
Sample Name: 10-250-03j RR
Misc Info :
Vial Number: 20



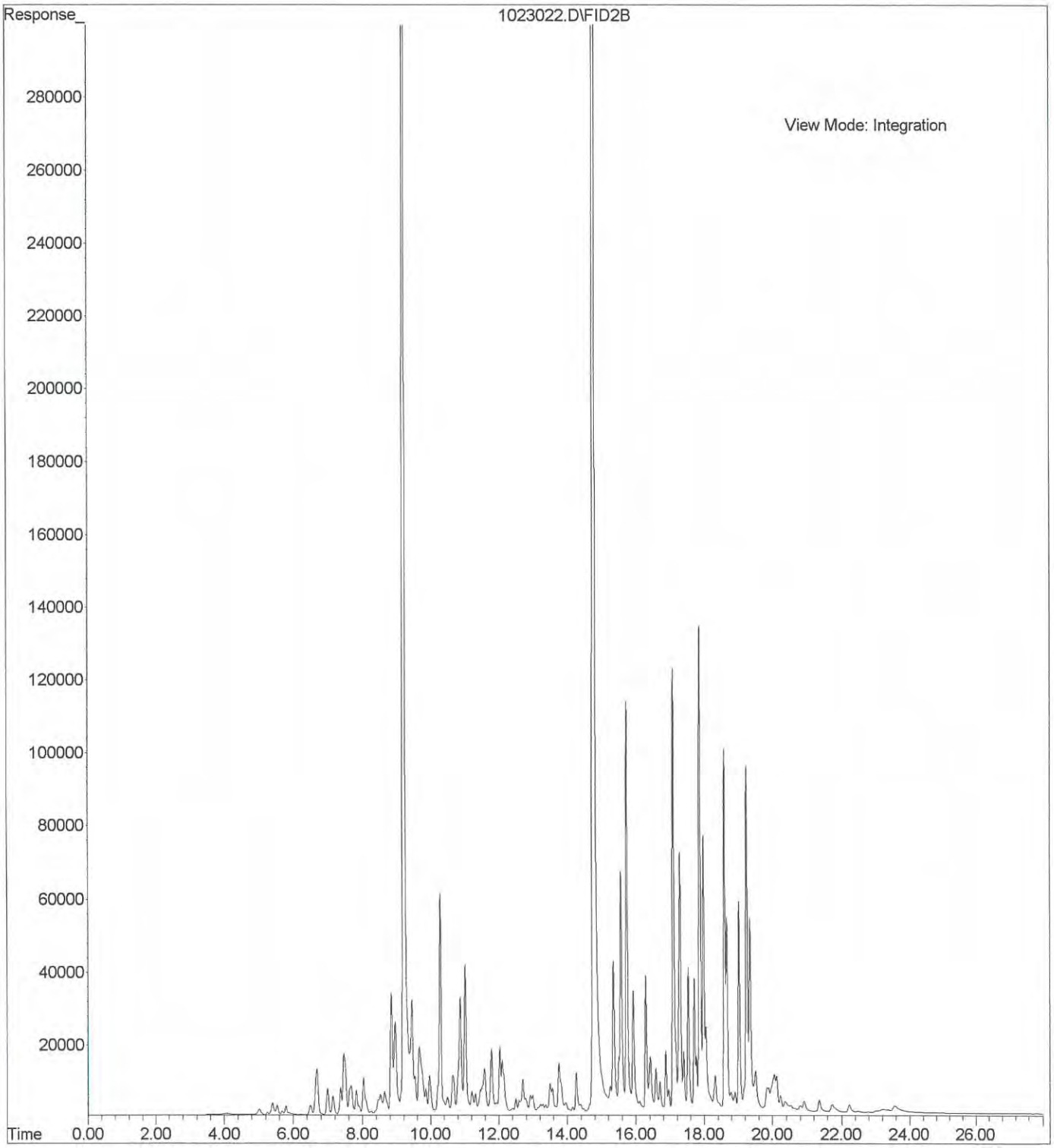
File : X:\BTEX\HOPE\DATA\H191023\1023021.D
Operator :
Acquired : 23 Oct 2019 23:41 using AcqMethod 191022B.M
Instrument : Hope
Sample Name: 10-250-04k RR
Misc Info :
Vial Number: 21



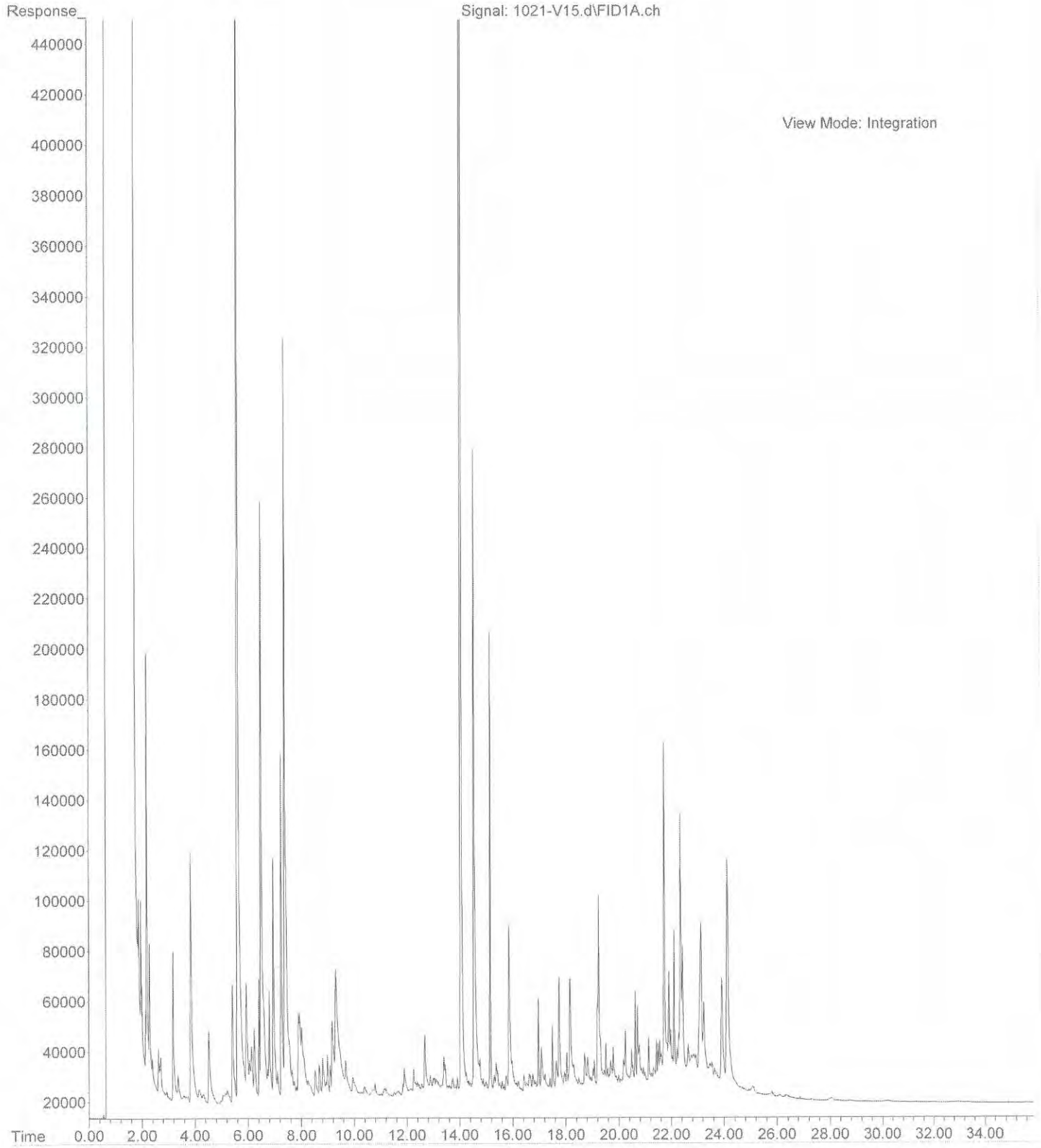
File : X:\BTEX\HOPE\DATA\H191024\1024005.D
Operator :
Acquired : 24 Oct 2019 12:01 using AcqMethod 191022B.M
Instrument : Hope
Sample Name: 10-250-05i 1:10 RER
Misc Info :
Vial Number: 5



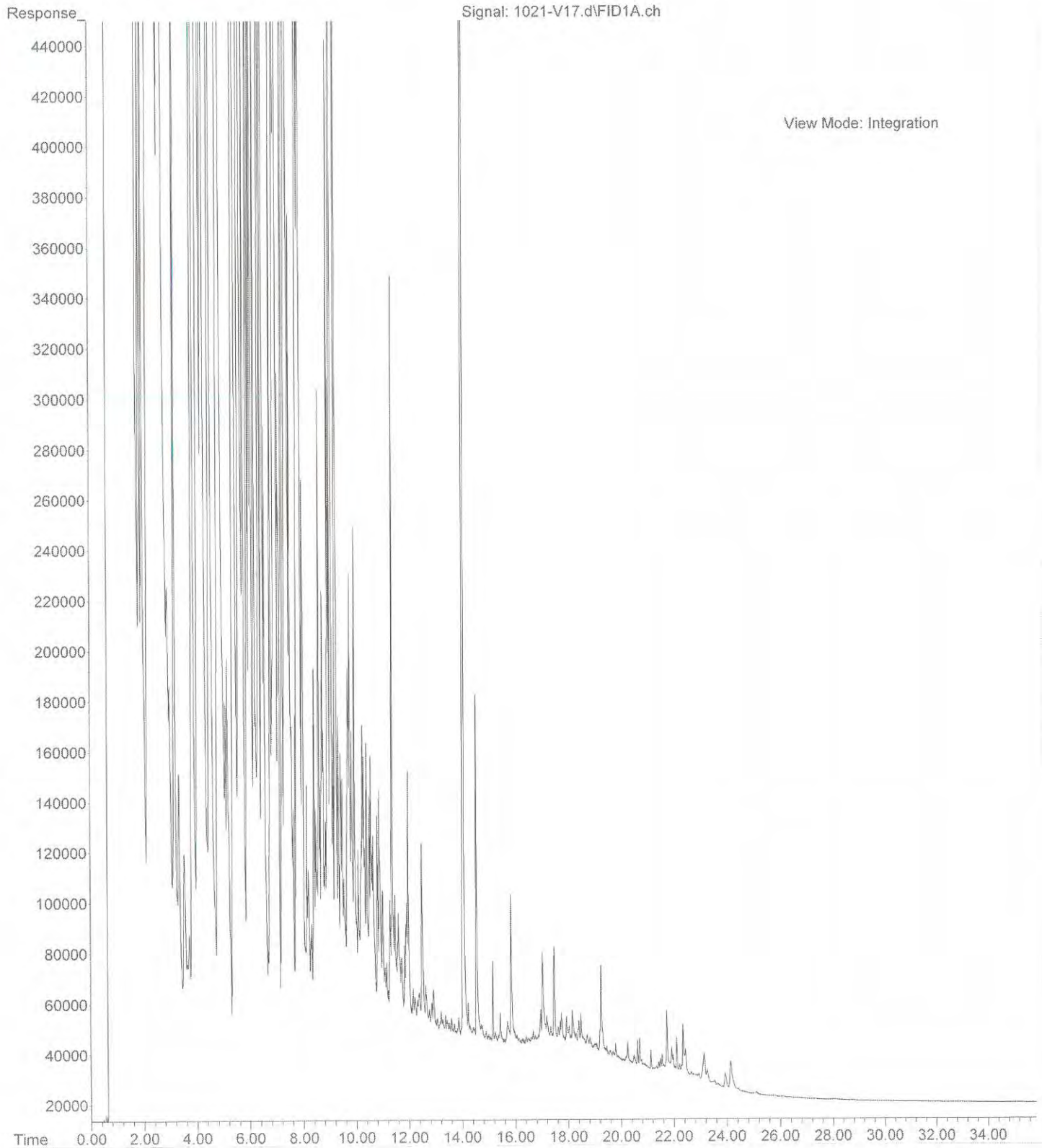
File : X:\BTEX\HOPE\DATA\H191023\1023022.D
Operator :
Acquired : 24 Oct 2019 00:27 using AcqMethod 191022B.M
Instrument : Hope
Sample Name: 10-250-06j RR
Misc Info :
Vial Number: 22



File :C:\msdchem\2\data\V191021\1021-V15.d
Operator : JT
Acquired : 21 Oct 2019 17:36 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 10-250-03
Misc Info :
Vial Number: 15



File :C:\msdchem\2\data\V191021\1021-V17.d
Operator : JT
Acquired : 21 Oct 2019 18:58 using AcqMethod V180601F.M
Instrument : Vigo
Sample Name: 10-250-05
Misc Info :
Vial Number: 17



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

November 4, 2019

Meg Strong, Project Manager
Shannon & Wilson, Inc.
400 N. 34th Street, Suite 100
Seattle, WA 98103

Dear Ms Strong:

Included are the results from the testing of material submitted on October 11, 2019 from the Montlake VCP 21-1-22242-102, F&BI 910243 project. There are 10 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SWI1102R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 11, 2019 by Friedman & Bruya, Inc. from the Shannon & Wilson Montlake VCP 21-1-22242-102, F&BI 910243 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Shannon & Wilson
910243 -01	SG-2-19-10112019

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/04/19
Date Received: 10/11/19
Project: Montlake VCP 21-1-22242-102, F&BI 910243
Date Extracted: 11/01/19
Date Analyzed: 11/01/19

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Results Reported as % Helium

Sample ID Laboratory ID	Helium
SG-2-19-10112019 910243-01	<0.6
Method Blank	<0.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	SG-2-19-10112019	Client:	Shannon & Wilson
Date Received:	10/11/19	Project:	Montlake VCP 21-1-22242-102
Date Collected:	10/11/19	Lab ID:	910243-01 1/3.0
Date Analyzed:	10/24/19	Data File:	102336.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	110	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	140
APH EC9-12 aliphatics	290
APH EC9-10 aromatics	<75

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	Shannon & Wilson
Date Received:	Not Applicable	Project:	Montlake VCP 21-1-22242-102
Date Collected:	Not Applicable	Lab ID:	09-2564 mb
Date Analyzed:	10/23/19	Data File:	102315.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<46
APH EC9-12 aliphatics	<35
APH EC9-10 aromatics	<25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SG-2-19-10112019	Client:	Shannon & Wilson
Date Received:	10/11/19	Project:	Montlake VCP 21-1-22242-102
Date Collected:	10/11/19	Lab ID:	910243-01 1/3.0
Date Analyzed:	10/24/19	Data File:	102336.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.96	<0.3
Toluene	<57	<15
Ethylbenzene	<1.3	<0.3
m,p-Xylene	<2.6	<0.6
o-Xylene	<1.3	<0.3
Naphthalene	<0.79	<0.15

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Shannon & Wilson
Date Received:	Not Applicable	Project:	Montlake VCP 21-1-22242-102
Date Collected:	Not Applicable	Lab ID:	09-2564 mb
Date Analyzed:	10/23/19	Data File:	102315.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.32	<0.1
Toluene	<19	<5
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	<0.26	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/04/19
Date Received: 10/11/19
Project: Montlake VCP 21-1-22242-102, F&BI 910243

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Laboratory Code: 910243-01 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	<0.6	nm	0-20

Date of Report: 11/04/19
Date Received: 10/11/19
Project: Montlake VCP 21-1-22242-102, F&BI 910243

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 910421-01 1/4.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	<210	<210	nm
APH EC9-12 aliphatics	ug/m3	930	930	0
APH EC9-10 aromatics	ug/m3	<110	<110	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	23	77	70-130
APH EC9-12 aliphatics	ug/m3	23	101	70-130
APH EC9-10 aromatics	ug/m3	23	104	70-130

Date of Report: 11/04/19
Date Received: 10/11/19
Project: Montlake VCP 21-1-22242-102, F&BI 910243

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ppbv	5	98	70-130
Toluene	ppbv	5	97	70-130
Ethylbenzene	ppbv	5	92	70-130
m,p-Xylene	ppbv	10	90	70-130
o-Xylene	ppbv	5	89	70-130
Naphthalene	ppbv	5	90	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

ME 10-11-19

910243

Page # 1 of 1

Report To: Meg Strong
Company: Shannon & Wilson, Inc.
Address: 400 N. 34th Street, Suite 100
City, State, ZIP: Seattle, WA 98103
Phone: 206-695-6787 Email: MJS@shannonwil.com

SAMPLERS (signature):

PROJECT NAME: Montlake VCP

PO #: 21-1-22242-102

REMARKS:

INVOICE TO: NP-Seattle@Shannonwil.com

TURNAROUND TIME
- X Standard
- RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- X Dispose after 30 days
- Archive Samples
- Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	~~TO-15 VOC~~ Helium	APH, BTEX, Naphthalene		Notes
SG-2-19-10112019	01	2436	259	10/11/2019	29.5	0845	5.0	0851			X	X	X	X-PeMS 10/28/19 ME
														Samples received at 20 °C

NO RUNTIME

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		RYAN PETERSON	Shannon & Wilson	10/11/2019	1017
Received by:		Nhan Phan	FEBT	10/11/19	1017
Relinquished by:					
Received by:					

FORMS\COC\COCTO-15.DOC

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

January 28, 2020

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 2001-195

Dear Meg:

Enclosed are the analytical results and associated quality control data for samples submitted on January 20, 2020.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

Case Narrative

Samples were collected on January 20, 2020 and received by the laboratory on January 20, 2020. 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.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5-20:15**					
Laboratory ID:	01-195-01					
Gasoline	**ND**	5.8	NWTPH-Gx	1-24-20	1-24-20	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***93***	***58-129***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0124S2					
Gasoline	**ND**	5.0	NWTPH-Gx	1-24-20	1-24-20	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***85***	***58-129***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	01-259-03										
	ORIG	DUP									
Gasoline	**262**	**244**	NA	NA		NA		NA	7	30	
Surrogate:											
Fluorobenzene						***96***	***98***	***58-129***			

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5-20:15**					
Laboratory ID:	01-195-01					
Benzene	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
Toluene	ND	0.0052	EPA 8260D	1-20-20	1-20-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
Ethylbenzene	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
m,p-Xylene	ND	0.0021	EPA 8260D	1-20-20	1-20-20	
o-Xylene	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***103***	***76-131***				
Toluene-d8	***101***	***78-128***				
4-Bromofluorobenzene	***95***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0120S2					
Benzene	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
Toluene	ND	0.0050	EPA 8260D	1-20-20	1-20-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
Ethylbenzene	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
m,p-Xylene	ND	0.0020	EPA 8260D	1-20-20	1-20-20	
o-Xylene	ND	0.0010	EPA 8260D	1-20-20	1-20-20	
Surrogate:	***Percent Recovery***	***Control Limits***				
Dibromofluoromethane	***103***	***76-131***				
Toluene-d8	***101***	***78-128***				
4-Bromofluorobenzene	***101***	***71-130***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Soil
Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0120S2									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**0.0439**	**0.0478**	0.0500	0.0500	88	96	57-133	9	18	
Benzene	**0.0418**	**0.0469**	0.0500	0.0500	84	94	71-129	11	16	
Trichloroethene	**0.0454**	**0.0483**	0.0500	0.0500	91	97	71-122	6	16	
Toluene	**0.0426**	**0.0471**	0.0500	0.0500	85	94	74-125	10	15	
Chlorobenzene	**0.0427**	**0.0475**	0.0500	0.0500	85	95	72-120	11	14	
Surrogate:										
Dibromofluoromethane					***102***	***102***	***76-131***			
Toluene-d8					***96***	***100***	***78-128***			
4-Bromofluorobenzene					***105***	***103***	***71-130***			

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5-20:15**					
Laboratory ID:	01-195-01					
Naphthalene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
2-Methylnaphthalene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
1-Methylnaphthalene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Acenaphthylene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Acenaphthene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Fluorene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Phenanthrene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Anthracene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Fluoranthene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Pyrene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[a]anthracene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Chrysene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[b]fluoranthene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo(j,k)fluoranthene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[a]pyrene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Dibenz[a,h]anthracene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[g,h,i]perylene	**ND**	0.0073	EPA 8270E/SIM	1-22-20	1-22-20	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***70***	***40 - 111***				
Pyrene-d10	***87***	***40 - 110***				
Terphenyl-d14	***88***	***45 - 122***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0122S1					
Naphthalene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Acenaphthylene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Acenaphthene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Fluorene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Phenanthrene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Anthracene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Fluoranthene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Pyrene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Benzo[g,h,i]perylene	**ND**	0.0067	EPA 8270E/SIM	1-22-20	1-22-20	
Surrogate:	***Percent Recovery***	***Control Limits***				
2-Fluorobiphenyl	***84***	***40 - 111***				
Pyrene-d10	***83***	***40 - 110***				
Terphenyl-d14	***101***	***45 - 122***				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0122S1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0655**	**0.0666**	0.0833	0.0833	79	80	57 - 109	2	15	
Acenaphthylene	**0.0654**	**0.0650**	0.0833	0.0833	79	78	60 - 121	1	15	
Acenaphthene	**0.0680**	**0.0683**	0.0833	0.0833	82	82	59 - 121	0	15	
Fluorene	**0.0697**	**0.0737**	0.0833	0.0833	84	88	63 - 119	6	15	
Phenanthrene	**0.0709**	**0.0716**	0.0833	0.0833	85	86	59 - 114	1	15	
Anthracene	**0.0735**	**0.0744**	0.0833	0.0833	88	89	63 - 119	1	15	
Fluoranthene	**0.0741**	**0.0760**	0.0833	0.0833	89	91	63 - 120	3	15	
Pyrene	**0.0724**	**0.0721**	0.0833	0.0833	87	87	62 - 119	0	15	
Benzo[a]anthracene	**0.0773**	**0.0788**	0.0833	0.0833	93	95	64 - 127	2	15	
Chrysene	**0.0747**	**0.0771**	0.0833	0.0833	90	93	63 - 121	3	15	
Benzo[b]fluoranthene	**0.0799**	**0.0830**	0.0833	0.0833	96	100	61 - 122	4	15	
Benzo(j,k)fluoranthene	**0.0738**	**0.0743**	0.0833	0.0833	89	89	64 - 123	1	15	
Benzo[a]pyrene	**0.0738**	**0.0757**	0.0833	0.0833	89	91	62 - 122	3	15	
Indeno(1,2,3-c,d)pyrene	**0.0741**	**0.0746**	0.0833	0.0833	89	90	59 - 124	1	15	
Dibenz[a,h]anthracene	**0.0670**	**0.0686**	0.0833	0.0833	80	82	61 - 123	2	15	
Benzo[g,h,i]perylene	**0.0743**	**0.0765**	0.0833	0.0833	89	92	61 - 119	3	15	
Surrogate:										
2-Fluorobiphenyl					***81***	***81***	***40 - 111***			
Pyrene-d10					***84***	***85***	***40 - 110***			
Terphenyl-d14					***97***	***97***	***45 - 122***			

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

TOTAL METALS
EPA 6020B/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5-20:15**					
Laboratory ID:	01-195-01					
Arsenic	**ND**	11	EPA 6020B	1-24-20	1-27-20	
Barium	**46**	2.7	EPA 6020B	1-24-20	1-27-20	
Cadmium	**ND**	0.55	EPA 6020B	1-24-20	1-27-20	
Chromium	**38**	0.68	EPA 6020B	1-24-20	1-27-20	
Lead	**ND**	5.5	EPA 6020B	1-24-20	1-27-20	
Mercury	**ND**	0.27	EPA 7471B	1-24-20	1-24-20	
Selenium	**ND**	11	EPA 6020B	1-24-20	1-27-20	
Silver	**ND**	1.1	EPA 6020B	1-24-20	1-27-20	

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

TOTAL METALS
EPA 6020B/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0124SM2					
Arsenic	**ND**	10	EPA 6020B	1-24-20	1-27-20	
Barium	**ND**	2.5	EPA 6020B	1-24-20	1-27-20	
Cadmium	**ND**	0.50	EPA 6020B	1-24-20	1-27-20	
Chromium	**ND**	0.63	EPA 6020B	1-24-20	1-27-20	
Lead	**ND**	5.0	EPA 6020B	1-24-20	1-27-20	
Selenium	**ND**	10	EPA 6020B	1-24-20	1-27-20	
Silver	**ND**	1.0	EPA 6020B	1-24-20	1-27-20	
Laboratory ID:	MB0124S1					
Mercury	**ND**	0.25	EPA 7471B	1-24-20	1-24-20	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	01-176-02										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Barium	**54.6**	**53.5**	NA	NA		NA		NA	2	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Chromium	**26.5**	**30.9**	NA	NA		NA		NA	15	20	
Lead	**11.0**	**9.74**	NA	NA		NA		NA	13	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	01-176-02										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	01-176-02										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**98.5**	**96.8**	100	100	ND	**99**	**97**	75-125	2	20	
Barium	**156**	**148**	100	100	54.6	**101**	**93**	75-125	5	20	
Cadmium	**44.8**	**46.3**	50.0	50.0	ND	**90**	**93**	75-125	3	20	
Chromium	**127**	**128**	100	100	26.5	**101**	**101**	75-125	0	20	
Lead	**236**	**238**	250	250	11.0	**90**	**91**	75-125	1	20	
Selenium	**97.5**	**98.8**	100	100	ND	**98**	**99**	75-125	1	20	
Silver	**20.9**	**21.3**	25.0	25.0	ND	**84**	**85**	75-125	2	20	
Laboratory ID:	01-176-02										
Mercury	**0.537**	**0.518**	0.500	0.500	0.0229	**103**	**99**	80-120	4	20	

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: January 28, 2020
Samples Submitted: January 20, 2020
Laboratory Reference: 2001-195
Project: 21-1-22242-102

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
MW-5-20:15	01-195-01	**9**	1-20-20

This report pertains to the samples analyzed in accordance with the chain of custody,
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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson
Project Number: 21-1-22242-102
Project Name: Montlake VLP
Project Manager: Meg Strong
Sampled by: Joe Sawberg

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 01-195

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX + EDB + EDC	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold				% Moisture
1	MW-5-20:15	1/20	10:35	Soil	~~6~~ 5		X			X				X					X								X
2	Trip Blank	–	–	–	1																		X				

	Signature	Company	Date	Time
Relinquished	[signature]	Shannon & Wilson	1/20	1450
Received	[signature]	OSE	1/20/20	1450
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

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

February 4, 2020

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

Re: Analytical Data for Project 21-1-22242-102
Laboratory Reference No. 2001-320

Dear Joe:

Enclosed are the analytical results and associated quality control data for samples submitted on January 30, 2020.

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

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: February 4, 2020
Samples Submitted: January 30, 2020
Laboratory Reference: 2001-320
Project: 21-1-22242-102

Case Narrative

Samples were collected on January 29, 2020 and received by the laboratory on January 30, 2020. 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.

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: February 4, 2020
Samples Submitted: January 30, 2020
Laboratory Reference: 2001-320
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5-012920**					
Laboratory ID:	01-320-01					
Gasoline	**ND**	100	NWTPH-Gx	1-30-20	1-30-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*59-122*				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: February 4, 2020
Samples Submitted: January 30, 2020
Laboratory Reference: 2001-320
Project: 21-1-22242-102

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0130W1					
Gasoline	**ND**	100	NWTPH-Gx	1-30-20	1-30-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*59-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	01-320-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*99*	*100*	*59-122*			

This report pertains to the samples analyzed in accordance with the chain of custody,
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Date of Report: February 4, 2020
Samples Submitted: January 30, 2020
Laboratory Reference: 2001-320
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-5-012920**					
Laboratory ID:	01-320-01					
Benzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Toluene	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Ethylbenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
m,p-Xylene	ND	0.40	EPA 8260D	2-3-20	2-3-20	
o-Xylene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*105*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*98*	*78-125*				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: February 4, 2020
Samples Submitted: January 30, 2020
Laboratory Reference: 2001-320
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0203W1					
Benzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Toluene	ND	1.0	EPA 8260D	2-3-20	2-3-20	
Ethylbenzene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
m,p-Xylene	ND	0.40	EPA 8260D	2-3-20	2-3-20	
o-Xylene	ND	0.20	EPA 8260D	2-3-20	2-3-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*102*	*75-127*				
Toluene-d8	*100*	*80-127*				
4-Bromofluorobenzene	*99*	*78-125*				

This report pertains to the samples analyzed in accordance with the chain of custody,
and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: February 4, 2020
Samples Submitted: January 30, 2020
Laboratory Reference: 2001-320
Project: 21-1-22242-102

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0203W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	**10.2**	**9.91**	10.0	10.0	102	99	63-130	3	17	
Benzene	**9.81**	**9.58**	10.0	10.0	98	96	76-125	2	19	
Trichloroethene	**10.3**	**9.82**	10.0	10.0	103	98	76-121	5	18	
Toluene	**9.76**	**9.28**	10.0	10.0	98	93	80-124	5	18	
Chlorobenzene	**9.78**	**9.43**	10.0	10.0	98	94	75-120	4	19	
Surrogate:										
Dibromofluoromethane					*103*	*101*	*75-127*			
Toluene-d8					*103*	*101*	*80-127*			
4-Bromofluorobenzene					*102*	*98*	*78-125*			

This report pertains to the samples analyzed in accordance with the chain of custody,
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OnSite Environmental Inc.

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.

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.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Company: Shannon & Wilson
Project Number: 21-1-22242-102
Project Name: Montlake VCP
Project Manager: Joe Sandberg
Sampled by: " "

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 01-320

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C BTEX	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Hold			% Moisture
1	MW-5-012920	1/29	1800	H_2O	5			X		X																
2	MW-5-012920p	1/29	1715	H_2O	5																		X			
3	Trip Blank	—	—	H_2O	1																		X			

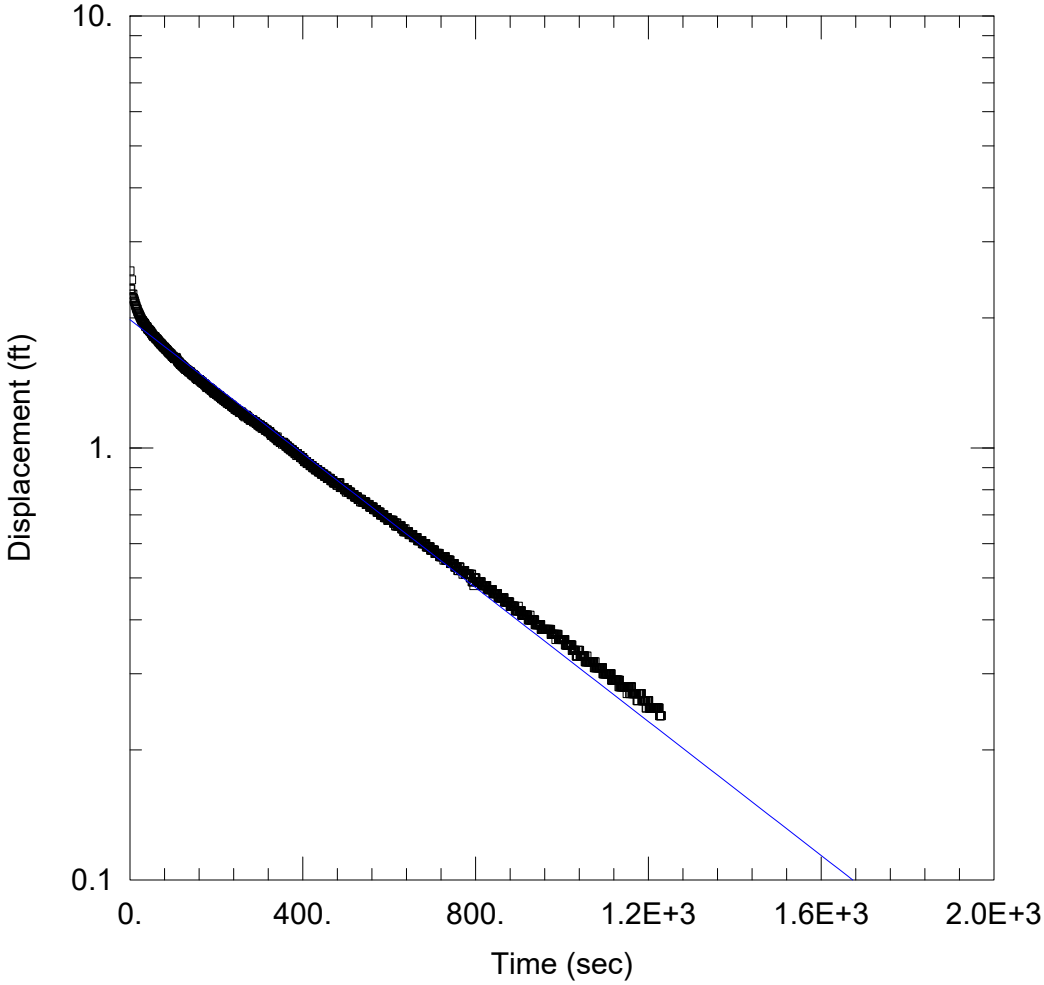
	Signature	Company	Date	Time
Relinquished	[signature]	SWI	1/30	0930
Received	[signature]	ALPHA	1/30/20	1044
Relinquished	[signature]	ALPHA	1/30/20	1140
Received	[signature]	OSE	1/30/20	1140
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Appendix L: Aqtesolv® Plots and Solutions (10 Sheets)



WELL TEST ANALYSIS

Data Set: C:\Users\jxs\Desktop\Slug Data\MW-4\MW-4-19_F1.aqt
Date: 11/19/19 Time: 15:09:07

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: MW-4-19
Test Date: 11/11/2019

AQUIFER DATA

Saturated Thickness: 9.7 ft
Anisotropy Ratio (Kz/Kr): 1.

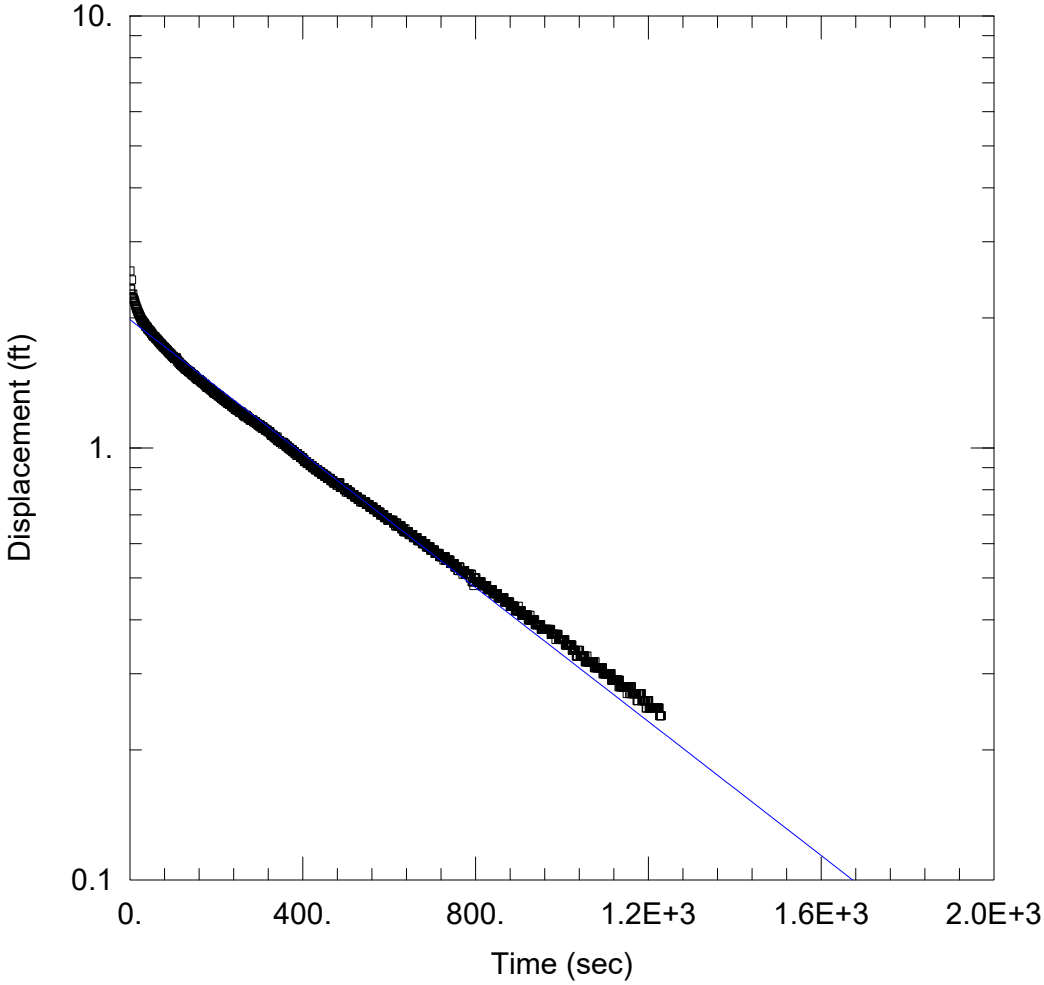
WELL DATA (MW-4-19)

Initial Displacement: 2.57 ft
Static Water Column Height: 12.2 ft
Total Well Penetration Depth: 27. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 2.162E-6 ft/sec
y0 = 1.981 ft



WELL TEST ANALYSIS

Data Set: C:\Users\jxs\Desktop\Slug Data\MW-4\MW-4-19_F1.aqt
Date: 11/19/19 Time: 15:09:32

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: MW-4-19
Test Date: 11/11/2019

AQUIFER DATA

Saturated Thickness: 9.7 ft
Anisotropy Ratio (Kz/Kr): 1.

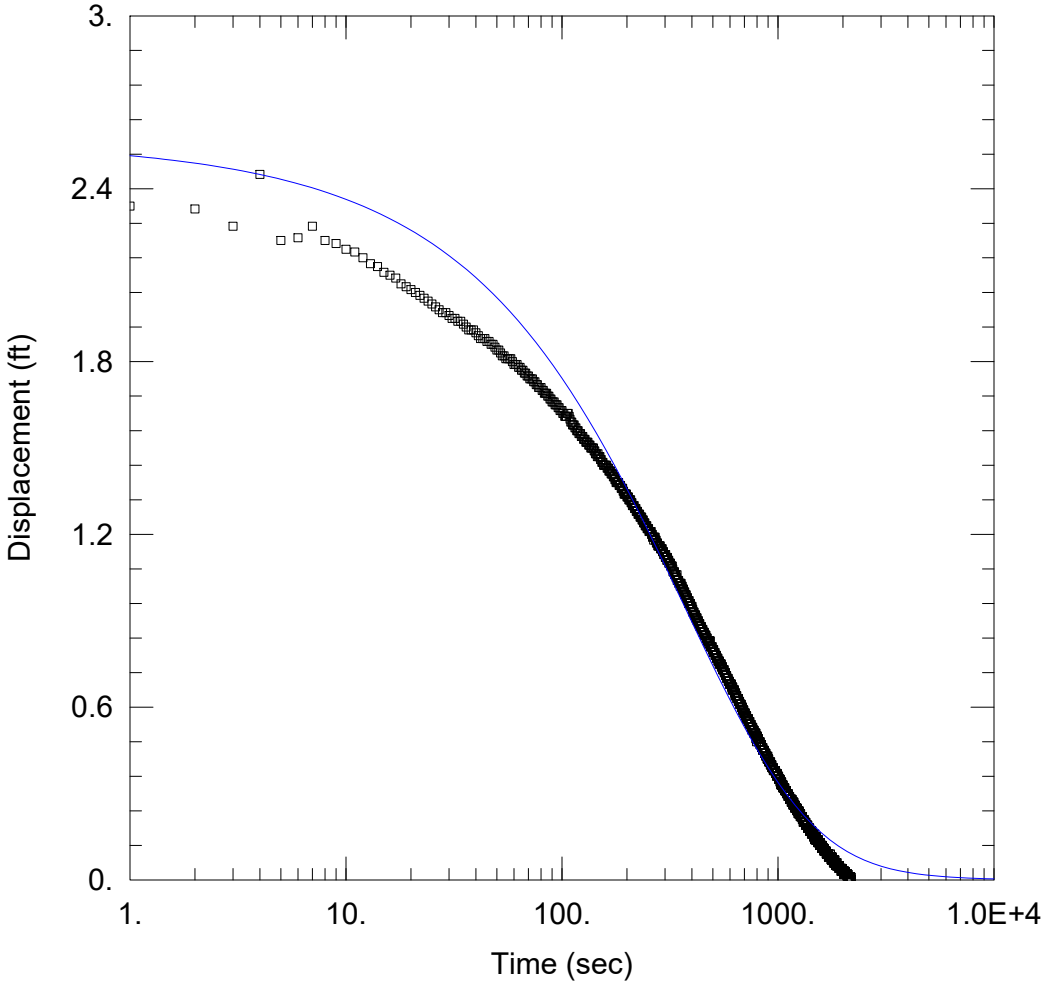
WELL DATA (MW-4-19)

Initial Displacement: 2.57 ft
Static Water Column Height: 12.2 ft
Total Well Penetration Depth: 27. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

K = 3.358E-6 ft/sec
y0 = 1.981 ft



WELL TEST ANALYSIS

Data Set: C:\Users\jxs\Desktop\Slug Data\MW-4\MW-4-19_F1.aqt
Date: 11/19/19 Time: 15:07:54

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: MW-4-19
Test Date: 11/11/2019

AQUIFER DATA

Saturated Thickness: 9.7 ft

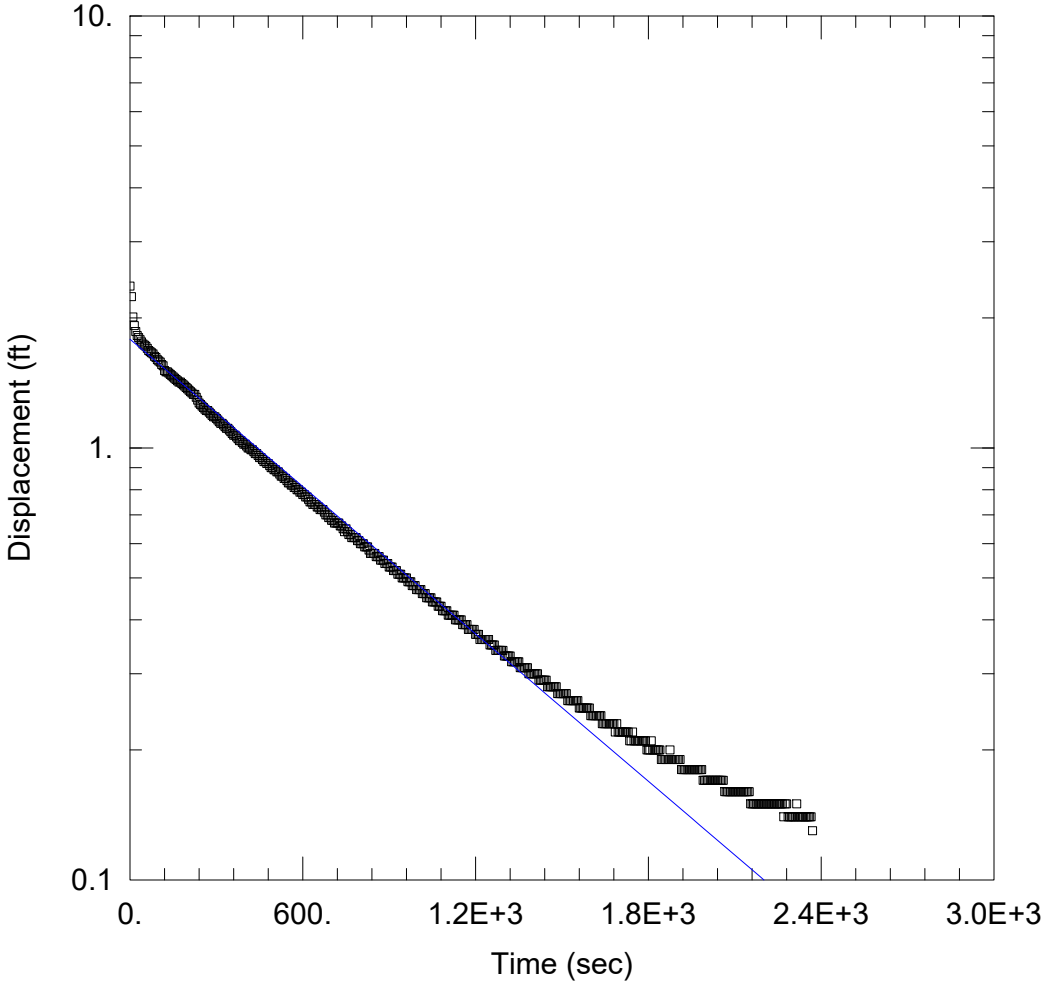
WELL DATA (MW-4-19)

Initial Displacement: 2.57 ft
Total Well Penetration Depth: 27. ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.2 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 9.253E-7 ft/sec
Kz/Kr = 1.
Ss = 0.0001596 ft^{-1}



RISING HEAD TEST

Data Set: C:\Users\jxs\Desktop\Slug Data\MW-4\MW-4-19_R1.aqt
Date: 11/19/19 Time: 15:11:21

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: MW-4-19
Test Date: 11/11/2019

AQUIFER DATA

Saturated Thickness: 9.7 ft
Anisotropy Ratio (Kz/Kr): 1.

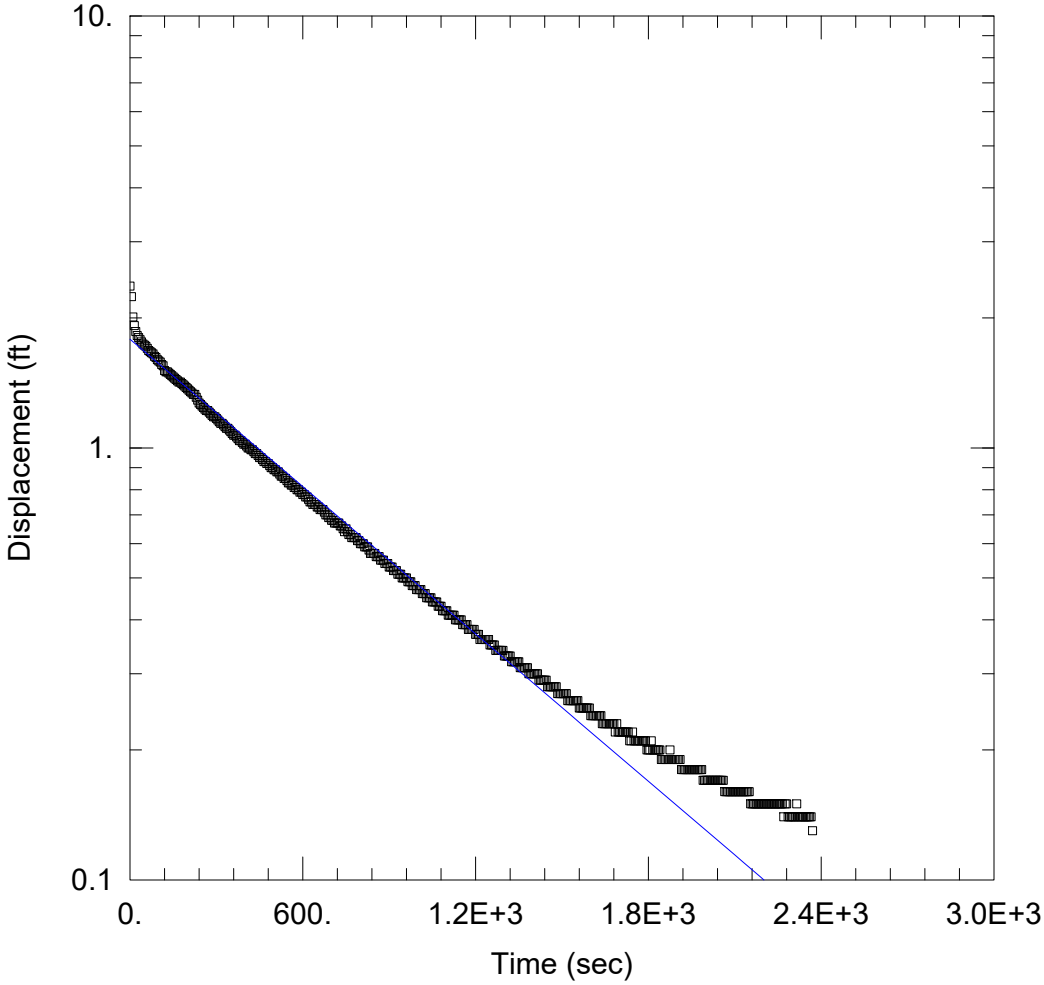
WELL DATA (MW-4-19)

Initial Displacement: 2.37 ft
Static Water Column Height: 12.2 ft
Total Well Penetration Depth: 27. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.586E-6 ft/sec
y0 = 1.785 ft



RISING HEAD TEST

Data Set: C:\Users\jxs\Desktop\Slug Data\MW-4\MW-4-19_R1.aqt
Date: 11/19/19 Time: 15:11:49

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: MW-4-19
Test Date: 11/11/2019

AQUIFER DATA

Saturated Thickness: 9.7 ft
Anisotropy Ratio (Kz/Kr): 1.

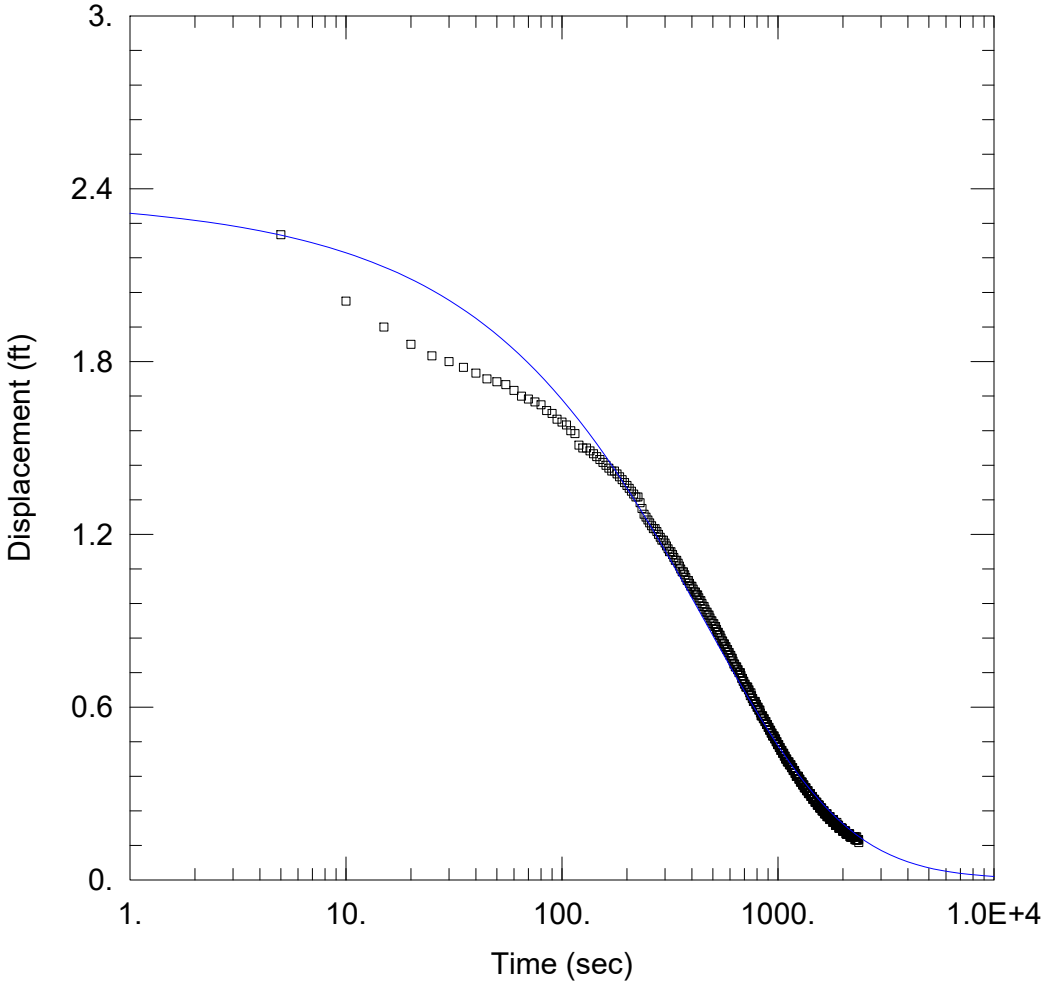
WELL DATA (MW-4-19)

Initial Displacement: 2.37 ft
Static Water Column Height: 12.2 ft
Total Well Penetration Depth: 27. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

K = 2.463E-6 ft/sec
y0 = 1.785 ft



RISING HEAD TEST

Data Set: C:\Users\jxs\Desktop\Slug Data\MW-4\MW-4-19_R1.aqt
Date: 11/19/19 Time: 15:10:50

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: MW-4-19
Test Date: 11/11/2019

AQUIFER DATA

Saturated Thickness: 9.7 ft

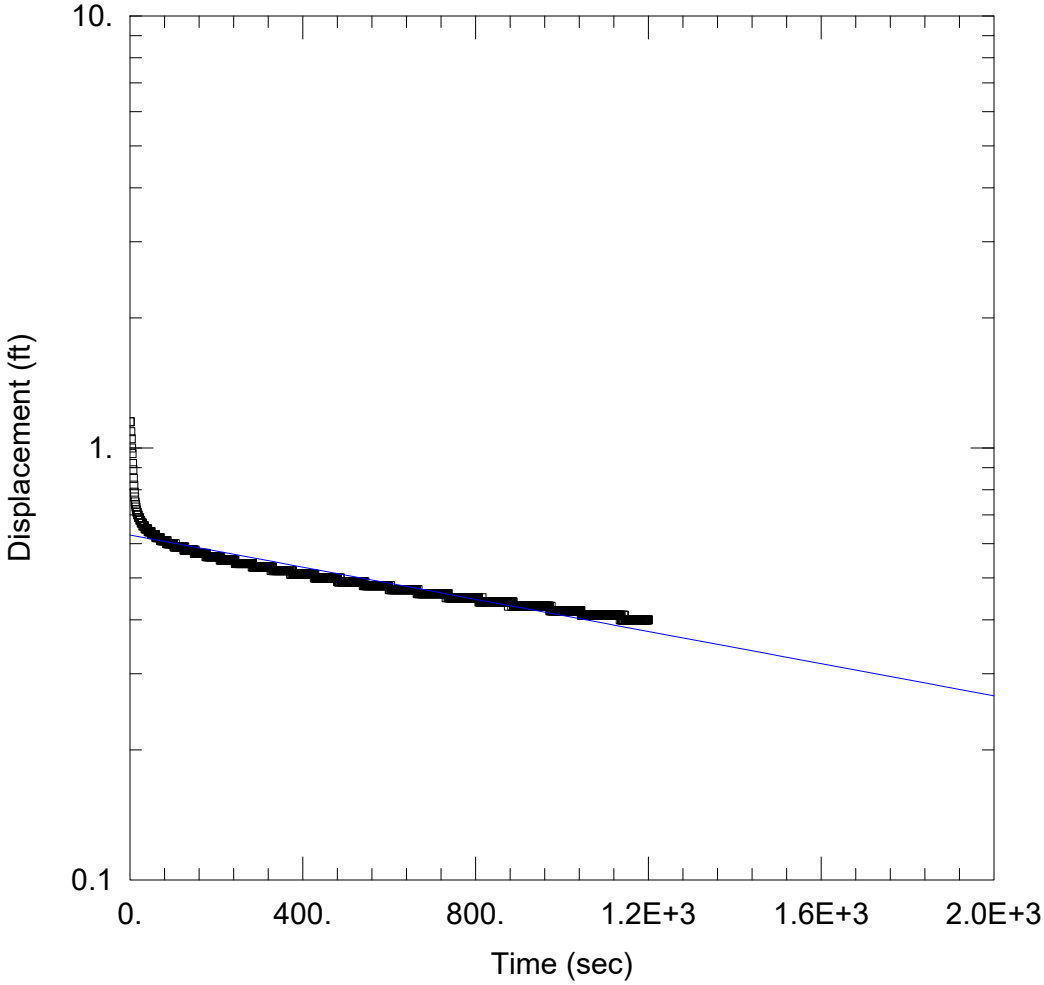
WELL DATA (MW-4-19)

Initial Displacement: 2.37 ft
Total Well Penetration Depth: 27. ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.2 ft
Screen Length: 10. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 6.225E-7 ft/sec
Kz/Kr = 1.
Ss = 0.0003083 ft^{-1}



RISING HEAD TEST #1

Data Set:
Date: 11/19/19 Time: 14:58:48

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: RW-1-19
Test Date: 11/14/19

AQUIFER DATA

Saturated Thickness: 12.99 ft
Anisotropy Ratio (Kz/Kr): 1.

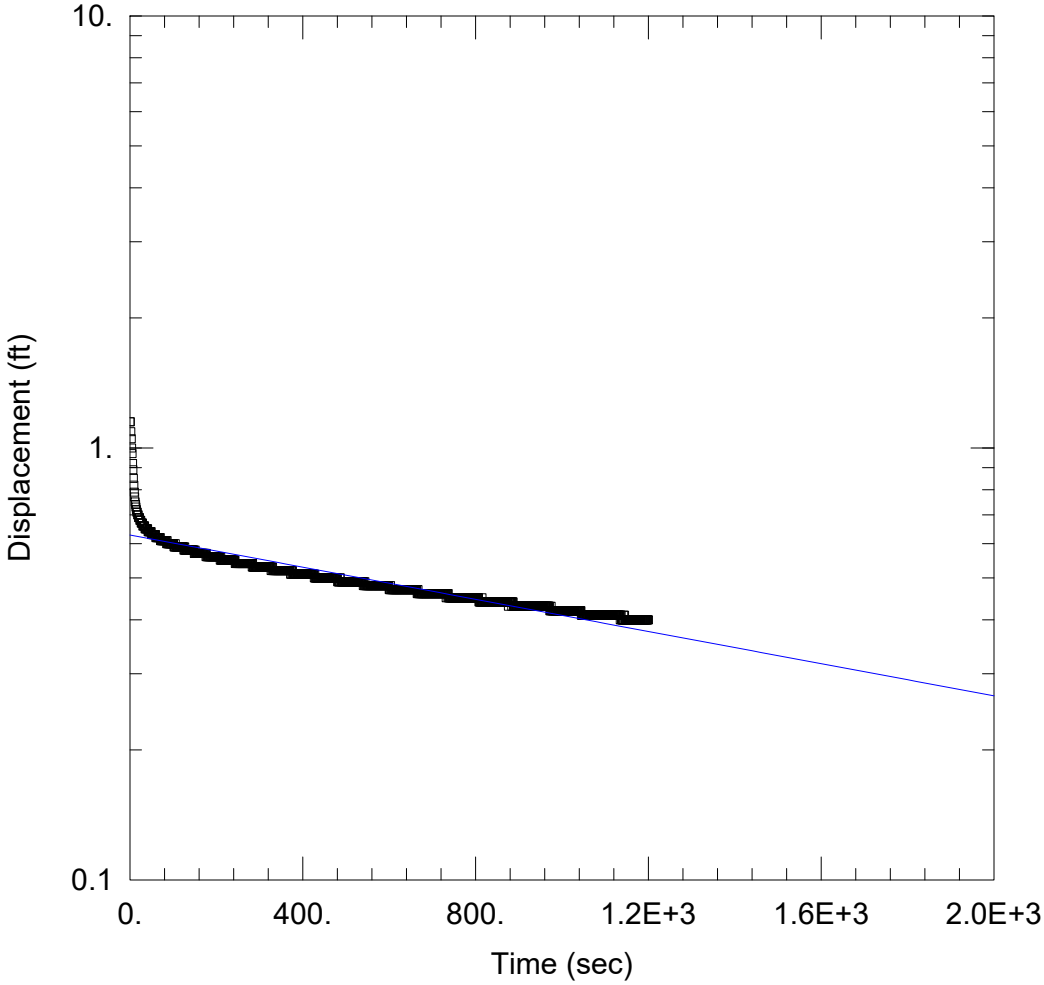
WELL DATA (RW-1-19)

Initial Displacement: 1.15 ft
Total Well Penetration Depth: 29.5 ft
Casing Radius: 0.167 ft
Static Water Column Height: 14.49 ft
Screen Length: 15. ft
Well Radius: 0.5 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.351E-6 ft/sec
y0 = 0.6288 ft



RISING HEAD TEST #1

Data Set:
Date: 11/19/19 Time: 14:59:16

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: RW-1-19
Test Date: 11/14/19

AQUIFER DATA

Saturated Thickness: 12.99 ft
Anisotropy Ratio (Kz/Kr): 1.

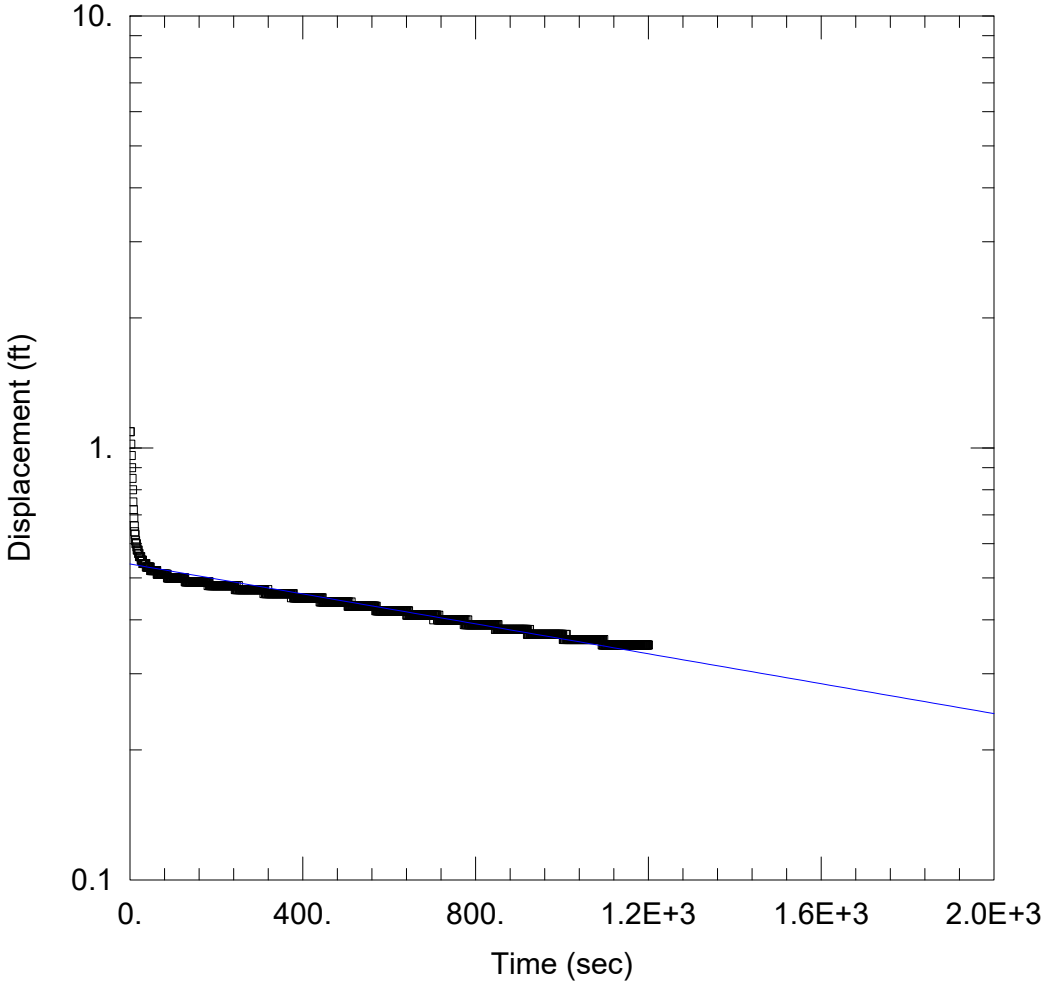
WELL DATA (RW-1-19)

Initial Displacement: 1.15 ft
Total Well Penetration Depth: 29.5 ft
Casing Radius: 0.167 ft
Static Water Column Height: 14.49 ft
Screen Length: 15. ft
Well Radius: 0.5 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

K = 2.438E-6 ft/sec
y0 = 0.6288 ft



RISING HEAD TEST #2

Data Set:
Date: 11/19/19 Time: 15:04:22

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: RW-1-19
Test Date: 11/14/19

AQUIFER DATA

Saturated Thickness: 12.99 ft
Anisotropy Ratio (Kz/Kr): 1.

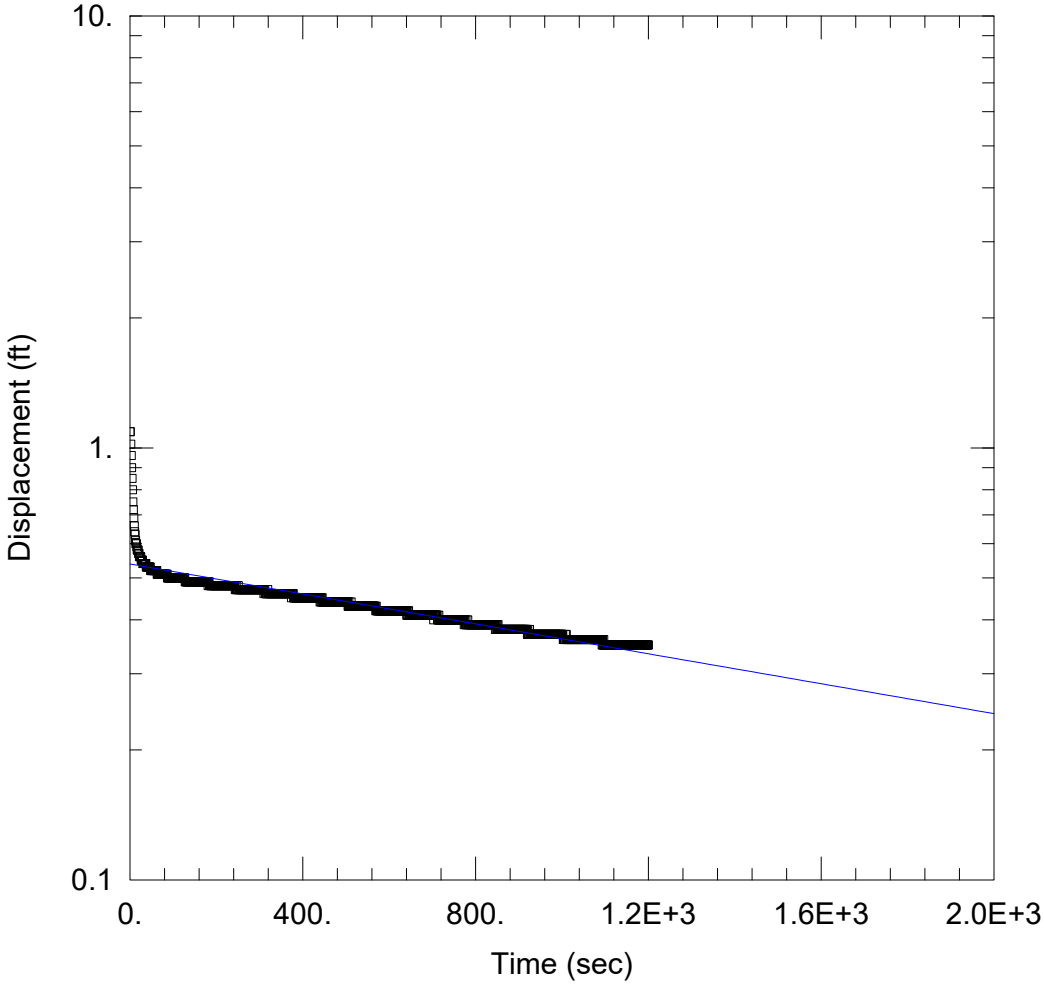
WELL DATA (RW-1-19)

Initial Displacement: 1.09 ft
Total Well Penetration Depth: 29.45 ft
Casing Radius: 0.167 ft
Static Water Column Height: 14.49 ft
Screen Length: 15. ft
Well Radius: 0.5 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.256E-6 ft/sec
y0 = 0.5386 ft



RISING HEAD TEST #2

Data Set:
Date: 11/19/19 Time: 15:05:01

PROJECT INFORMATION

Company: Shannon & Wilson
Client: WSDOT
Project: 21-1-22242-104
Location: Seattle, WA
Test Well: RW-1-19
Test Date: 11/14/19

AQUIFER DATA

Saturated Thickness: 12.99 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (RW-1-19)

Initial Displacement: 1.09 ft
Static Water Column Height: 14.49 ft
Total Well Penetration Depth: 29.45 ft
Screen Length: 15. ft
Casing Radius: 0.167 ft
Well Radius: 0.5 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

K = 2.268E-6 ft/sec
y0 = 0.5386 ft

Appendix M: Simplified Terrestrial Ecological Evaluation (7 Sheets)

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Montlake Gas Station	
Facility/Site Address: 2625 East Montlake Place East	
Facility/Site No: 47724816	VCP Project No.:

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Per Johnson		Title: Biologist	
Organization: Shannon & Wilson, Inc.			
Mailing address: 400 N. 34th Street, Suite 100			
City: Seattle		State: WA	Zip code: 98103
Phone: 206-632-8020	Fax:	E-mail: pcj@shanwil.com	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2**.*

☒ No or Unknown *If you answered **"NO" or "UNKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☐ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous# undeveloped± land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous# undeveloped± land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

± "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

"Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☒ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☐ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☒ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

☐ No issues were identified during the problem formulation step.

☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*

☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use? *Check all that apply. See* WAC 173-340-7493(3).

☐ Literature surveys.

☐ Soil bioassays.

☐ Wildlife exposure model.

☐ Biomarkers.

☐ Site-specific field studies.

☐ Weight of evidence.

☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

☐ Confirmed there was no problem.

☐ Confirmed there was a problem and established site-specific cleanup levels.

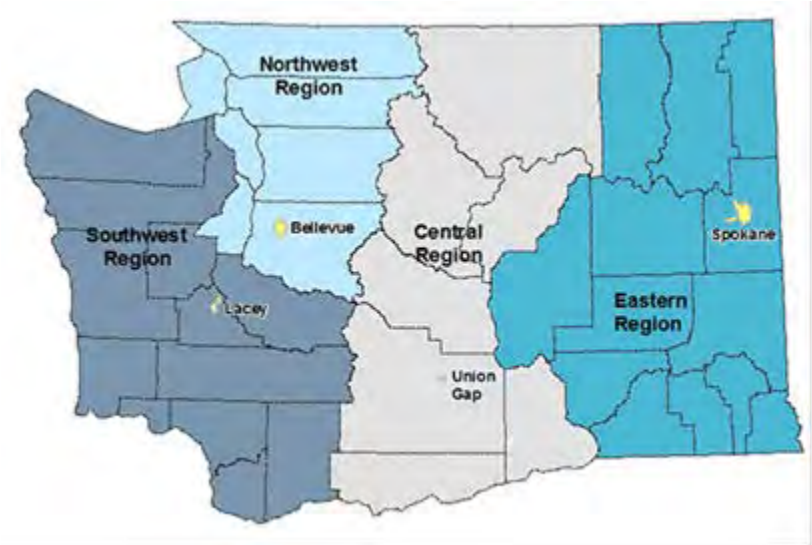
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.


TEE Radius Map
Legend
Approx. Area of Contamination
TEE Radius (500 feet)
Lake Washington Ship Canal Wate
513
E Shelby St
E Hamlin St
4th Ave E
Arbo
Montlake Blvd E
520 (Toll road)
E Lake Washington Blvd
E North St
East Montlake Pl E
E University Blvd
Portage Bay Viaduct
E Roanoke St
West Montlake Pl E
25th Ave E
Royal Ct E
E Louisa St
Montlake Playfield Path
Montlake
26th Ave E
E Calhoun St
Google Earth
©2018 Google
1000 ft
N

Table 4.2: Simplified Terrestrial Ecological Evaluation – Exposure Analysis Procedures[a]

Estimate the area of contiguous (connected) undeveloped land on or within 500 feet of any area of the contaminated soil to the nearest ½ acre (1/4 acre if the area is less than 0.5 acre). "Undeveloped land" means land that is not covered by existing buildings, roads, paved areas or other barriers that will prevent wildfire from feeding on plants, earthworms, insects or other food in or on the soil.	
1) From the table below, find the number of points corresponding to the area and enter this number in the box to the right.	
Area (acres) / Points 0.25 or less / 4 0.5 / 5 1.0 / 6 1.5 / 7 2.0 / 8 2.5 / 9 3.0 / 10 3.5 / 11 4.0 or more / 12	5
2) Is this an industrial or commercial property? See the definition in WAC 173-340-200. If yes, enter a score of 3 in the box to the right. If no, enter a score of 1.	3
3) Enter a score in the box to the right for the habitat quality of the contaminated soil and surrounding area, using the rating system shown below[b]. (High = 1, Intermediate = 2, Low = 3)	3
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2[c].	2
5) Are there any of the following soil hazardous substances present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.	4
Add the numbers in the boxes on lines 2 through 5 and enter this number to the right. If this number is larger than the number in the box on line 1, the simplified TEE may be ended under WAC 173-340-7292(2) (a) (ii).	12

Footnotes:

[a] It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score (1) for questions 3 and 4.

[b] **Habitat rating system.** Rate the quality of the habitat as high, intermediate, or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:

- **Low:** Early successional vegetative stands; vegetation predominantly noxious, non-native, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.
- **High:** Area is ecologically significant for one or more of the following reasons: Late successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington Department of Fish and Wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.
- **Intermediate:** Area does not rate as either high or low.

[c] Indicate "yes" if the area attracts wildlife or is likely to do so. Examples:

- Birds frequently visit the area to feed
- Evidence of high use by mammals (tracks, scat, etc…)
- Habitat "island" in an industrial area
- Unusual features of an area that make it important for feeding animals
- Heavy use during seasonal migrations
- Areas adjacent to wildlife corridors (i.e. greenbelts and waterways)

Appendix N: Important Information About Your Environmental Site Assessment/Evaluation Report (2 Sheets)

ENVIRONMENTAL SITE ASSESSMENTS/EVALUATIONS ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

This report was prepared to meet the needs you specified with respect to your specific site and your risk management preferences. Unless indicated otherwise, we prepared your report expressly for you and for the purposes you indicated. No one other than you should use this report for any purpose without first conferring with us. No one is authorized to use this report for any purpose other than that originally contemplated without our prior written consent.

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

OUR REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

Our environmental site assessment is based on several factors and may include (but not be limited to) reviewing public documents to chronicle site ownership for the past 30, 40, or more years; investigating the site's regulatory history to learn about permits granted or citations issued; determining prior uses of the site and those adjacent to it; reviewing available topographic and real estate maps, historical aerial photos, geologic information, and hydrologic data; reviewing readily available published information about surface and subsurface conditions; reviewing federal and state lists of known and potentially contaminated sites; evaluating the potential for naturally occurring hazards; and interviewing public officials, owners/operators, and/or adjacent owners with respect to local concerns and environmental conditions.

Except as noted within the text of the report, no sampling or quantitative laboratory testing was performed by us as part of this site assessment. Where such analyses were conducted by an outside laboratory, Shannon & Wilson relied upon the data provided and did not conduct an independent evaluation regarding the reliability of the data.

CONDITIONS CAN CHANGE.

Site conditions, both surface and subsurface, may be affected as a result of natural processes or human influence. An environmental site assessment/evaluation is based on conditions that existed at the time of the evaluation. Because so many aspects of a historical review rely on third-party information, most consultants will refuse to certify (warrant) that a site is free of contaminants, as it is impossible to know with absolute certainty if such a condition exists. Contaminants may be present in areas that were not surveyed or sampled or may migrate to areas that showed no signs of contamination at the time they were studied.

Unless your consultant indicates otherwise, your report should not be construed to represent geotechnical subsurface conditions at or adjacent to the site and does not provide sufficient information for construction-related activities. Your report also should not be used following floods, earthquakes, or other acts of nature; if the size or configuration of the site is altered; if the location of the site is modified; or if there is a change of ownership and/or use of the property.

INCIDENTAL DAMAGE MAY OCCUR DURING SAMPLING ACTIVITIES.

Incidental damage to a facility may occur during sampling activities. Asbestos and lead-based paint sampling often require destructive sampling of pipe insulation, floor tile, walls, doors, ceiling tile, roofing, and other building materials. Shannon & Wilson does not provide for paint repair. Limited repair of asbestos sample locations is provided. However, Shannon & Wilson neither warranties repairs made by our field personnel, nor are we held liable for injuries or damages as a result of those repairs. If you desire a specific form of repair, such as those provided by a licensed roofing contractor, you need to request the specific repair at the time of the proposal. The owner is responsible for repair methods that are not specified in the proposal.

READ RESPONSIBILITY CLAUSES CAREFULLY.

Environmental site assessments/evaluations are less exact than other design disciplines because they are based extensively on judgment and opinion and there may not have been any (or very limited) investigation of actual subsurface conditions. Wholly unwarranted claims have been lodged against consultants. To limit this exposure, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses may appear in this report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

Consultants cannot accept responsibility for problems that may develop if they are not consulted after factors considered in their reports have changed or conditions at the site have changed. Therefore, it is incumbent upon you to notify your consultant of any factors that may have changed prior to submission of the final assessment/evaluation.

An assessment/evaluation of a site helps reduce your risk but does not eliminate it. Even the most rigorous professional assessment may fail to identify all existing conditions.

ONE OF THE OBLIGATIONS OF YOUR CONSULTANT IS TO PROTECT THE SAFETY, HEALTH, PROPERTY, AND WELFARE OF THE PUBLIC.

If our environmental site assessment/evaluation discloses the existence of conditions that may endanger the safety, health, property, or welfare of the public, we may be obligated under rules of professional conduct, statutory law, or common law to notify you and others of these conditions.

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