Soil Assessment

Klickitat County Public Works Department
1181 West Broadway
Goldendale, Washington

for
Washington State Department of Ecology

June 28, 2019

GeoEngineers
Earth Science + Technology

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Spokane, Washington 99202
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Soil Assessment

Klickitat County Public Works Department
1181 West Broadway
Goldendale, Washington

File No. 0504-150-00

June 28, 2019

Prepared for:

Washington State Department of Ecology
Toxics Cleanup Program – Central Region Office
1250 West Alder Street
Union Gap, Washington 98903-0009

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Prepared by:

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1.0 INTRODUCTION

This report describes soil assessment activities conducted at the Klickitat County Public Works Department facility located at 1181 West Broadway in Goldendale, Washington (herein referred to as "site"). The approximate site location is shown in the attached Vicinity Map, Figure 1.

Site environmental activities are managed by the Washington State Department of Ecology (Ecology). This report describes field activities, observations and chemical analytical results associated with soil samples collected at the site. The purpose of the assessment activities described herein was to identify if remnant soil contamination is present at the site. Ecology will use the assessment results to conduct a Site Hazard Assessment (SHA), if necessary, or close the site.

2.0 SITE DESCRIPTION AND BACKGROUND

The Klickitat County Public Works Department facility is located in Goldendale, Washington, as shown in Figure 1. The site is developed with buildings and gravel parking areas for Klickitat County road service vehicles. The buildings consist of a maintenance garage and a storage area containing traffic control equipment, service equipment, and steel pipes and building supports in the location of the former washdown pad. The site is currently owned by Klickitat County. The adjacent property to the north and west is an equipment staging yard owned by the Regional Disposal Company.

In 1994, P-D Consultants (P-D) performed a site assessment near the washdown pad (P-D 1994). A drain located near the north end of the pad discharged wash water to the ground surface. Gasoline, solvents and herbicides were reportedly discharged at the washdown pad. Laboratory analytical results indicated volatile organic compounds (VOCs), including solvents, semi-volatile organic compounds (SVOCs), herbicides and Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) were detected in soil near the washdown pad. P-D installed a monitoring well (Monitoring Well No. 1) screened in groundwater perched on the shallow basalt. The monitoring well was located downgradient from the area where wash water was discharged. Contaminants were not detected at concentrations greater than the Model Toxics Control Act (MTCA) cleanup levels in the groundwater sample collected from this well. The report does not indicate the condition of the well after the assessment. GeoEngineers was unable to obtain an access agreement from the Regional Disposal Company, and as a result, the monitoring well was not measured, purged or sampled. The location of the monitoring well is shown on Exploration Locations, Figure 2.

An above-ground 10,000-gallon heated and insulated asphalt tank was located on the property from 1969 until 2010. In 2011, the tank was cleaned and removed by Able Cleanup Technologies (Able). Contaminated soil was excavated from beneath the tank. The excavation proceeded to about 3 feet below ground surface, where bedrock was encountered. During the remedial excavation, about 296 tons of petroleum contaminated soil (PCS) was removed from the site. Confirmation samples were collected from the excavation and submitted for chemical analysis of diesel-range petroleum hydrocarbons (DRPH), oil-range petroleum hydrocarbons (ORPH) and polycyclic aromatic hydrocarbons (PAHs). Two of the seven confirmation samples collected exceeded cleanup levels for one or more of the analyzed petroleum compounds. Groundwater was not encountered in the excavation (Able 2011). A letter received by Ecology dated April 18, 2011, from the Klickitat County Public Works Department stated that the remaining

contamination was fairly immobile and did not present a significant risk to public health and safety; therefore, the area around the former aboveground storage tank (AST) was not assessed.

3.0 SCOPE OF SERVICES

The scope of services included the following:

1. Prepared a Work Plan that included a Sampling Plan, Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP).
2. Coordinated underground utility locating using the State of Washington Utility Notification and a private utility locator, Utilities Plus, LLC (Utilities Plus). GeoEngineers mobilized to/from the site from Spokane, Washington to mark the proposed boring locations prior to initiating the locate request.
3. Mobilized to/from the site from Spokane, Washington to conduct the sampling event.
4. Conducted 1 day of subsurface assessment using direct-push drilling techniques provided by Environmental West Explorations, Inc. (Environmental West). The borings were advanced near the location of the washdown pad to depths from 1 to 2 feet below ground surface (bgs). Soil samples were collected using a continuous core sampler for field screening and potential chemical analysis. Soil samples were collected per procedures outlined in the Work Plan.
5. Observed and documented subsurface soil conditions. Field screening consisted of visual observation, water sheen testing and headspace vapor measurements using a photoionization detector (PID).
6. Groundwater was not observed during drilling operations and therefore groundwater was not measured, purged or sampled.
7. Backfilled borings with bentonite clay and surface completed with an asphalt patch.
8. Submitted one soil sample from each boring to Eurofins Test America (TestAmerica) in Spokane Valley, Washington for chemical analysis. The soil sample was submitted for analysis for the following potential contaminants:
    a. DRPH and ORPH using Northwest Method NWTPH-Dx;
    b. Gasoline-range petroleum hydrocarbons (GRPH) using Northwest Method NWTPH-Gx;
    c. VOCs using Environmental Protection Agency (EPA) Method 8260C; and
    d. Cadmium using EPA Method 6010C.
9. Drummed and labeled investigative-derived waste (IDW). Subcontracted with Able Cleanup Technologies (ACT) to profile and transport the IDW for disposal at Waste Management's Graham Road Landfill located near Medical Lake, Washington.
10. Compared soil chemical analytical results to MTCA Method A cleanup levels.
11. Prepared this site assessment report summarizing field and laboratory data, comparing analytical results to MTCA Method A cleanup levels and providing recommendations.
12. Entered laboratory analytical data results into Ecology's Environmental Information Management (EIM) database.

4.0 FIELD ACTIVITIES

A site reconnaissance was conducted on April 23, 2019. During this visit, site access was assessed and soil boring locations were marked for the utility locate. Site utilities, located near the boring locations, were identified and marked by Utilities Plus prior to drilling. No utilities were observed near the marked boring locations.

4.1. Direct-Push Soil Assessment

Field assessment activities were conducted on May 6, 2019. Environmental West advanced four borings (DP-1 through DP-4) using direct-push drilling methods at the locations shown on Figure 2. Each boring was planned to reach a target depth of 5 feet bgs, or boring refusal, whichever is shallowest. The direct-push boring locations are summarized by the following:

- Soil boring GEI015-DP1 was drilled east of the former washdown pad to a depth of approximately 2 feet bgs. One soil sample for potential chemical analysis was collected from 0 to 2 feet bgs. A slight organic sheen was observed and volatile organic vapors were detected at 1.2 parts per million (ppm) in the 0- to 2-foot sample interval.
- Soil boring GEI015-DP2 was drilled southeast of the former washdown pad to a depth of approximately 1.5 feet bgs. One soil sample for potential chemical analysis was collected from 0 to 1.5 feet bgs. Petroleum sheens were not observed and volatile organic vapors were detected at 8.6 ppm in the 0- to 1.5-foot sample interval.
- Soil boring GEI015-DP3 was drilled south of the former washdown pad to a depth of approximately 1-foot bgs. One soil sample for potential chemical analysis was collected from 0 to 1 foot bgs. Petroleum sheens were not observed and volatile organic vapors were detected at 4.7 ppm in the 0- to 1-foot sample interval.
- Soil boring GEI015-DP4 was drilled south of the former was down pad and west of GEI015-DP4. GEI015-DP4 was drilled to a depth of approximately 2.25 feet bgs. One soil sample for potential chemical analysis was collected from 0 to 2 feet bgs. Petroleum sheens were not observed and volatile organic vapors were detected at 9.2 ppm in the 0- to 2-foot sample interval.

Environmental West backfilled each boring with the soil cuttings. Boring GEI015-DP4 was capped with an asphalt patch. Boring logs associated with the borings are included in Appendix A.

4.2. Subsurface Conditions

Subsurface soil conditions were observed and classified for each boring. Soil observed generally consisted of silt with varying amounts of sand and gravel. Soil borings terminated between about 1 and 2 feet bgs at refusal on basalt bedrock.

4.2.1. Groundwater Conditions

Groundwater was not observed in explorations and therefore groundwater was not measured, purged or sampled.

5.0 CHEMICAL ANALYTICAL RESULTS

Four soil samples were submitted to TestAmerica for the chemical analyses described in "Section 3.0 Scope of Services." TestAmerica's laboratory report is included in Appendix B; chemical analytical results are summarized and compared to MTCA Method A cleanup levels for unrestricted land use below and in Table 1.

- DRPH was detected at concentrations of 11 and 18 milligrams per kilograms (mg/kg) in the soil samples analyzed from GEI015-DP1 and GEI015-DP3, respectively. DRPH was not detected greater than the laboratory reporting limit in the remaining soil samples analyzed.
- ORPH was detected at concentrations of 60 and 130 milligrams per kilograms (mg/kg) in the soil samples analyzed from GEI015-DP1 and GEI015-DP3, respectively. ORPH was not detected greater than the laboratory reporting limit in the remaining soil samples analyzed.
- GRPH, VOCs and cadmium were not detected greater than the laboratory reporting limit in the remaining soil samples analyzed.

TABLE 1. SUMMARY OF CHEMICAL ANALYTICAL RESULTS – SOIL

Sample Identification	Date Sampled	GRPH[2] (mg/kg)	DRPH[3] (mg/kg)	ORPH[3] (mg/kg)	Cadmium[4] (mg/kg)	VOCs[5] (mg/kg)
GEI015-DP1(0-2)	5/6/2019	<6.9	**11**	**60**	<0.96	ND
GEI015-DP2(0-1.5)	5/6/2019	<8.7	<11	<28	<0.90	ND
GEI015-DP3(0-1)	5/6/2019	<6.3	**18**	**130**	<0.88	ND
GEI009-DP4(0-2)	5/6/2019	<7.4	<12	<30	<0.94	ND
MTCA Method A CUL[1]		2,000	100/30[6]	2,000	2	Varies

Notes:

[1]MTCA Method A CUL - Washington State Model Toxics Control Act Method A unrestricted land use cleanup level

[2]GRPH analyzed using Northwest Method NWTPH-Gx.

[3]DRPH and ORPH analyzed using Northwest Method NWTPH-Dx.

[4]Cadmium analyzed using Environmental Protection Agency (EPA) Method 6010C.

[5]Volatile organic compounds (VOCs) analyzed using EPA Method 8260C. Refer to lab report for full list of VOCs; VOCs were not detected in the samples analyzed.

[6]GRPH cleanup level is 100 mg/kg if benzene is not present; 30 mg/kg if benzene is present.

mg/kg = milligrams per kilogram; ND = not detected

Bold indicates analyte was detected.

6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Soil assessment activities were conducted on May 6, 2019, at the Klickitat County Public Works Department facility located at 1181 West Broadway in Goldendale, Washington.

Four soil samples were collected from site borings and submitted for analysis of potential GRPH, DRPH, ORPH, VOCs and cadmium contaminants. Contaminants were either not detected or detected at concentrations less than MTCA Method A Cleanup levels in the samples analyzed. Groundwater was not assessed because it was not encountered and the existing monitoring well was not accessible on the neighboring property.

Based on these assessment results, contamination does not appear to be present and no further investigation appears to be warranted for the Klickitat County Public Works Department facility.

7.0 LIMITATIONS

We have prepared this report for the exclusive use of Ecology and their authorized agents.

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

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

8.0 REFERENCES

Able Cleanup Technologies. 2011. Report for Removal of Above Ground Storage Tank and Associated Contaminated Soils. Prepared for Klickitat County Public Works. August 2, 2011.

GeoEngineers, Inc. 2019. Work Plan, Klickitat County Public Works Department, Goldendale, Washington, April 22, 2019.

P-D Consultants, 1994. Site Assessment for Klickitat County Road Department, Goldendale, Washington. Prepared for Klickitat County Road Department. January 9, 1994.

FIGURES

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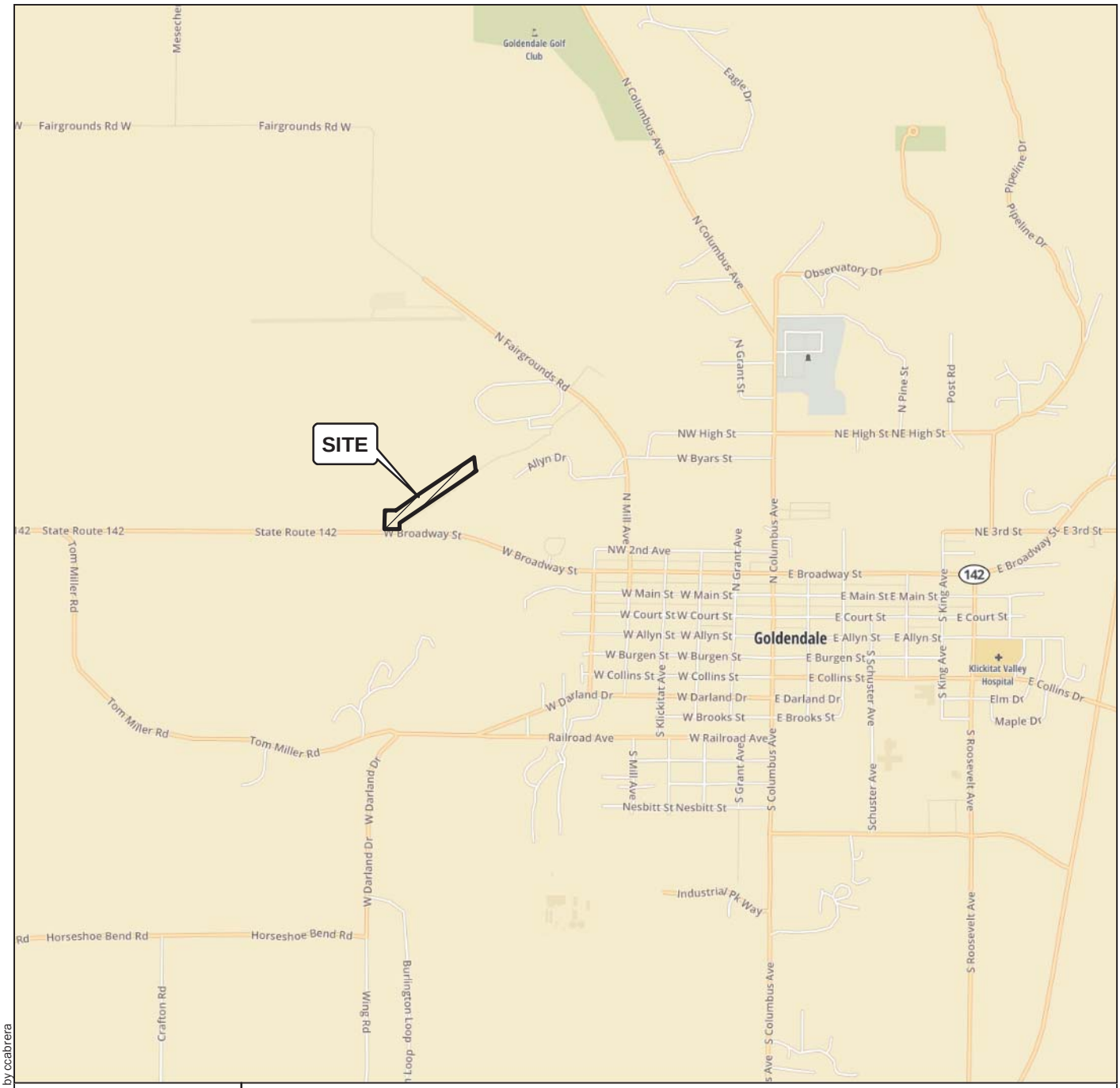

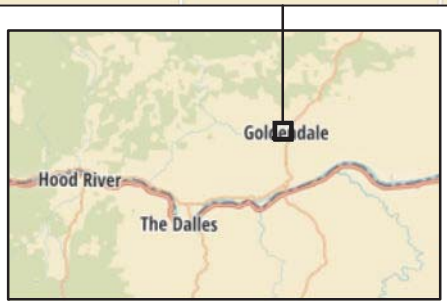

N
W E
S

2,000 0 2,000

Feet

Vicinity Map

Klickitat County Road Dept Goldendale Shop
Goldendale, Washington

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Figure 1

Notes:

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

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

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

Data Source: Clarity, ESRI.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Legend

- Direct Push Boring Number and Approximate Location (GeoEngineers 2019)
- Monitoring Well Number and Approximate Location (P-D 1994)
- Former AST Approximate Location (Able 2011)
- Approximate Site Boundary
- Regional Disposal Company Property

N W E S

100 0 100
Feet

Exploration Locations

Klickitat County Road Dept Goldendale Shop
Goldendale, Washington

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Figure 2

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APPENDICES

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APPENDIX A
Field Procedures and Boring Logs

APPENDIX A
FIELD PROCEDURES AND BORING LOGS

General

Subsurface conditions at the Klickitat County Public Works facility were explored on May 6, 2019, by advancing four direct-push borings at the approximate locations shown on Figure 2. Borings were advanced to between 1 to 2 feet below ground surface (bgs). Boring locations were established in the field using a site plan and measurements from onsite structures. Consequently, exploration locations should be considered accurate to the degree implied by the method used.

Field methods generally were performed in compliance with the project Work Plan assessment procedures.

Soil Sample Collection

Soil samples obtained during direct-push drilling were removed from the sleeve using clean nitrile gloves, and transferred into a laboratory prepared container, labeled with a waterproof pen, and placed on wet ice in a clean plastic-lined cooler.

Drilling operations were observed by GeoEngineers staff who examined and classified the soil encountered, obtained soil samples, and maintained a continuous exploration log. Soil encountered in the borings was classified in general accordance with ASTM International (ASTM) D 2488 and the classification chart listed in Key to Exploration Logs, Figure A-1. Boring logs are presented in Figures A-2 through A-5. The logs are based on field data interpretation and indicate the depth at which subsurface materials, or their characteristics change, although these changes might actually be gradual.

Field Screening of Soil Samples

GeoEngineers' field representative performed field-screening tests on soil samples obtained from the borings. Field screening results were used as a general guideline to assess areas of possible petroleum-related contamination. The field screening methods used include: (1) photoionization detector (PID) screening; (2) visual screening; and (3) water-sheen screening.

PID screening involves placing soil in a container and after agitating or warming, measuring total volatile organic compounds in the available head space. Visual screening consists of observing soil for stains indicative of metal- or petroleum-related contamination. Water-sheen screening involved placing soil in a pan of water and observing the water surface for signs of sheen. Sheen screening may detect both volatile and nonvolatile petroleum hydrocarbons. Sheens observed are classified as follows:

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

Field screening results can be site specific. The effectiveness of field screening can vary with temperature, moisture content, organic content, soil type, and contaminant type and age.

SOIL CLASSIFICATION CHART

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

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

ADDITIONAL MATERIAL SYMBOLS

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

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

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

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

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

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

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

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

Key to Exploration Logs

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Figure A-1

Drilled Start 5/6/2019 End 5/6/2019	Total Depth (ft) 2	Logged By JDO Checked By SHL	Driller Environmental West Explorations	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum 1647		Hammer Data NA		Drilling Equipment GeoProbe 5400	
Latitude 45° 49' 30.72" Longitude -120° 50' 30.84"		System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		18					SM	Brown silty fine sand with gravel (medium dense, moist)			
								ML	Dark brown sandy silt with occasional gravel (medium stiff, moist)			
	1					GEI 015-DP1 (0-2) CA				SS	1.2	
1645	2											

Boring refusal at 2 feet below ground surface

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI015-DP1

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Project: Klickitat County Road Dept Goldendale Shop
Project Location: Goldendale, Washington
Project Number: 0504-150-00

Figure A-2
Sheet 1 of 1

Drilled	Start 5/6/2019	End 5/6/2019	Total Depth (ft)	1.5	Logged By	JDO	Driller	Environmental West Explorations	Drilling Method	Direct Push
					Checked By	SHL				

Surface Elevation (ft) Vertical Datum	1647	Hammer Data	NA	Drilling Equipment	GeoProbe 5400
Latitude Longitude	45° 49' 30.36" -120° 50' 30.84"	System Datum		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		16					ML	Dark brown sandy silt (medium stiff, moist)			
	1					GEI015-DP2 (0-1.5) CA				NS	8.6	

Boring refusal at 2 feet below ground surface

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI015-DP2

GeoEngineers

Project: Klickitat County Road Dept Goldendale Shop
Project Location: Goldendale, Washington
Project Number: 0504-150-00

Figure A-3
Sheet 1 of 1

Drilled Start 5/6/2019 End 5/6/2019	Total Depth (ft) 1	Logged By JDO Checked By SHL	Driller Environmental West Explorations	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum 1646		Hammer Data NA		Drilling Equipment GeoProbe 5400	
Latitude 45° 49' 30.36" Longitude -120° 50' 31.2"		System Datum		Groundwater not observed at time of exploration	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		10					SM	Brown silty fine to coarse sand with gravel (medium dense, moist)			
								ML	Dark brown sandy silt with occasional gravel (medium stiff, moist)			
						GEI015-DP3 (0-1) CA				NS	4.7	
1645	1											

Boring refusal at 1 foot below ground surface

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI015-DP3

GeoEngineers

Project: Klickitat County Road Dept Goldendale Shop
Project Location: Goldendale, Washington
Project Number: 0504-150-00

Figure A-4
Sheet 1 of 1

Drilled: Start 5/6/2019 End 5/6/2019	Total Depth (ft) 2.25	Logged By JDO Checked By SHL	Driller Environmental West Explorations	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum 1646		Hammer Data NA		Drilling Equipment GeoProbe 5400	
Latitude 45° 49' 30.36" Longitude -120° 50' 31.56"		System Datum		Groundwater not observed at time of exploration	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		22					AC	Asphalt concrete			
								ML	Brown sandy silt with occasional gravel (medium dense, moist)			
1645	1					GEI015-DP4 (0-2) CA				NS	9.2	
	2											

Boring refusal at 2.25 feet below ground surface

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI015-DP4

GeoEngineers

Project: Klickitat County Road Dept Goldendale Shop
Project Location: Goldendale, Washington
Project Number: 0504-150-00

Figure A-5
Sheet 1 of 1

APPENDIX B
Chemical Analytical Laboratory Report and Data Validation

APPENDIX B
CHEMICAL ANALYTICAL LABORATORY REPORTS AND DATA VALIDATION

This report documents the results of a United States Environmental Protection Agency (EPA)-defined Stage 2A data validation (EPA Document 540-R-08-005; EPA 2009) of analytical data from the analyses of soil samples collected as part of the April 2019 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Columbia Basin College, Nurse Training Facility located at 901 Northgate Drive (formerly identified as 1011 Northgate Drive) in Richland, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the EPA Contract Laboratory Program National Functional for Organic Superfund Methods Data Review (EPA 2017) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix B of the Work Plan (GeoEngineers 2019), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method and Trip Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory Duplicates

VALIDATED SAMPLE DELIVERY GROUPS

This data validation included review of the sample delivery group (SDG) listed below in Table B-1.

TABLE B-1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
590-10899-1	GEI 009-DP1 (9.5-10), GEI 009-DP2 (9.5-10), GEI 009-DP3 (5-5.5), GEI 009-DP5 (6-6.5), GEI 009-DP6 (12.5-13), Trip Blank

CHEMICAL ANALYSIS PERFORMED

Eurofins TestAmerica Laboratories, Inc. (TestAmerica), located in Spokane, Washington, performed laboratory analyses on the samples using one or more of the following methods:

- Gasoline-Range Hydrocarbons (NWTPH-Gx) by Method NWTPH-Gx;
- Petroleum Hydrocarbons (NWTPH-Dx) by Method NWTPH-Dx; and
- Volatile Organic Compounds (VOCs) by Method EPA8260C.

DATA VALIDATION SUMMARY

The results for each of the QC elements are summarized below.

Data Package Completeness

TestAmerica provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory, with the following exception:

SDG 590-10899-1: The laboratory noted that sample vials were received for Sample GEI 009-DP5 (12-13); however, the sample was not listed on the COC. The sample analyses for this sample were placed on hold.

Holding Times and Sample Preservation

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis. The sample cooler arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated

following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits.

Method and Trip Blanks

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks.

Trip Blanks

Trip blanks are analyzed to provide an indication as to whether volatile compounds have cross-contaminated other like samples within the transportation process to the laboratory. None of the analytes of interest were detected in the trip blank.

Matrix Spikes/Matrix Spike Duplicates

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated.

A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sample set was performed in lieu of a MS/MSD analysis.

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits.

Laboratory Duplicates

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD and laboratory duplicate RPD values.

No analytical results were qualified. The data are acceptable for the intended use.

REFERENCES

GeoEngineers, Inc. (GeoEngineers). 2019. "Work Plan, Columbia Basin College – Nurse Training Facility," prepared for Washington State Department of Ecology. April 19, 2019.

U.S. Environmental Protection Agency (EPA). 2009. "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (EPA). 2017. "Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review," EPA-540-R-2017-002. January 2017.

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ANALYTICAL REPORT

Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-10950-1
Client Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

For:
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Attn: Scott Lathen

Authorized for release by:
6/3/2019 2:12:37 PM

Randee Arrington, Project Manager II
(509)924-9200
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Case Narrative

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Job ID: 590-10950-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt
The samples were received on 5/8/2019 4:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4º C.

GC/MS VOA
Method 8260C: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-301360 was outside criteria for the following analytes: Dichlorobromomethane, Trichloroethene and 2-Butanone (MEK). As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analytes is considered estimated.

Method 8260C: The following sample was analyzed outside of analytical holding time : Trip Blank (590-10950-5).

Method 8260C: Reanalysis of Vinyl Chloride for the following samples were performed outside of the analytical holding time : GEI015-DP1(0-2) (590-10950-1), GEI015-DP2(0-1.5) (590-10950-2), GEI015-DP3(0-1) (590-10950-3), GEI015-DP4(0-2) (590-10950-4) and Trip Blank (590-10950-5).

Method 8260C: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-301539 and analytical batch 580-301553 recovered outside control limits for the following analytes: Vinyl chloride. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260C: The continuing calibration verification (CCV) associated with batch 580-301553 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: GEI015-DP1(0-2) (590-10950-1), GEI015-DP2(0-1.5) (590-10950-2), GEI015-DP3(0-1) (590-10950-3), GEI015-DP4(0-2) (590-10950-4), Trip Blank (590-10950-5) and (CCVIS 580-301553/3).

Method 8260C: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-301553 was outside criteria for the following analytes: 1,1,2-Trichloro-1.2.2-trifluoroethane, 1,1-Dichloroethene, 2-Butanone (MEK), Benzene, Dichlorodifluoromethane and Tetrachloroethene. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analytes is considered estimated.

Method 8260C: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 580-301539 and analytical batch 580-301553 recovered outside control limits for the following analytes: Vinyl chloride.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
Method NWTPH-Gx: The surrogate recovery for the blank associated with preparation batch 580-300559 and analytical batch 580-300565 was outside the upper control limits. The associated samples were non detect for target analytes and had surrogate recoveries within acceptance limits, therefore the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method NWTPH-Dx: Detected hydrocarbons in the diesel range appear to be due to oil overlap in the following samples: GEI015-DP1(0-2) (590-10950-1) and GEI015-DP3(0-1) (590-10950-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 590-10950-1 (Continued)

Laboratory: Eurofins TestAmerica, Spokane (Continued)

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-10950-1	GEI015-DP1(0-2)	Solid	05/06/19 10:40	05/08/19 16:10	
590-10950-2	GEI015-DP2(0-1.5)	Solid	05/06/19 10:50	05/08/19 16:10	
590-10950-3	GEI015-DP3(0-1)	Solid	05/06/19 11:00	05/08/19 16:10	
590-10950-4	GEI015-DP4(0-2)	Solid	05/06/19 11:10	05/08/19 16:10	
590-10950-5	Trip Blank	Solid	05/06/19 10:40	05/08/19 16:10	

Definitions/Glossary

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
H	Sample was prepped or analyzed beyond the specified holding time

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Client Sample ID: GEI015-DP1(0-2)
Lab Sample ID: 590-10950-1
Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 85.3

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,1,1-Trichloroethane	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,1,2,2-Tetrachloroethane	ND		16		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,1,2-Trichloroethane	ND		16		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,1,2-Trichlorotrifluoroethane	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,1-Dichloroethane	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,1-Dichloroethene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,1-Dichloropropene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2,3-Trichlorobenzene	ND		120		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2,3-Trichloropropane	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2,4-Trichlorobenzene	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2,4-Trimethylbenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2-Dibromo-3-Chloropropane	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2-Dibromoethane (EDB)	ND		16		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2-Dichlorobenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2-Dichloroethane	ND		16		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,2-Dichloropropane	ND		16		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,3,5-Trimethylbenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,3-Dichlorobenzene	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,3-Dichloropropane	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
1,4-Dichlorobenzene	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
2,2-Dichloropropane	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
2-Butanone (MEK)	ND		470		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
2-Chlorotoluene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
4-Chlorotoluene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
4-Methyl-2-pentanone (MIBK)	ND		310		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Acetone	ND		620		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Allyl chloride	ND		160		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Benzene	ND		23		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Bromobenzene	ND		78		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Bromochloromethane	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Bromodichloromethane	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Bromoform	ND		160		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Bromomethane	ND		160		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Carbon tetrachloride	ND		16		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Chlorobenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Chloroethane	ND		310		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Chloroform	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Chloromethane	ND		78		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
cis-1,2-Dichloroethene	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
cis-1,3-Dichloropropene	ND		16		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Dibromochloromethane	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Dibromomethane	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Dichlorodifluoromethane	ND		160		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Dichlorofluoromethane	ND		78		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Ethylbenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Ethyl ether	ND		160		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Hexachlorobutadiene	ND		120		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Isopropylbenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1

Client Sample ID: GEI015-DP1(0-2)
Lab Sample ID: 590-10950-1
Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 85.3

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		160		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Methyl tert-butyl ether	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Methylene Chloride	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Naphthalene	ND		78		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
n-Butylbenzene	ND		120		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
N-Propylbenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
o-Xylene	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
p-Isopropyltoluene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
sec-Butylbenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Styrene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
tert-Butylbenzene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Tetrachloroethene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Tetrahydrofuran	ND		620		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Toluene	ND		120		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
trans-1,2-Dichloroethene	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
trans-1,3-Dichloropropene	ND		31		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Trichloroethene	ND		47		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1
Trichlorofluoromethane	ND		160		ug/Kg	☼	05/17/19 15:00	05/18/19 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/17/19 15:00*	*05/18/19 00:24*	*1*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*	*05/17/19 15:00*	*05/18/19 00:24*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*	*05/17/19 15:00*	*05/18/19 00:24*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*	*05/17/19 15:00*	*05/18/19 00:24*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H *	210		ug/Kg	☼	05/23/19 12:00	05/23/19 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 121*	*05/23/19 12:00*	*05/23/19 19:09*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*	*05/23/19 12:00*	*05/23/19 19:09*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*	*05/23/19 12:00*	*05/23/19 19:09*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*	*05/23/19 12:00*	*05/23/19 19:09*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		6.9		mg/Kg	☼	05/13/19 12:53	05/13/19 17:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*50 - 150*	*05/13/19 12:53*	*05/13/19 17:23*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	**11**		11		mg/Kg	☼	05/20/19 14:09	05/20/19 21:59	1
Residual Range Organics (RRO) (C25-C36)	**60**		28		mg/Kg	☼	05/20/19 14:09	05/20/19 21:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*66*		*50 - 150*	*05/20/19 14:09*	*05/20/19 21:59*	*1*
n-Triacontane-d62	*76*		*50 - 150*	*05/20/19 14:09*	*05/20/19 21:59*	*1*

Client Sample ID: GEI015-DP1(0-2)
Lab Sample ID: 590-10950-1

Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 85.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.96		mg/Kg	☼	05/09/19 11:33	05/13/19 12:53	1

Client Sample ID: GEI015-DP2(0-1.5)
Lab Sample ID: 590-10950-2

Date Collected: 05/06/19 10:50
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 88.7

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,1,1-Trichloroethane	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,1,2,2-Tetrachloroethane	ND		19		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,1,2-Trichloroethane	ND		19		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,1,2-Trichlorotrifluoroethane	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,1-Dichloroethane	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,1-Dichloroethene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,1-Dichloropropene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2,3-Trichlorobenzene	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2,3-Trichloropropane	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2,4-Trichlorobenzene	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2,4-Trimethylbenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2-Dibromo-3-Chloropropane	ND		230		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2-Dibromoethane (EDB)	ND		19		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2-Dichlorobenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2-Dichloroethane	ND		19		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,2-Dichloropropane	ND		19		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,3,5-Trimethylbenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,3-Dichlorobenzene	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,3-Dichloropropane	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
1,4-Dichlorobenzene	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
2,2-Dichloropropane	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
2-Butanone (MEK)	ND		560		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
2-Chlorotoluene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
4-Chlorotoluene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
4-Methyl-2-pentanone (MIBK)	ND		370		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Acetone	ND		740		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Allyl chloride	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Benzene	ND		28		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Bromobenzene	ND		93		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Bromochloromethane	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Bromodichloromethane	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Bromoform	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Bromomethane	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Carbon tetrachloride	ND		19		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Chlorobenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Chloroethane	ND		370		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Chloroform	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Chloromethane	ND		93		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
cis-1,2-Dichloroethene	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
cis-1,3-Dichloropropene	ND		19		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Dibromochloromethane	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1

Client Sample ID: GEI015-DP2(0-1.5)
Date Collected: 05/06/19 10:50
Date Received: 05/08/19 16:10

Lab Sample ID: 590-10950-2
Matrix: Solid
Percent Solids: 88.7

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromomethane	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Dichlorodifluoromethane	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Dichlorofluoromethane	ND		93		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Ethylbenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Ethyl ether	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Hexachlorobutadiene	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Isopropylbenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
m,p-Xylene	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Methyl tert-butyl ether	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Methylene Chloride	ND		230		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Naphthalene	ND		93		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
n-Butylbenzene	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
N-Propylbenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
o-Xylene	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
p-Isopropyltoluene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
sec-Butylbenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Styrene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
tert-Butylbenzene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Tetrachloroethene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Tetrahydrofuran	ND		740		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Toluene	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
trans-1,2-Dichloroethene	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
trans-1,3-Dichloropropene	ND		37		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Trichloroethene	ND		56		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1
Trichlorofluoromethane	ND		190		ug/Kg	☼	05/17/19 15:00	05/18/19 00:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/17/19 15:00*	*05/18/19 00:50*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*	*05/17/19 15:00*	*05/18/19 00:50*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*	*05/17/19 15:00*	*05/18/19 00:50*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*05/17/19 15:00*	*05/18/19 00:50*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H *	260		ug/Kg	☼	05/23/19 12:00	05/23/19 19:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 121*	*05/23/19 12:00*	*05/23/19 19:34*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*	*05/23/19 12:00*	*05/23/19 19:34*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*	*05/23/19 12:00*	*05/23/19 19:34*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*	*05/23/19 12:00*	*05/23/19 19:34*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		8.7		mg/Kg	☼	05/13/19 12:53	05/13/19 17:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*50 - 150*	*05/13/19 12:53*	*05/13/19 17:53*	*1*

Client Sample ID: GEI015-DP2(0-1.5)
Lab Sample ID: 590-10950-2

Date Collected: 05/06/19 10:50
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 88.7

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	05/20/19 14:09	05/20/19 22:18	1
Residual Range Organics (RRO) (C25-C36)	ND		28		mg/Kg	☼	05/20/19 14:09	05/20/19 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*05/20/19 14:09*	*05/20/19 22:18*	*1*
n-Triacontane-d62	*85*		*50 - 150*	*05/20/19 14:09*	*05/20/19 22:18*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.90		mg/Kg	☼	05/09/19 11:33	05/13/19 13:06	1

Client Sample ID: GEI015-DP3(0-1)
Lab Sample ID: 590-10950-3

Date Collected: 05/06/19 11:00
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 90.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,1,1-Trichloroethane	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,1,2,2-Tetrachloroethane	ND		14		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,1,2-Trichloroethane	ND		14		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,1,2-Trichlorotrifluoroethane	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,1-Dichloroethane	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,1-Dichloroethene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,1-Dichloropropene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2,3-Trichlorobenzene	ND		100		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2,3-Trichloropropane	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2,4-Trichlorobenzene	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2,4-Trimethylbenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2-Dibromo-3-Chloropropane	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2-Dibromoethane (EDB)	ND		14		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2-Dichlorobenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2-Dichloroethane	ND		14		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,2-Dichloropropane	ND		14		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,3,5-Trimethylbenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,3-Dichlorobenzene	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,3-Dichloropropane	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
1,4-Dichlorobenzene	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
2,2-Dichloropropane	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
2-Butanone (MEK)	ND		410		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
2-Chlorotoluene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
4-Chlorotoluene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
4-Methyl-2-pentanone (MIBK)	ND		270		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Acetone	ND		550		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Allyl chloride	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Benzene	ND		20		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Bromobenzene	ND		68		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Bromochloromethane	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Bromodichloromethane	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1

Client Sample ID: GEI015-DP3(0-1)
Lab Sample ID: 590-10950-3
Date Collected: 05/06/19 11:00
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 90.4

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Bromomethane	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Carbon tetrachloride	ND		14		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Chlorobenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Chloroethane	ND		270		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Chloroform	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Chloromethane	ND		68		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
cis-1,2-Dichloroethene	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
cis-1,3-Dichloropropene	ND		14		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Dibromochloromethane	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Dibromomethane	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Dichlorodifluoromethane	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Dichlorofluoromethane	ND		68		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Ethylbenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Ethyl ether	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Hexachlorobutadiene	ND		100		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Isopropylbenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
m,p-Xylene	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Methyl tert-butyl ether	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Methylene Chloride	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Naphthalene	ND		68		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
n-Butylbenzene	ND		100		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
N-Propylbenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
o-Xylene	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
p-Isopropyltoluene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
sec-Butylbenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Styrene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
tert-Butylbenzene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Tetrachloroethene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Tetrahydrofuran	ND		550		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Toluene	ND		100		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
trans-1,2-Dichloroethene	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
trans-1,3-Dichloropropene	ND		27		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Trichloroethene	ND		41		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1
Trichlorofluoromethane	ND		140		ug/Kg	☼	05/17/19 15:00	05/18/19 01:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/17/19 15:00*	*05/18/19 01:15*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*	*05/17/19 15:00*	*05/18/19 01:15*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*	*05/17/19 15:00*	*05/18/19 01:15*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*	*05/17/19 15:00*	*05/18/19 01:15*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H *	190		ug/Kg	☼	05/23/19 12:00	05/23/19 20:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/23/19 12:00*	*05/23/19 20:00*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:00*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:00*	*1*

Client Sample ID: GEI015-DP3(0-1)
Lab Sample ID: 590-10950-3

Date Collected: 05/06/19 11:00
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 90.4

Method: 8260C - Volatile Organic Compounds by GC/MS - RA (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*102*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:00*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		6.3		mg/Kg	☼	05/13/19 12:53	05/13/19 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*	*05/13/19 12:53*	*05/13/19 18:23*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	**18**		10		mg/Kg	☼	05/20/19 14:09	05/20/19 22:38	1
Residual Range Organics (RRO) (C25-C36)	**130**		26		mg/Kg	☼	05/20/19 14:09	05/20/19 22:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	*91*		*50 - 150*	*05/20/19 14:09*	*05/20/19 22:38*	*1*
n-Triacontane-d62	*104*		*50 - 150*	*05/20/19 14:09*	*05/20/19 22:38*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.88		mg/Kg	☼	05/09/19 11:33	05/13/19 13:10	1

Client Sample ID: GEI015-DP4(0-2)
Lab Sample ID: 590-10950-4

Date Collected: 05/06/19 11:10
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 82.8

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,1,1-Trichloroethane	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,1,2,2-Tetrachloroethane	ND		17		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,1,2-Trichloroethane	ND		17		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,1,2-Trichlorotrifluoroethane	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,1-Dichloroethane	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,1-Dichloroethene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,1-Dichloropropene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2,3-Trichlorobenzene	ND		130		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2,3-Trichloropropane	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2,4-Trichlorobenzene	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2,4-Trimethylbenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2-Dibromo-3-Chloropropane	ND		210		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2-Dibromoethane (EDB)	ND		17		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2-Dichlorobenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2-Dichloroethane	ND		17		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,2-Dichloropropane	ND		17		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,3,5-Trimethylbenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,3-Dichlorobenzene	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,3-Dichloropropane	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
1,4-Dichlorobenzene	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1

Client Sample ID: GEI015-DP4(0-2)
Lab Sample ID: 590-10950-4
Date Collected: 05/06/19 11:10
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 82.8

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,2-Dichloropropane	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
2-Butanone (MEK)	ND		510		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
2-Chlorotoluene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
4-Chlorotoluene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
4-Methyl-2-pentanone (MIBK)	ND		340		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Acetone	ND		680		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Allyl chloride	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Benzene	ND		25		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Bromobenzene	ND		85		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Bromochloromethane	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Bromodichloromethane	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Bromoform	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Bromomethane	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Carbon tetrachloride	ND		17		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Chlorobenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Chloroethane	ND		340		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Chloroform	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Chloromethane	ND		85		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
cis-1,2-Dichloroethene	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
cis-1,3-Dichloropropene	ND		17		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Dibromochloromethane	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Dibromomethane	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Dichlorodifluoromethane	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Dichlorofluoromethane	ND		85		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Ethylbenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Ethyl ether	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Hexachlorobutadiene	ND		130		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Isopropylbenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
m,p-Xylene	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Methyl tert-butyl ether	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Methylene Chloride	ND		210		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Naphthalene	ND		85		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
n-Butylbenzene	ND		130		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
N-Propylbenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
o-Xylene	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
p-Isopropyltoluene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
sec-Butylbenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Styrene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
tert-Butylbenzene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Tetrachloroethene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Tetrahydrofuran	ND		680		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Toluene	ND		130		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
trans-1,2-Dichloroethene	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
trans-1,3-Dichloropropene	ND		34		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Trichloroethene	ND		51		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1
Trichlorofluoromethane	ND		170		ug/Kg	☼	05/17/19 15:00	05/18/19 01:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/17/19 15:00*	*05/18/19 01:40*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*	*05/17/19 15:00*	*05/18/19 01:40*	*1*

Client Sample ID: GEI015-DP4(0-2)
Lab Sample ID: 590-10950-4

Date Collected: 05/06/19 11:10
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 82.8

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*80 - 120*	*05/17/19 15:00*	*05/18/19 01:40*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*05/17/19 15:00*	*05/18/19 01:40*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H *	220		ug/Kg	☼	05/23/19 12:00	05/23/19 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/23/19 12:00*	*05/23/19 20:25*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:25*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:25*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:25*	*1*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		7.4		mg/Kg	☼	05/13/19 12:53	05/13/19 18:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*50 - 150*	*05/13/19 12:53*	*05/13/19 18:53*	*1*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		12		mg/Kg	☼	05/20/19 14:09	05/20/19 22:58	1
Residual Range Organics (RRO) (C25-C36)	ND		30		mg/Kg	☼	05/20/19 14:09	05/20/19 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*05/20/19 14:09*	*05/20/19 22:58*	*1*
n-Triacontane-d62	*77*		*50 - 150*	*05/20/19 14:09*	*05/20/19 22:58*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.94		mg/Kg	☼	05/09/19 11:33	05/13/19 13:14	1

Client Sample ID: Trip Blank
Lab Sample ID: 590-10950-5

Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,1,1-Trichloroethane	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,1,2,2-Tetrachloroethane	ND	H	20		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,1,2-Trichloroethane	ND	H	20		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,1-Dichloroethane	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2,3-Trichlorobenzene	ND	H	150		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2,3-Trichloropropane	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2,4-Trichlorobenzene	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2,4-Trimethylbenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2-Dibromo-3-Chloropropane	ND	H	250		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2-Dibromoethane (EDB)	ND	H	20		ug/Kg		05/23/19 12:00	05/23/19 20:50	1

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Client Sample ID: Trip Blank
Lab Sample ID: 590-10950-5
Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2-Dichloroethane	ND	H	20		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,2-Dichloropropane	ND	H	20		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,3,5-Trimethylbenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,3-Dichlorobenzene	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,3-Dichloropropane	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
1,4-Dichlorobenzene	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
2,2-Dichloropropane	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
2-Butanone (MEK)	ND	H	600		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
2-Chlorotoluene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
4-Chlorotoluene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
4-Methyl-2-pentanone (MIBK)	ND	H	400		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Acetone	ND	H	800		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Allyl chloride	ND	H	200		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Benzene	ND	H	30		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Bromobenzene	ND	H	100		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Bromochloromethane	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Bromodichloromethane	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Bromoform	ND	H	200		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Bromomethane	ND	H	200		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Chlorobenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Chloroethane	ND	H	400		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Chloroform	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Chloromethane	ND	H	100		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
cis-1,2-Dichloroethene	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
cis-1,3-Dichloropropene	ND	H	20		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Dibromochloromethane	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Dibromomethane	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Dichlorodifluoromethane	ND	H	200		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Dichlorofluoromethane	ND	H	100		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Ethylbenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Ethyl ether	ND	H	200		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Hexachlorobutadiene	ND	H	150		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Isopropylbenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
m,p-Xylene	ND	H	200		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Methyl tert-butyl ether	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Methylene Chloride	ND	H	250		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Naphthalene	ND	H	100		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
n-Butylbenzene	ND	H	150		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
N-Propylbenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
o-Xylene	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
p-Isopropyltoluene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
sec-Butylbenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Styrene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
tert-Butylbenzene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Tetrachloroethene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Tetrahydrofuran	ND	H	800		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Toluene	ND	H	150		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
trans-1,2-Dichloroethene	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Client Sample ID: Trip Blank
Lab Sample ID: 590-10950-5
Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND	H	40		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Trichloroethene	ND	H	60		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Trichlorofluoromethane	ND	H	200		ug/Kg		05/23/19 12:00	05/23/19 20:50	1
Vinyl chloride	ND	H *	150		ug/Kg		05/23/19 12:00	05/23/19 20:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 121*	*05/23/19 12:00*	*05/23/19 20:50*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:50*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:50*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*	*05/23/19 12:00*	*05/23/19 20:50*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	ND	H	60		ug/Kg		05/30/19 17:25	05/31/19 00:47	1
1,1-Dichloroethene	ND	H	40		ug/Kg		05/30/19 17:25	05/31/19 00:47	1
1,1-Dichloropropene	ND	H	40		ug/Kg		05/30/19 17:25	05/31/19 00:47	1
Carbon tetrachloride	ND	H	20		ug/Kg		05/30/19 17:25	05/31/19 00:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 121*	*05/30/19 17:25*	*05/31/19 00:47*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*	*05/30/19 17:25*	*05/31/19 00:47*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*	*05/30/19 17:25*	*05/31/19 00:47*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*05/30/19 17:25*	*05/31/19 00:47*	*1*

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-301072/1-A
Matrix: Solid
Analysis Batch: 301360

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301072

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,1,1-Trichloroethane	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,1,2,2-Tetrachloroethane	ND		20		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,1,2-Trichloroethane	ND		20		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,1,2-Trichlorotrifluoroethane	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,1-Dichloroethane	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,1-Dichloroethene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,1-Dichloropropene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2,3-Trichlorobenzene	ND		150		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2,3-Trichloropropane	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2,4-Trichlorobenzene	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2,4-Trimethylbenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2-Dibromo-3-Chloropropane	ND		250		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2-Dibromoethane (EDB)	ND		20		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2-Dichlorobenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2-Dichloroethane	ND		20		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,2-Dichloropropane	ND		20		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,3,5-Trimethylbenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,3-Dichlorobenzene	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,3-Dichloropropane	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
1,4-Dichlorobenzene	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
2,2-Dichloropropane	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
2-Butanone (MEK)	ND		600		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
2-Chlorotoluene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
4-Chlorotoluene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
4-Methyl-2-pentanone (MIBK)	ND		400		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Acetone	ND		800		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Allyl chloride	ND		200		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Benzene	ND		30		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Bromobenzene	ND		100		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Bromochloromethane	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Bromodichloromethane	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Bromoform	ND		200		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Bromomethane	ND		200		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Carbon tetrachloride	ND		20		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Chlorobenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Chloroethane	ND		400		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Chloroform	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Chloromethane	ND		100		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
cis-1,2-Dichloroethene	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
cis-1,3-Dichloropropene	ND		20		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Dibromochloromethane	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Dibromomethane	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Dichlorodifluoromethane	ND		200		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Dichlorofluoromethane	ND		100		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Ethylbenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Ethyl ether	ND		200		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Hexachlorobutadiene	ND		150		ug/Kg		05/17/19 15:00	05/17/19 18:05	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-301072/1-A
Matrix: Solid
Analysis Batch: 301360

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301072

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
m,p-Xylene	ND		200		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Methyl tert-butyl ether	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Methylene Chloride	ND		250		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Naphthalene	ND		100		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
n-Butylbenzene	ND		150		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
N-Propylbenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
o-Xylene	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
p-Isopropyltoluene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
sec-Butylbenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Styrene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
tert-Butylbenzene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Tetrachloroethene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Tetrahydrofuran	ND		800		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Toluene	ND		150		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
trans-1,2-Dichloroethene	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
trans-1,3-Dichloropropene	ND		40		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Trichloroethene	ND		60		ug/Kg		05/17/19 15:00	05/17/19 18:05	1
Trichlorofluoromethane	ND		200		ug/Kg		05/17/19 15:00	05/17/19 18:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/17/19 15:00*	*05/17/19 18:05*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*	*05/17/19 15:00*	*05/17/19 18:05*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*	*05/17/19 15:00*	*05/17/19 18:05*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*	*05/17/19 15:00*	*05/17/19 18:05*	*1*

Lab Sample ID: LCS 580-301072/2-A
Matrix: Solid
Analysis Batch: 301360

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301072

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	800	742		ug/Kg		93	79 - 128
1,1,1-Trichloroethane	800	795		ug/Kg		99	69 - 150
1,1,2,2-Tetrachloroethane	800	715		ug/Kg		89	66 - 127
1,1,2-Trichloroethane	800	725		ug/Kg		91	80 - 123
1,1,2-Trichlorotrifluoroethane	800	840		ug/Kg		105	70 - 138
1,1-Dichloroethane	800	758		ug/Kg		95	70 - 135
1,1-Dichloroethene	800	836		ug/Kg		105	58 - 150
1,1-Dichloropropene	800	796		ug/Kg		100	69 - 150
1,2,3-Trichlorobenzene	800	774		ug/Kg		97	62 - 136
1,2,3-Trichloropropane	800	725		ug/Kg		91	70 - 127
1,2,4-Trichlorobenzene	800	763		ug/Kg		95	68 - 131
1,2,4-Trimethylbenzene	800	786		ug/Kg		98	73 - 127
1,2-Dibromo-3-Chloropropane	800	669		ug/Kg		84	62 - 135
1,2-Dibromoethane (EDB)	800	714		ug/Kg		89	77 - 123
1,2-Dichlorobenzene	800	743		ug/Kg		93	78 - 126
1,2-Dichloroethane	800	768		ug/Kg		96	68 - 132
1,2-Dichloropropane	800	761		ug/Kg		95	65 - 136

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-301072/2-A
Matrix: Solid
Analysis Batch: 301360

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301072

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	800	793		ug/Kg		99	72 - 136
1,3-Dichlorobenzene	800	761		ug/Kg		95	78 - 122
1,3-Dichloropropane	800	704		ug/Kg		88	75 - 120
1,4-Dichlorobenzene	800	753		ug/Kg		94	77 - 123
2,2-Dichloropropane	800	781		ug/Kg		98	62 - 150
2-Butanone (MEK)	4000	3540		ug/Kg		88	55 - 143
2-Chlorotoluene	800	762		ug/Kg		95	77 - 127
4-Chlorotoluene	800	767		ug/Kg		96	78 - 126
4-Methyl-2-pentanone (MIBK)	4000	3540		ug/Kg		88	68 - 125
Acetone	4000	3710		ug/Kg		93	25 - 150
Allyl chloride	800	811		ug/Kg		101	40 - 150
Benzene	800	752		ug/Kg		94	72 - 135
Bromobenzene	800	746		ug/Kg		93	78 - 126
Bromochloromethane	800	769		ug/Kg		96	76 - 131
Bromodichloromethane	800	750		ug/Kg		94	73 - 125
Bromoform	800	731		ug/Kg		91	71 - 129
Bromomethane	800	717		ug/Kg		90	42 - 150
Carbon tetrachloride	800	795		ug/Kg		99	66 - 150
Chlorobenzene	800	757		ug/Kg		95	80 - 123
Chloroethane	800	818		ug/Kg		102	31 - 150
Chloroform	800	743		ug/Kg		93	74 - 133
Chloromethane	800	738		ug/Kg		92	43 - 150
cis-1,2-Dichloroethene	800	749		ug/Kg		94	68 - 143
cis-1,3-Dichloropropene	800	746		ug/Kg		93	80 - 122
Dibromochloromethane	800	733		ug/Kg		92	75 - 125
Dibromomethane	800	739		ug/Kg		92	72 - 130
Dichlorodifluoromethane	800	797		ug/Kg		100	10 - 150
Dichlorofluoromethane	800	778		ug/Kg		97	61 - 150
Ethylbenzene	800	767		ug/Kg		96	80 - 135
Ethyl ether	800	751		ug/Kg		94	65 - 150
Hexachlorobutadiene	800	833		ug/Kg		104	65 - 150
Isopropylbenzene	800	804		ug/Kg		101	74 - 140
m,p-Xylene	800	783		ug/Kg		98	80 - 132
Methyl tert-butyl ether	800	724		ug/Kg		91	68 - 132
Methylene Chloride	800	766		ug/Kg		96	54 - 149
Naphthalene	800	738		ug/Kg		92	49 - 147
n-Butylbenzene	800	830		ug/Kg		104	69 - 143
N-Propylbenzene	800	781		ug/Kg		98	74 - 143
o-Xylene	800	762		ug/Kg		95	80 - 125
p-Isopropyltoluene	800	811		ug/Kg		101	71 - 142
sec-Butylbenzene	800	826		ug/Kg		103	77 - 143
Styrene	800	795		ug/Kg		99	79 - 129
tert-Butylbenzene	800	802		ug/Kg		100	72 - 144
Tetrachloroethene	800	789		ug/Kg		99	71 - 145
Tetrahydrofuran	1600	1460		ug/Kg		91	77 - 124
Toluene	800	759		ug/Kg		95	75 - 137
trans-1,2-Dichloroethene	800	768		ug/Kg		96	61 - 150
trans-1,3-Dichloropropene	800	736		ug/Kg		92	80 - 121
Trichloroethene	800	772		ug/Kg		97	69 - 144

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-301072/2-A
Matrix: Solid
Analysis Batch: 301360

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301072

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichlorofluoromethane			800	836		ug/Kg		104	48 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 580-301072/3-A
Matrix: Solid
Analysis Batch: 301360

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301072

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			800	742		ug/Kg		93	79 - 128	0	17
1,1,1-Trichloroethane			800	802		ug/Kg		100	69 - 150	1	14
1,1,2,2-Tetrachloroethane			800	717		ug/Kg		90	66 - 127	0	18
1,1,2-Trichloroethane			800	754		ug/Kg		94	80 - 123	4	20
1,1,2-Trichlorotrifluoroethane			800	857		ug/Kg		107	70 - 138	2	17
1,1-Dichloroethane			800	763		ug/Kg		95	70 - 135	1	21
1,1-Dichloroethene			800	867		ug/Kg		108	58 - 150	4	29
1,1-Dichloropropene			800	807		ug/Kg		101	69 - 150	1	11
1,2,3-Trichlorobenzene			800	795		ug/Kg		99	62 - 136	3	34
1,2,3-Trichloropropane			800	772		ug/Kg		97	70 - 127	6	16
1,2,4-Trichlorobenzene			800	787		ug/Kg		98	68 - 131	3	29
1,2,4-Trimethylbenzene			800	812		ug/Kg		102	73 - 127	3	20
1,2-Dibromo-3-Chloropropane			800	722		ug/Kg		90	62 - 135	8	25
1,2-Dibromoethane (EDB)			800	744		ug/Kg		93	77 - 123	4	20
1,2-Dichlorobenzene			800	765		ug/Kg		96	78 - 126	3	21
1,2-Dichloroethane			800	789		ug/Kg		99	68 - 132	3	17
1,2-Dichloropropane			800	786		ug/Kg		98	65 - 136	3	13
1,3,5-Trimethylbenzene			800	822		ug/Kg		103	72 - 136	4	21
1,3-Dichlorobenzene			800	796		ug/Kg		99	78 - 122	4	20
1,3-Dichloropropane			800	744		ug/Kg		93	75 - 120	5	18
1,4-Dichlorobenzene			800	782		ug/Kg		98	77 - 123	4	20
2,2-Dichloropropane			800	785		ug/Kg		98	62 - 150	0	20
2-Butanone (MEK)			4000	3910		ug/Kg		98	55 - 143	10	31
2-Chlorotoluene			800	803		ug/Kg		100	77 - 127	5	16
4-Chlorotoluene			800	812		ug/Kg		102	78 - 126	6	16
4-Methyl-2-pentanone (MIBK)			4000	3770		ug/Kg		94	68 - 125	6	20
Acetone			4000	3930		ug/Kg		98	25 - 150	6	39
Allyl chloride			800	801		ug/Kg		100	40 - 150	1	40
Benzene			800	766		ug/Kg		96	72 - 135	2	15
Bromobenzene			800	791		ug/Kg		99	78 - 126	6	19
Bromochloromethane			800	765		ug/Kg		96	76 - 131	1	15
Bromodichloromethane			800	775		ug/Kg		97	73 - 125	3	15
Bromoform			800	739		ug/Kg		92	71 - 129	1	17
Bromomethane			800	688		ug/Kg		86	42 - 150	4	22
Carbon tetrachloride			800	834		ug/Kg		104	66 - 150	5	12

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-301072/3-A
Matrix: Solid
Analysis Batch: 301360

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301072

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene			800	772		ug/Kg		97	80 - 123	2	18
Chloroethane			800	818		ug/Kg		102	31 - 150	0	31
Chloroform			800	738		ug/Kg		92	74 - 133	1	13
Chloromethane			800	711		ug/Kg		89	43 - 150	4	26
cis-1,2-Dichloroethene			800	766		ug/Kg		96	68 - 143	2	20
cis-1,3-Dichloropropene			800	745		ug/Kg		93	80 - 122	0	16
Dibromochloromethane			800	753		ug/Kg		94	75 - 125	3	18
Dibromomethane			800	775		ug/Kg		97	72 - 130	5	14
Dichlorodifluoromethane			800	788		ug/Kg		98	10 - 150	1	40
Dichlorofluoromethane			800	780		ug/Kg		97	61 - 150	0	37
Ethylbenzene			800	785		ug/Kg		98	80 - 135	2	16
Ethyl ether			800	765		ug/Kg		96	65 - 150	2	40
Hexachlorobutadiene			800	849		ug/Kg		106	65 - 150	2	36
Isopropylbenzene			800	801		ug/Kg		100	74 - 140	0	17
m,p-Xylene			800	798		ug/Kg		100	80 - 132	2	20
Methyl tert-butyl ether			800	814		ug/Kg		102	68 - 132	12	25
Methylene Chloride			800	787		ug/Kg		98	54 - 149	3	30
Naphthalene			800	784		ug/Kg		98	49 - 147	6	35
n-Butylbenzene			800	855		ug/Kg		107	69 - 143	3	26
N-Propylbenzene			800	825		ug/Kg		103	74 - 143	5	21
o-Xylene			800	764		ug/Kg		96	80 - 125	0	14
p-Isopropyltoluene			800	829		ug/Kg		104	71 - 142	2	23
sec-Butylbenzene			800	850		ug/Kg		106	77 - 143	3	24
Styrene			800	805		ug/Kg		101	79 - 129	1	15
tert-Butylbenzene			800	831		ug/Kg		104	72 - 144	4	24
Tetrachloroethene			800	812		ug/Kg		101	71 - 145	3	16
Tetrahydrofuran			1600	1550		ug/Kg		97	77 - 124	6	13
Toluene			800	780		ug/Kg		97	75 - 137	3	20
trans-1,2-Dichloroethene			800	768		ug/Kg		96	61 - 150	0	22
trans-1,3-Dichloropropene			800	761		ug/Kg		95	80 - 121	3	21
Trichloroethene			800	828		ug/Kg		103	69 - 144	7	21
Trichlorofluoromethane			800	837		ug/Kg		105	48 - 150	0	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 121*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 580-301539/1-A
Matrix: Solid
Analysis Batch: 301553

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,1,1-Trichloroethane	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,1,2,2-Tetrachloroethane	ND		20		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,1,2-Trichloroethane	ND		20		ug/Kg		05/23/19 12:00	05/23/19 17:54	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-301539/1-A
Matrix: Solid
Analysis Batch: 301553

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2,3-Trichlorobenzene	ND		150		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2,3-Trichloropropane	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2,4-Trichlorobenzene	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2,4-Trimethylbenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2-Dibromo-3-Chloropropane	ND		250		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2-Dibromoethane (EDB)	ND		20		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2-Dichlorobenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2-Dichloroethane	ND		20		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,2-Dichloropropane	ND		20		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,3,5-Trimethylbenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,3-Dichlorobenzene	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,3-Dichloropropane	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
1,4-Dichlorobenzene	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
2,2-Dichloropropane	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
2-Butanone (MEK)	ND		600		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
2-Chlorotoluene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
4-Chlorotoluene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
4-Methyl-2-pentanone (MIBK)	ND		400		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Acetone	ND		800		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Allyl chloride	ND		200		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Benzene	ND		30		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Bromobenzene	ND		100		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Bromochloromethane	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Bromodichloromethane	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Bromoform	ND		200		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Bromomethane	ND		200		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Chlorobenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Chloroethane	ND		400		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Chloroform	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Chloromethane	ND		100		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
cis-1,2-Dichloroethene	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
cis-1,3-Dichloropropene	ND		20		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Dibromochloromethane	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Dibromomethane	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Dichlorodifluoromethane	ND		200		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Dichlorofluoromethane	ND		100		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Ethylbenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Ethyl ether	ND		200		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Hexachlorobutadiene	ND		150		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Isopropylbenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
m,p-Xylene	ND		200		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Methyl tert-butyl ether	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Methylene Chloride	ND		250		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Naphthalene	ND		100		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
n-Butylbenzene	ND		150		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
N-Propylbenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
o-Xylene	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
p-Isopropyltoluene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-301539/1-A
Matrix: Solid
Analysis Batch: 301553

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 301539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Styrene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
tert-Butylbenzene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Tetrachloroethene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Tetrahydrofuran	ND		800		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Toluene	ND		150		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
trans-1,2-Dichloroethene	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
trans-1,3-Dichloropropene	ND		40		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Trichloroethene	ND		60		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Trichlorofluoromethane	ND		200		ug/Kg		05/23/19 12:00	05/23/19 17:54	1
Vinyl chloride	ND		150		ug/Kg		05/23/19 12:00	05/23/19 17:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 121*	*05/23/19 12:00*	*05/23/19 17:54*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*	*05/23/19 12:00*	*05/23/19 17:54*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*	*05/23/19 12:00*	*05/23/19 17:54*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*05/23/19 12:00*	*05/23/19 17:54*	*1*

Lab Sample ID: LCS 580-301539/2-A
Matrix: Solid
Analysis Batch: 301553

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301539

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	800	802		ug/Kg		100	79 - 128
1,1,1-Trichloroethane	800	967		ug/Kg		121	69 - 150
1,1,2,2-Tetrachloroethane	800	792		ug/Kg		99	66 - 127
1,1,2-Trichloroethane	800	763		ug/Kg		95	80 - 123
1,1-Dichloroethane	800	878		ug/Kg		110	70 - 135
1,2,3-Trichlorobenzene	800	673		ug/Kg		84	62 - 136
1,2,3-Trichloropropane	800	769		ug/Kg		96	70 - 127
1,2,4-Trichlorobenzene	800	700		ug/Kg		87	68 - 131
1,2,4-Trimethylbenzene	800	841		ug/Kg		105	73 - 127
1,2-Dibromo-3-Chloropropane	800	728		ug/Kg		91	62 - 135
1,2-Dibromoethane (EDB)	800	770		ug/Kg		96	77 - 123
1,2-Dichlorobenzene	800	765		ug/Kg		96	78 - 126
1,2-Dichloroethane	800	854		ug/Kg		107	68 - 132
1,2-Dichloropropane	800	824		ug/Kg		103	65 - 136
1,3,5-Trimethylbenzene	800	862		ug/Kg		108	72 - 136
1,3-Dichlorobenzene	800	778		ug/Kg		97	78 - 122
1,3-Dichloropropane	800	802		ug/Kg		100	75 - 120
1,4-Dichlorobenzene	800	775		ug/Kg		97	77 - 123
2,2-Dichloropropane	800	964		ug/Kg		121	62 - 150
2-Butanone (MEK)	4000	4090		ug/Kg		102	55 - 143
2-Chlorotoluene	800	818		ug/Kg		102	77 - 127
4-Chlorotoluene	800	830		ug/Kg		104	78 - 126
4-Methyl-2-pentanone (MIBK)	4000	4030		ug/Kg		101	68 - 125
Acetone	4000	4700		ug/Kg		118	25 - 150
Allyl chloride	800	857		ug/Kg		107	40 - 150

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-301539/2-A
Matrix: Solid
Analysis Batch: 301553

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 301539

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	857		ug/Kg		107	72 - 135
Bromobenzene	800	797		ug/Kg		100	78 - 126
Bromochloromethane	800	844		ug/Kg		106	76 - 131
Bromodichloromethane	800	839		ug/Kg		105	73 - 125
Bromoform	800	786		ug/Kg		98	71 - 129
Bromomethane	800	868		ug/Kg		108	42 - 150
Chlorobenzene	800	778		ug/Kg		97	80 - 123
Chloroethane	800	928		ug/Kg		116	31 - 150
Chloroform	800	864		ug/Kg		108	74 - 133
Chloromethane	800	871		ug/Kg		109	43 - 150
cis-1,2-Dichloroethene	800	887		ug/Kg		111	68 - 143
cis-1,3-Dichloropropene	800	805		ug/Kg		101	80 - 122
Dibromochloromethane	800	812		ug/Kg		101	75 - 125
Dibromomethane	800	841		ug/Kg		105	72 - 130
Dichlorodifluoromethane	800	890		ug/Kg		111	10 - 150
Dichlorofluoromethane	800	953		ug/Kg		119	61 - 150
Ethylbenzene	800	838		ug/Kg		105	80 - 135
Ethyl ether	800	823		ug/Kg		103	65 - 150
Hexachlorobutadiene	800	805		ug/Kg		101	65 - 150
Isopropylbenzene	800	944		ug/Kg		118	74 - 140
m,p-Xylene	800	830		ug/Kg		104	80 - 132
Methyl tert-butyl ether	800	768		ug/Kg		96	68 - 132
Methylene Chloride	800	800		ug/Kg		100	54 - 149
Naphthalene	800	711		ug/Kg		89	49 - 147
n-Butylbenzene	800	911		ug/Kg		114	69 - 143
N-Propylbenzene	800	889		ug/Kg		111	74 - 143
o-Xylene	800	876		ug/Kg		109	80 - 125
p-Isopropyltoluene	800	894		ug/Kg		112	71 - 142
sec-Butylbenzene	800	958		ug/Kg		120	77 - 143
Styrene	800	824		ug/Kg		103	79 - 129
tert-Butylbenzene	800	906		ug/Kg		113	72 - 144
Tetrachloroethene	800	899		ug/Kg		112	71 - 145
Tetrahydrofuran	1600	1660		ug/Kg		104	77 - 124
Toluene	800	836		ug/Kg		104	75 - 137
trans-1,2-Dichloroethene	800	902		ug/Kg		113	61 - 150
trans-1,3-Dichloropropene	800	806		ug/Kg		101	80 - 121
Trichloroethene	800	896		ug/Kg		112	69 - 144
Trichlorofluoromethane	800	976		ug/Kg		122	48 - 150
Vinyl chloride	800	1420	*	ug/Kg		178	13 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 121*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-301539/3-A
Matrix: Solid
Analysis Batch: 301553

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301539

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			800	791		ug/Kg		99	79 - 128	1	17
1,1,1-Trichloroethane			800	971		ug/Kg		121	69 - 150	0	14
1,1,2,2-Tetrachloroethane			800	793		ug/Kg		99	66 - 127	0	18
1,1,2-Trichloroethane			800	767		ug/Kg		96	80 - 123	1	20
1,1-Dichloroethane			800	868		ug/Kg		109	70 - 135	1	21
1,2,3-Trichlorobenzene			800	758		ug/Kg		95	62 - 136	12	34
1,2,3-Trichloropropane			800	763		ug/Kg		95	70 - 127	1	16
1,2,4-Trichlorobenzene			800	768		ug/Kg		96	68 - 131	9	29
1,2,4-Trimethylbenzene			800	851		ug/Kg		106	73 - 127	1	20
1,2-Dibromo-3-Chloropropane			800	763		ug/Kg		95	62 - 135	5	25
1,2-Dibromoethane (EDB)			800	783		ug/Kg		98	77 - 123	2	20
1,2-Dichlorobenzene			800	775		ug/Kg		97	78 - 126	1	21
1,2-Dichloroethane			800	839		ug/Kg		105	68 - 132	2	17
1,2-Dichloropropane			800	828		ug/Kg		103	65 - 136	0	13
1,3,5-Trimethylbenzene			800	866		ug/Kg		108	72 - 136	0	21
1,3-Dichlorobenzene			800	799		ug/Kg		100	78 - 122	3	20
1,3-Dichloropropane			800	819		ug/Kg		102	75 - 120	2	18
1,4-Dichlorobenzene			800	783		ug/Kg		98	77 - 123	1	20
2,2-Dichloropropane			800	924		ug/Kg		115	62 - 150	4	20
2-Butanone (MEK)			4000	4290		ug/Kg		107	55 - 143	5	31
2-Chlorotoluene			800	827		ug/Kg		103	77 - 127	1	16
4-Chlorotoluene			800	843		ug/Kg		105	78 - 126	2	16
4-Methyl-2-pentanone (MIBK)			4000	4140		ug/Kg		104	68 - 125	3	20
Acetone			4000	4990		ug/Kg		125	25 - 150	6	39
Allyl chloride			800	842		ug/Kg		105	40 - 150	2	40
Benzene			800	864		ug/Kg		108	72 - 135	1	15
Bromobenzene			800	810		ug/Kg		101	78 - 126	2	19
Bromochloromethane			800	836		ug/Kg		104	76 - 131	1	15
Bromodichloromethane			800	842		ug/Kg		105	73 - 125	0	15
Bromoform			800	777		ug/Kg		97	71 - 129	1	17
Bromomethane			800	793		ug/Kg		99	42 - 150	9	22
Chlorobenzene			800	787		ug/Kg		98	80 - 123	1	18
Chloroethane			800	894		ug/Kg		112	31 - 150	4	31
Chloroform			800	845		ug/Kg		106	74 - 133	2	13
Chloromethane			800	835		ug/Kg		104	43 - 150	4	26
cis-1,2-Dichloroethene			800	872		ug/Kg		109	68 - 143	2	20
cis-1,3-Dichloropropene			800	819		ug/Kg		102	80 - 122	2	16
Dibromochloromethane			800	820		ug/Kg		103	75 - 125	1	18
Dibromomethane			800	835		ug/Kg		104	72 - 130	1	14
Dichlorodifluoromethane			800	825		ug/Kg		103	10 - 150	8	40
Dichlorofluoromethane			800	932		ug/Kg		116	61 - 150	2	37
Ethylbenzene			800	846		ug/Kg		106	80 - 135	1	16
Ethyl ether			800	820		ug/Kg		103	65 - 150	0	40
Hexachlorobutadiene			800	884		ug/Kg		111	65 - 150	9	36
Isopropylbenzene			800	936		ug/Kg		117	74 - 140	1	17
m,p-Xylene			800	839		ug/Kg		105	80 - 132	1	20
Methyl tert-butyl ether			800	767		ug/Kg		96	68 - 132	0	25
Methylene Chloride			800	790		ug/Kg		99	54 - 149	1	30

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-301539/3-A
Matrix: Solid
Analysis Batch: 301553

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 301539

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	800	779		ug/Kg		97	49 - 147	9	35
n-Butylbenzene	800	932		ug/Kg		116	69 - 143	2	26
N-Propylbenzene	800	905		ug/Kg		113	74 - 143	2	21
o-Xylene	800	864		ug/Kg		108	80 - 125	1	14
p-Isopropyltoluene	800	905		ug/Kg		113	71 - 142	1	23
sec-Butylbenzene	800	967		ug/Kg		121	77 - 143	1	24
Styrene	800	832		ug/Kg		104	79 - 129	1	15
tert-Butylbenzene	800	912		ug/Kg		114	72 - 144	1	24
Tetrachloroethene	800	928		ug/Kg		116	71 - 145	3	16
Tetrahydrofuran	1600	1660		ug/Kg		104	77 - 124	0	13
Toluene	800	844		ug/Kg		106	75 - 137	1	20
trans-1,2-Dichloroethene	800	897		ug/Kg		112	61 - 150	1	22
trans-1,3-Dichloropropene	800	817		ug/Kg		102	80 - 121	1	21
Trichloroethene	800	894		ug/Kg		112	69 - 144	0	21
Trichlorofluoromethane	800	966		ug/Kg		121	48 - 150	1	40
Vinyl chloride	800	759	*	ug/Kg		95	13 - 150	61	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 121*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: MB 580-302038/1-A
Matrix: Solid
Analysis Batch: 302041

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302038

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichlorotrifluoroethane	ND		60		ug/Kg		05/30/19 17:25	05/30/19 23:31	1
1,1-Dichloroethene	ND		40		ug/Kg		05/30/19 17:25	05/30/19 23:31	1
1,1-Dichloropropene	ND		40		ug/Kg		05/30/19 17:25	05/30/19 23:31	1
Carbon tetrachloride	ND		20		ug/Kg		05/30/19 17:25	05/30/19 23:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 121*	*05/30/19 17:25*	*05/30/19 23:31*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*	*05/30/19 17:25*	*05/30/19 23:31*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*	*05/30/19 17:25*	*05/30/19 23:31*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*	*05/30/19 17:25*	*05/30/19 23:31*	*1*

Lab Sample ID: LCS 580-302038/2-A
Matrix: Solid
Analysis Batch: 302041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichlorotrifluoroethane	800	903		ug/Kg		113	70 - 138
1,1-Dichloroethene	800	891		ug/Kg		111	58 - 150
1,1-Dichloropropene	800	929		ug/Kg		116	69 - 150
Carbon tetrachloride	800	912		ug/Kg		114	66 - 150

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-302038/2-A
Matrix: Solid
Analysis Batch: 302041

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 302038

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 121*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 580-302038/3-A
Matrix: Solid
Analysis Batch: 302041

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 302038

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichlorotrifluoroethane	800	913		ug/Kg		114	70 - 138	1	17
1,1-Dichloroethene	800	900		ug/Kg		113	58 - 150	1	29
1,1-Dichloropropene	800	928		ug/Kg		116	69 - 150	0	11
Carbon tetrachloride	800	924		ug/Kg		115	66 - 150	1	12

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 121*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-300559/1-A
Matrix: Solid
Analysis Batch: 300565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300559

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.0		mg/Kg		05/13/19 12:53	05/13/19 14:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*50 - 150*	*05/13/19 12:53*	*05/13/19 14:23*	*1*
Trifluorotoluene (Surr)	*177*	*X*	*50 - 150*	*05/13/19 12:53*	*05/13/19 14:23*	*1*

Lab Sample ID: LCS 580-300559/2-A
Matrix: Solid
Analysis Batch: 300565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300559

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	40.0	35.9		mg/Kg		90	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*
Trifluorotoluene (Surr)	*104*		*50 - 150*

Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCSD 580-300559/3-A
Matrix: Solid
Analysis Batch: 300565

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300559

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline			40.0	36.1		mg/Kg		90	80 - 120	1	10

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*
Trifluorotoluene (Surr)	*103*		*50 - 150*

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 590-22223/1-A
Matrix: Solid
Analysis Batch: 22214

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg		05/20/19 14:09	05/20/19 18:22	1
Residual Range Organics (RRO) (C25-C36)	ND		25		mg/Kg		05/20/19 14:09	05/20/19 18:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*73*		*50 - 150*	*05/20/19 14:09*	*05/20/19 18:22*	*1*
n-Triacontane-d62	*80*		*50 - 150*	*05/20/19 14:09*	*05/20/19 18:22*	*1*

Lab Sample ID: LCS 590-22223/2-A
Matrix: Solid
Analysis Batch: 22214

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22223

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (DRO) (C10-C25)			66.7	59.2		mg/Kg		89	50 - 150		
Residual Range Organics (RRO) (C25-C36)			66.7	67.2		mg/Kg		101	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*85*		*50 - 150*
n-Triacontane-d62	*94*		*50 - 150*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 590-22110/2-A
Matrix: Solid
Analysis Batch: 22160

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0		mg/Kg		05/09/19 11:33	05/13/19 11:41	1

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-22110/1-A
Matrix: Solid
Analysis Batch: 22160

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	50.0	53.0		mg/Kg		106	80 - 120

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Client Sample ID: GEI015-DP1(0-2)
Lab Sample ID: 590-10950-1
Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22116	05/09/19 14:46	SJK	TAL SPK

Client Sample ID: GEI015-DP1(0-2)
Lab Sample ID: 590-10950-1
Date Collected: 05/06/19 10:40
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9.65 g	5 mL	301072	05/17/19 15:00	ASJ	TAL SEA
Total/NA	Analysis	8260C		1	1.075 mL	43 mL	301360	05/18/19 00:24	TL1	TAL SEA
Total/NA	Prep	5035	RA		9.65 g	10 mL	301539	05/23/19 12:00	ASJ	TAL SEA
Total/NA	Analysis	8260C	RA	1	1.075 mL	43 mL	301553	05/23/19 19:09	CJ	TAL SEA
Total/NA	Prep	5035			9.65 g	10 mL	300559	05/13/19 12:53	Z1R	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	1.075 mL	43 mL	300565	05/13/19 17:23	T1W	TAL SEA
Total/NA	Prep	3550C			15.70 g	5 mL	22223	05/20/19 14:09	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22214	05/20/19 21:59	NMI	TAL SPK
Total/NA	Prep	3050B			1.22 g	50 mL	22110	05/09/19 11:33	JSP	TAL SPK
Total/NA	Analysis	6010C		1			22160	05/13/19 12:53	JSP	TAL SPK

Client Sample ID: GEI015-DP2(0-1.5)
Lab Sample ID: 590-10950-2
Date Collected: 05/06/19 10:50
Matrix: Solid
Date Received: 05/08/19 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22116	05/09/19 14:46	SJK	TAL SPK

Client Sample ID: GEI015-DP2(0-1.5)
Lab Sample ID: 590-10950-2
Date Collected: 05/06/19 10:50
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 88.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7.01 g	5 mL	301072	05/17/19 15:00	ASJ	TAL SEA
Total/NA	Analysis	8260C		1	1.075 mL	43 mL	301360	05/18/19 00:50	TL1	TAL SEA
Total/NA	Prep	5035	RA		7.01 g	10 mL	301539	05/23/19 12:00	ASJ	TAL SEA
Total/NA	Analysis	8260C	RA	1	1.075 mL	43 mL	301553	05/23/19 19:34	CJ	TAL SEA
Total/NA	Prep	5035			7.01 g	10 mL	300559	05/13/19 12:53	Z1R	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	1.075 mL	43 mL	300565	05/13/19 17:53	T1W	TAL SEA
Total/NA	Prep	3550C			15.29 g	5 mL	22223	05/20/19 14:09	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22214	05/20/19 22:18	NMI	TAL SPK
Total/NA	Prep	3050B			1.25 g	50 mL	22110	05/09/19 11:33	JSP	TAL SPK
Total/NA	Analysis	6010C		1			22160	05/13/19 13:06	JSP	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Client Sample ID: GEI015-DP3(0-1)
Lab Sample ID: 590-10950-3
Date Collected: 05/06/19 11:00
Matrix: Solid
Date Received: 05/08/19 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22116	05/09/19 14:46	SJK	TAL SPK

Client Sample ID: GEI015-DP3(0-1)
Lab Sample ID: 590-10950-3
Date Collected: 05/06/19 11:00
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9.6 g	5 mL	301072	05/17/19 15:00	ASJ	TAL SEA
Total/NA	Analysis	8260C		1	1.075 mL	43 mL	301360	05/18/19 01:15	TL1	TAL SEA
Total/NA	Prep	5035	RA		9.6 g	10 mL	301539	05/23/19 12:00	ASJ	TAL SEA
Total/NA	Analysis	8260C	RA	1	1.075 mL	43 mL	301553	05/23/19 20:00	CJ	TAL SEA
Total/NA	Prep	5035			9.6 g	10 mL	300559	05/13/19 12:53	Z1R	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	1.075 mL	43 mL	300565	05/13/19 18:23	T1W	TAL SEA
Total/NA	Prep	3550C			15.95 g	5 mL	22223	05/20/19 14:09	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22214	05/20/19 22:38	NMI	TAL SPK
Total/NA	Prep	3050B			1.26 g	50 mL	22110	05/09/19 11:33	JSP	TAL SPK
Total/NA	Analysis	6010C		1			22160	05/13/19 13:10	JSP	TAL SPK

Client Sample ID: GEI015-DP4(0-2)
Lab Sample ID: 590-10950-4
Date Collected: 05/06/19 11:10
Matrix: Solid
Date Received: 05/08/19 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			22116	05/09/19 14:46	SJK	TAL SPK

Client Sample ID: GEI015-DP4(0-2)
Lab Sample ID: 590-10950-4
Date Collected: 05/06/19 11:10
Matrix: Solid
Date Received: 05/08/19 16:10
Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9.42 g	5 mL	301072	05/17/19 15:00	ASJ	TAL SEA
Total/NA	Analysis	8260C		1	1.075 mL	43 mL	301360	05/18/19 01:40	TL1	TAL SEA
Total/NA	Prep	5035	RA		9.42 g	10 mL	301539	05/23/19 12:00	ASJ	TAL SEA
Total/NA	Analysis	8260C	RA	1	1.075 mL	43 mL	301553	05/23/19 20:25	CJ	TAL SEA
Total/NA	Prep	5035			9.42 g	10 mL	300559	05/13/19 12:53	Z1R	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	1.075 mL	43 mL	300565	05/13/19 18:53	T1W	TAL SEA
Total/NA	Prep	3550C			15.25 g	5 mL	22223	05/20/19 14:09	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22214	05/20/19 22:58	NMI	TAL SPK
Total/NA	Prep	3050B			1.28 g	50 mL	22110	05/09/19 11:33	JSP	TAL SPK
Total/NA	Analysis	6010C		1			22160	05/13/19 13:14	JSP	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Client Sample ID: Trip Blank
Lab Sample ID: 590-10950-5

Date Collected: 05/06/19 10:40
Matrix: Solid

Date Received: 05/08/19 16:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			10 g	10 mL	301539	05/23/19 12:00	ASJ	TAL SEA
Total/NA	Analysis	8260C		1	1.075 mL	43 mL	301553	05/23/19 20:50	CJ	TAL SEA
Total/NA	Prep	5035	RA		10 g	10 mL	302038	05/30/19 17:25	ASJ	TAL SEA
Total/NA	Analysis	8260C	RA	1	1.075 mL	43 mL	302041	05/31/19 00:47	TL1	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Laboratory: Eurofins TestAmerica, Spokane

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-025	12-07-19
Oregon	NELAP	10	4137	12-07-19
Washington	State Program	10	C569	01-06-20

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Method Summary

Client: GeoEngineers Inc
Job ID: 590-10950-1
Project/Site: Klickitat Cty Rd Dept Golden Shop/00504-

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SEA
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC)	NWTPH	TAL SEA
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL SPK
6010C	Metals (ICP)	SW846	TAL SPK
Moisture	Percent Moisture	EPA	TAL SPK
3050B	Preparation, Metals	SW846	TAL SPK
3550C	Ultrasonic Extraction	SW846	TAL SPK
5035	Closed System Purge and Trap	SW846	TAL SEA

Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone (509) 924-9200 Fax (509) 924-9290

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Justin Orr	Lab PM:	Carrier Tracking No(s):	COC No: 590-4574-1476.29
Client Contact: Scott Lathen	Phone: (406) 890-1310	E-Mail:		Page: Page 29 of 29
Company: GeoEngineers Inc				Job #:
Address: 523 East Second Ave	Due Date Requested: STD			
City: Spokane	TAT Requested (days): STD			
State, Zip: WA, 99202				
Phone:	PO #: 0504-150-00			
Email: slathen@geoengineers.com	WO #:			
Project Name:	Project #: 0504-150-00			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	VOCs	Gx (GRPH)	Dx (DRPH+ORPH)	cadmium	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
GEI015-DP1(0-2)	5/6/19	1040	G	S			X	X	X	X		
GEI015-DP2(0-1.5)		1050					X	X	X	X		
GEI015-DP3(0-1)		1100					X	X	X	X		
GEI015-DP4(0-2)		1110					X	X	X	X		
Trip blank		1040					X					

590-10950 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Justin Orr	5/7/19 / 0945	GEI	S. Lathen	5/7/19 0945	GEI
2	[signature]	5/8/19 0800	GET	[signature]	5/8/19 0800	GET
3	[signature]	5/8/19 1610	GEI	Maria Moore	5/8/19 16:10	TASPO

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.4°C

Ver: 01/16/2019

6/3/2019

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Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone (509) 924-9200 Fax (509) 924-9290

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-4328.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: randee.arrington@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-10950-1
Address: 5755 8th Street East, ,	Due Date Requested: 5/20/2019			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel) 253-922-5047(Fax)	PO #:			
Email:	WO #:			
Project Name: Klickitat Cty Rd Dept Golden Shop/00504-	Project #: 59001774			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C/5035A_FM VOC Custom List	NWTPH_Gx/5035A_FM Northwest - GRO	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
GEI015-DP1(0-2) (590-10950-1)	5/6/19	10:40 Pacific		Solid			X	X	2	Samples collected in 5ml MeOH vials
GEI015-DP2(0-1.5) (590-10950-2)	5/6/19	10:50 Pacific		Solid			X	X	2	Samples collected in 5ml MeOH vials
GEI015-DP3(0-1) (590-10950-3)	5/6/19	11:00 Pacific		Solid			X	X	2	Samples collected in 5ml MeOH vials
GEI015-DP4(0-2) (590-10950-4)	5/6/19	11:10 Pacific		Solid			X	X	2	Samples collected in 5ml MeOH vials
Trip Blank (590-10950-5)	5/6/19	10:40 Pacific		Solid			X		1	Samples collected in 5ml MeOH vials

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Mario Groce	5/9/19 15:05	TASPO	Tom Blank	5/10/19 0935	TA-Spo
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: A2 2.0/2.4

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-10950-1

Login Number: 10950
List Number: 1
Creator: O'Toole, Maria C

List Source: Eurofins TestAmerica, Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-10950-1

Login Number: 10950
List Number: 2
Creator: McMorris, Regan

List Source: Eurofins TestAmerica, Seattle
List Creation: 05/10/19 02:28 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Refer to Job Narrative for details.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

APPENDIX C
Report Limitations and Guidelines for Use

APPENDIX C
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

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

Environmental Services Are Performed for Specific Purposes, Persons and Projects

This report has been prepared for the exclusive use of the Washington State Department of Ecology (Ecology). This report is not intended for use by others, and the information contained herein is not applicable to other sites.

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

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

This report has been prepared for the Klickitat County Public Works Department facility located at 1181 West Broadway in Goldendale, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

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

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

Reliance Conditions for Third Parties

Our report was prepared for the exclusive use of Ecology. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm and Ecology with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services

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

have been executed in accordance with our Agreement with Ecology and generally accepted environmental practices in this area at the time this report was prepared.

Environmental Regulations are Always Evolving

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

Uncertainty May Remain Even After This Phase II ESA is Completed

No ESA can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

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

Most Environmental Findings are Professional Opinions

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

Do Not Redraw the Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproductions are acceptable but recognize that separating logs from the report can elevate risk.

Read These Provisions Closely

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations”

provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

Geotechnical, Geologic and Geoenvironmental Reports Should Not be Interchanged

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

Biological Pollutants

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

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

GeoEngineers