

## **Soil Assessment**

Columbia Basin College  
Nurse Training Facility  
901 Northgate Drive  
Richland, Washington

*for*

**Washington State Department of Ecology**

June 24, 2019



## **Soil Assessment**

Columbia Basin College  
Nurse Training Facility  
901 Northgate Drive  
Richland, Washington

*for*

**Washington State Department of Ecology**

June 24, 2019



523 East Second Avenue  
Spokane, Washington 99202  
509.363.3125

**Soil Assessment**  
**Columbia Basin College**  
**Nurse Training Facility**  
**901 Northgate Drive**  
**Richland, Washington**

**File No. 0504-147-00**

**June 24, 2019**

Prepared for:

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

Attention: Jeff Newschwander

Prepared by:

GeoEngineers, Inc.  
523 East Second Avenue  
Spokane, Washington 99202  
509.363.3125



Scott H. Lather, PE  
Environmental Engineer



Bruce D. Williams  
Principal

JWR:SHL:BDW:tjh

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

## Table of Contents

<b>1.0 INTRODUCTION .....</b>	<b>1</b>
<b>2.0 SITE DESCRIPTION AND BACKGROUND .....</b>	<b>1</b>
<b>3.0 SCOPE OF SERVICES .....</b>	<b>1</b>
<b>4.0 FIELD ACTIVITIES .....</b>	<b>2</b>
4.1. Direct-Push Soil Assessment.....	2
4.2. Subsurface Conditions .....	3
4.2.1. Groundwater Conditions .....	3
<b>5.0 CHEMICAL ANALYTICAL RESULTS.....</b>	<b>4</b>
<b>6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>4</b>
<b>7.0 LIMITATIONS .....</b>	<b>5</b>
<b>8.0 REFERENCES .....</b>	<b>5</b>

### LIST OF FIGURES

Figure 1. Vicinity Map

Figure 2. Exploration Locations

Figure 3. Site Photographs – April 29, 2019

### APPENDICES

Appendix A. Field Procedures and Boring Logs

    Figure A-1 – Key to Exploration Logs

    Figure A-2 through A-7 – Logs of Borings

Appendix B. Chemical Analytical Laboratory Reports and Data Validation

Appendix C. Report Limitations and Guidelines for Use

## 1.0 INTRODUCTION

This report describes soil assessment activities conducted at the Columbia Basin College (CBC), Nurse Training Facility site located at 901 Northgate Drive in Richland, 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 remnant soil contamination 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 site is developed with several buildings and associated paved parking. The site is currently owned by CBC. Petroleum impacted soil was identified at the site, which was identified as 1011 Northgate Drive, during a December 2003 geotechnical investigation by Shannon & Wilson, Inc. (S&W 2004). A soil sample from soil boring B-2, as shown in the attached Exploration Locations, Figure 2, was collected from a depth of 14.5 feet below ground surface (bgs) and submitted for chemical analyses of gasoline-range petroleum hydrocarbons (GRPH) and benzene, toluene, ethylbenzene and xylenes (BTEX). Results indicated that GRPH and BTEX concentrations in the submitted soil sample were greater than the Washington State Model Toxics Control Act (MTCA) Method A cleanup levels. Information identifying past uses that might have led to the presence of petroleum impacted soil on the site was not identified. The source of contamination is not known. Key site features and exploration locations are shown on Figure 2.

## 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 and conduct the assessment and sampling event.
3. 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 historical sample that exceeded MTCA Method A cleanup levels to depths from 12.5 to 13.25 feet bgs. Soil samples were collected from 4-foot intervals using a continuous core sampler for field screening and potential chemical analysis. Soil samples were collected per procedures outlined in the Work Plan.

4. Observed and documented subsurface soil conditions. Field screening consisted of visual observation, water sheen testing and headspace vapor measurements using a photoionization detector (PID).
5. Groundwater was observed during drilling operations; however, indications of contaminated soil were not observed extending to depths near groundwater and therefore groundwater was not measured, purged or sampled.
6. Backfilled borings with bentonite clay and surface completed with an asphalt patch.
7. Submitted at least one soil sample from each boring to Eurofins TestAmerica (TestAmerica) in Spokane Valley, Washington for chemical analysis. The soil samples were submitted for analysis for the following potential contaminants:
  - a. Diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH, respectively) using Northwest Method NWTPH-Dx;
  - b. GRPH using Northwest Method NWTPH-Gx; and
  - c. BTEX using Environmental Protection Agency (EPA) Method 8260C.
8. Drum 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 in Medical Lake, Washington.
9. Compared soil chemical analytical results to MTCA Method A cleanup levels.
10. Prepared this site assessment report summarizing field and laboratory data, comparing analytical results to MTCA Method A cleanup levels and providing recommendations.
11. Entered laboratory analytical data results into Ecology's Environmental Information Management (EIM) database.

## **4.0 FIELD ACTIVITIES**

GeoEngineers completed field activities in April 2019. An initial 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 April 29, 2019. Environmental West advanced six borings (DP-1 through DP-6) using direct-push drilling methods at the locations shown on Figure 2. Photographs of field assessment activities are shown on Site Photographs – April 29, 2019, Figure 3. The direct-push boring locations are summarized by the following:

- Soil boring GEI009-DP1 was drilled to a depth of approximately 13.25 feet bgs. Field screening did not indicate the presence of petroleum contamination. One soil sample for potential chemical analysis was collected from 9.5 to 10 feet bgs. Boring refusal was encountered at 13.25 feet bgs and groundwater was observed at approximately 10 feet bgs.

- Soil boring GEI009-DP2 was drilled to a depth of approximately 12.25 feet bgs. Field screening did not indicate the presence of petroleum contamination. One soil sample for potential chemical analysis was collected from 9.5 to 10 feet bgs. Boring refusal was encountered at 12.5 feet bgs and groundwater was observed at approximately 10 feet bgs.
- Soil boring GEI009-DP3 was drilled to a depth of approximately 12.5 feet bgs. Field screening did not indicate the presence of petroleum contamination. One soil sample for potential chemical analysis was collected from 5 to 5.5 feet bgs. Boring refusal was encountered at 12.5 feet bgs and groundwater was observed at approximately 12 feet bgs.
- Soil boring GEI009-DP4 was drilled to a depth of approximately 12.5 feet bgs. Field screening did not indicate the presence of petroleum contamination. Soil samples were collected from the boring for potential chemical analysis; however, the soil samples were not submitted to TestAmerica for analyses. Groundwater was observed at approximately 12 feet bgs.
- Soil boring GEI009-DP5 was drilled to a depth of approximately 13 feet bgs. Field screening did not indicate the presence of petroleum contamination. One soil sample for potential chemical analysis was collected from 6 to 6.5 feet bgs. Boring refusal was encountered at 13 feet bgs and groundwater was observed at approximately 12 feet bgs.
- Soil boring GEI009-DP6 was drilled to a depth of approximately 13.25 feet bgs. Field screening did not indicate the presence of petroleum contamination. One soil sample for potential chemical analysis was collected from 12.5 to 13 feet bgs. Boring refusal was encountered at 13.25 feet bgs and groundwater was not observed.

Environmental West backfilled each boring with bentonite and capped the boring with an asphalt patch. Excess soil cuttings were placed in one 55-gallon steel drum, labeled and placed at a location approved by the property owner (depicted on Figure 2). 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 overlaying gravel with varying amounts of silt and sand. Soil borings terminated between 12.5 and 13.25 feet bgs at refusal on inferred basalt bedrock.

### **4.2.1. Groundwater Conditions**

Groundwater was observed in explorations GEI009-DP1 through GEI009-DP5 at depths between 10 and 12 feet bgs. Groundwater beneath the site generally flows east toward the Columbia River (CESI 2011). Because indications of contaminated soil were not observed in the borings, groundwater was not measured, purged or sampled.

## 5.0 CHEMICAL ANALYTICAL RESULTS

Five 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 I.

- ORPH was detected at a concentration of 33 milligrams per kilograms (mg/kg) in the soil sample analyzed from GEI009-DP6. ORPH was not detected above laboratory method detection limit (MDL) in the remaining soil samples analyzed.
- GRPH and DRPH were not detected above the MDLs in the soil samples analyzed.
- BTEX were not detected at concentrations above the MDLs in the soil samples analyzed.

**TABLE I. SUMMARY OF CHEMICAL ANALYTICAL RESULTS - SOIL**

Sample Identification	Date Sampled	GRPH <sup>3</sup> (mg/kg)	DRPH <sup>2</sup> (mg/kg)	ORPH <sup>2</sup> (mg/kg)	Benzene <sup>5</sup> (mg/kg)	Toluene <sup>5</sup> (mg/kg)	Ethylbenzene <sup>5</sup> (mg/kg)	m,p-Xylene <sup>5</sup> (mg/kg)	o-Xylene <sup>5</sup> (mg/kg)	Total Xylenes <sup>5</sup> (mg/kg)
GEI009-DP1(9.5-10)	4/29/2019	<8.2	<13	<31	<0.016	<0.16	<0.16	<0.66	<0.33	<0.99
GEI009-DP2 (9.5-10)	4/29/2019	<7.2	<12	<30	<0.014	<0.14	<0.14	<0.57	<0.29	<0.86
GEI009-DP3 (5-5.5)	4/29/2019	<6.9	<12	<30	<0.014	<0.14	<0.14	<0.55	<0.28	<0.83
GEI009-DP5 (6-6.5)	4/29/2019	<8.3	<12	<29	<0.017	<0.17	<0.17	<0.67	<0.33	<1.0
GEI009-DP6 (12.5-13)	4/29/2019	<6.3	<12	<b>33</b>	<0.013	<0.13	<0.13	<0.50	<0.25	<0.75
MTCA Method A CUL <sup>1</sup>		2,000	100/30 <sup>4</sup>	2,000	0.03	7	6	NE	NE	9

Notes:

<sup>1</sup>MTCA Method A CUL - Washington State Model Toxics Control Act Method A unrestricted land use cleanup level

<sup>2</sup>DRPH and ORPH analyzed using Northwest Method NWTPH-Dx.

<sup>3</sup>GRPH analyzed using Northwest Method NWTPH-Gx.

<sup>4</sup>GRPH cleanup level is 100 mg/kg if benzene is not present; 30 mg/kg if benzene is present.

<sup>5</sup>BTEX were analyzed using EPA Method 8260C.

mg/kg = milligrams per kilogram; EPA = Environmental Protection Agency

**Bold** indicates analyte was detected.

## 6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Soil assessment activities were conducted on April 29, 2019, at the CBC Nurse Training Facility located at 901 Northgate Drive in Richland, Washington.

Five soil samples were collected from site borings and submitted for analysis of GRPH, DRPH, ORPH and BTEX. Soil samples were collected from site boring GEI009-DP4; however, they were not submitted to



TestAmerica for analyses. Field screening did not indicate the presence of petroleum contamination in site borings, and in our opinion, the lack of analytical data from GEI009-DP4 does not constitute a data gap. The contaminants analyzed were either not detected above the laboratory MDLs or detected at concentrations less than MTCA Method A Cleanup levels in the samples analyzed.

Based on these assessment results, contamination does not appear to be present and no further investigation appears to be warranted for the Columbia Basin College, Nurse Training Facility site.

ACT picked up, transported and disposed the IDW at Waste Management's Graham Road Landfill located in Medical Lake, Washington on June 17, 2019. The accumulated IDW amounted to one, 55-gallon drum.

## **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.

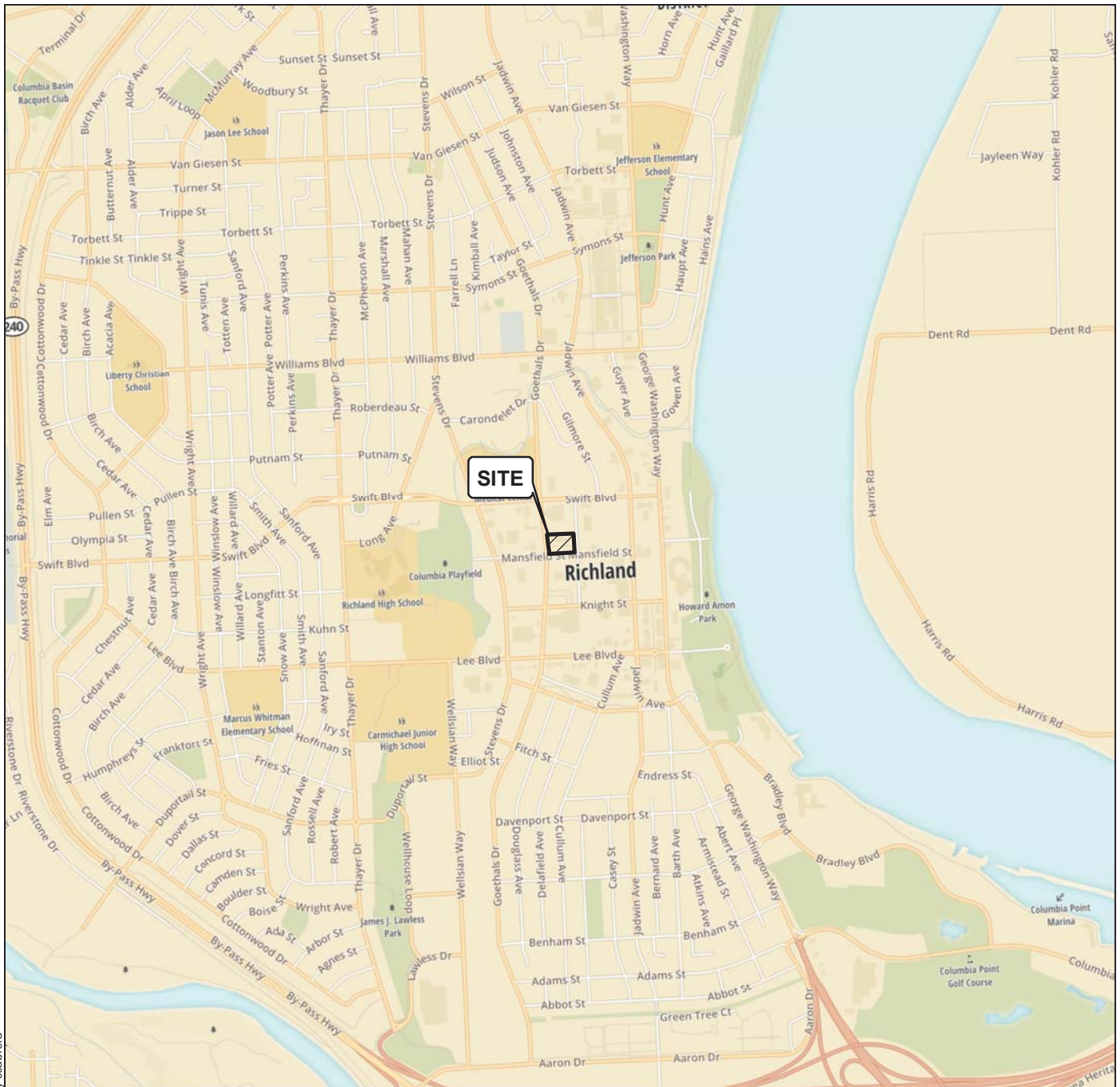
## **8.0 REFERENCES**

Columbia Environmental Sciences, Inc., 2011. Phase I Environmental Site Assessment for the Property: Delta High School Property, Richland, Washington. September 16, 2011.

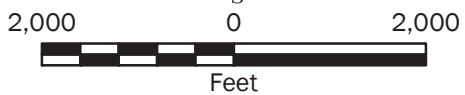
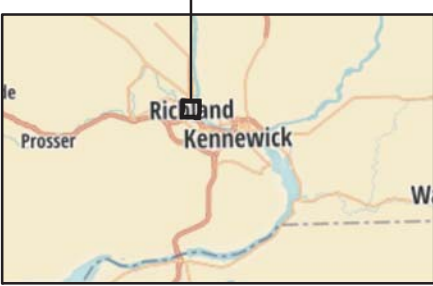
GeoEngineers, 2019. Work Plan, Columbia Basin College, Nursing Training Facility, Richland, Washington. April 19, 2019.

S&W, 2004. Notification of Contaminated Soil, Columbia Basin College, Richland, Washington Campus. Sent to Ecology Toxics Cleanup Program. April 8, 2004.





P:\0\0504147\_GIS\MXD\050414700\_F01\_VM.mxd Date Exported: 04/15/19 by ccabrera



**Notes:**

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

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 10N

<b>Vicinity Map</b>	
CBC WSU Nurse Training Facility Richland, Washington	
	<b>Figure 1</b>



P:\0\_0504147\GIS\MXD\050414700\_F02\_ExplorationLocations.mxd Date Exported: 06/18/19 by ccabrera

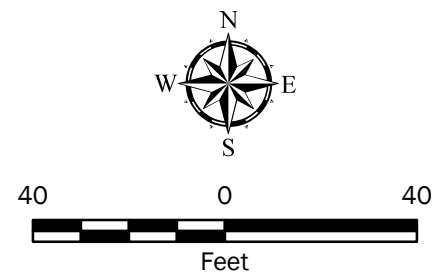
**Notes:**

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.
3. IDW = Investigative derived waste, MTCA = Model Toxics Control Act

Data Source: Clarity, ESRI.  
 Site boundary and street data from Benton County, Washington GIS.  
 Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

**Legend**

- GEI009-DP1 Direct Push Boring Number and Approximate Location (GeoEngineers, April 2019)
- B-1 Boring Number and Approximate Location (Shannon & Wilson, January 2004)
- B-3 Boring with MTCA Method A Exceedances
- Inferred Groundwater Flow Direction (Columbia Environmental Sciences, Inc. 2011)
- Approximate Site Boundary



<b>Exploration Locations</b>	
CBC WSU Nurse Training Facility Richland, Washington	
	<b>Figure 2</b>



Environmental West advances soil boring GEI009-DP1 (view looking east).



Environmental West completes GEI009-DP-5 with asphalt patch (view looking northeast)

**Site Photographs – April 29, 2019**

CBC WSU Nurse Training Facility  
Richland, Washington



**Figure 3**



**APPENDIX A**  
**Field Procedures and Boring Logs**

## **APPENDIX A FIELD PROCEDURES AND BORING LOGS**

### **General**

Subsurface conditions at the former CBC Nurse Training Facility site were explored on April 29, 2019, by advancing six direct-push borings at the approximate locations shown on Exploration Locations, Figure 2. Borings were advanced to between 12½- to 13¼-feet bgs. Boring locations were established in the field using a site plan and measurements from on-site 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-7. 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) 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		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		<b>GW</b>	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		<b>GP</b>	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		<b>GM</b>	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		<b>SW</b>	WELL-GRADED SANDS, GRAVELLY SANDS
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		<b>SP</b>	POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		<b>SM</b>	SILTY SANDS, SAND - SILT MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		<b>ML</b>	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
		LIQUID LIMIT LESS THAN 50		<b>CL</b>	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		LIQUID LIMIT LESS THAN 50		<b>OL</b>	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		<b>MH</b>	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
		LIQUID LIMIT GREATER THAN 50		<b>CH</b>	INORGANIC CLAYS OF HIGH PLASTICITY
		LIQUID LIMIT GREATER THAN 50		<b>OH</b>	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				<b>PT</b>	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

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

### Sampler Symbol Descriptions

	2.4-inch I.D. split barrel
	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.

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.

## ADDITIONAL MATERIAL SYMBOLS

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

### Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry 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

## Key to Exploration Logs

Drilled	Start 4/29/2019	End 4/29/2019	Total Depth (ft)	13.25	Logged By Checked By	JML SHL	Driller	Environmental West Explorations	Drilling Method	Direct Push
Surface Elevation (ft) Vertical Datum	360 NAVD88			Hammer Data	N/A			Drilling Equipment	Geoprobe 5400	
Easting (X) Northing (Y)	1949039 347254			System Datum	WA State Plane South NAD83 (feet)			See "Remarks" section for groundwater observed		
Notes:										

Elevation (feet)	FIELD DATA					Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
0	34					AC	3 inches asphalt				
					GEI009-DP1 (1-2)	ML	Brown silt (stiff, moist)	NS	0.0		
	48				GEI009-DP1 (4-5)						
5					GEI009-DP1 (7-8)						
	45				GEI009-DP1 (9.5-10) CA		Becomes wet	NS	0.2		Groundwater observed at approximately 10 feet below the ground surface
10					GEI009-DP1 (11-12)			NS	0.1		
	1					GP	Dark gray fine to coarse gravel with trace silt and sand (dense, wet) (native)				Boring refusal at 13¼ 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 GEI009-DP1



Project: Columbia Basin College - Nursing Training Facility  
Project Location: Richland, Washington  
Project Number: 0504-147-00

Figure A-2  
Sheet 1 of 1

Date: 6/21/19 Path: \\GEOENGINEERS\COM\WAN\PROJECTS\0504-147\GINT\050414700.GPJ DBLibrary\Library\GEOENGINEERS\_DF\_STD\_US\_JUNE\_2017.GLB\GEB\_ENVIRONMENTAL\_STANDARD\_NO\_GW

Drilled	Start 4/29/2019	End 4/29/2019	Total Depth (ft)	12.5	Logged By Checked By	JML SHL	Driller	Environmental West Explorations	Drilling Method	Direct Push
Surface Elevation (ft) Vertical Datum	359 NAVD88			Hammer Data	N/A			Drilling Equipment	Geoprobe 5400	
Easting (X) Northing (Y)	1949012 347279			System Datum	WA State Plane South NAD83 (feet)			See "Remarks" section for groundwater observed		
Notes:										

Elevation (feet)	FIELD DATA					Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
0	36					AC	3 inches asphalt				
				GEI009-DP2 (0.5-1)		ML	Brown silt with occasional gravel (soft, moist)	NS	0.0		
				GEI009-DP2 (1-2)				NS	0.1		
355	36			GEI009-DP2 (4-5)			Brown silt (medium stiff, moist)	NS	0.1		
5				GEI009-DP2 (6-7)			Light brown silt (medium stiff, moist)	NS	0.0		
12				GEI009-DP2 (9.5-10) CA				NS	0.1		
350				GEI009-DP2 (10-11)			Becomes wet	NS	0.0		Groundwater observed at approximately 10 feet below the ground surface
10	6					GP	Dark gray fine to coarse gravel with trace silt, sand and occasional cobbles (dense, wet) (native)				Boring refusal at 12½ feet below the 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 GEI009-DP2



Project: Columbia Basin College - Nursing Training Facility  
Project Location: Richland, Washington  
Project Number: 0504-147-00

Figure A-3  
Sheet 1 of 1

Date: 6/21/19 Path: \\GEOENGINEERS\COMMON\PROJECTS\0504-147\GINT\0504-147-00\GPI\DLIBRARY\Library\GEOENGINEERS\_DF\_STD\_LIS\_JUNE\_2017\GLB\GEB\_ENVIRONMENTAL\_STANDARD\_NO\_GW

Drilled	Start 4/29/2019	End 4/29/2019	Total Depth (ft) 12.5	Logged By Checked By JML SHL	Driller Environmental West Explorations	Drilling Method Direct Push
Surface Elevation (ft) Vertical Datum	360 NAVD88		Hammer Data	N/A		Drilling Equipment Geoprobe 5400
Easting (X) Northing (Y)	1949027 347292		System Datum	WA State Plane South NAD83 (feet)		See "Remarks" section for groundwater observed
Notes:						

Elevation (feet)	FIELD DATA					Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
0	30					AC	3 inches asphalt				
				GEI009-DP3 (0.5-1)		GP-GM	Brown fine to coarse gravel with silt and sand (medium dense, moist) (fill)	NS	0.1		
				GEI009-DP3 (2-3)		ML	Brown silt (medium stiff, moist)	NS	0.0		
5	25			GEI009-DP3 (5.5-5)				NS	0.0		
				GEI009-DP3 (5.5-6)				NS	0.0		
	3			GEI009-DP3 (8-9)				NS	0.0		
10				GEI009-DP3 (12-12.5)		GP-GM	Dark gray fine to coarse gravel with silt (dense, wet)	NS	0.0		Groundwater observed at approximately 12 feet below the ground surface Boring refusal at 12½ feet below the 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 GEI009-DP3



Project: Columbia Basin College - Nursing Training Facility  
Project Location: Richland, Washington  
Project Number: 0504-147-00

Date: 6/21/19 Path: \\GEOENGINEERS.COM\WAN\PROJECTS\0504-147\GINT\0504-147\GIB\ENVIRONMENTAL\_STANDARD\_NO\_GW.DBLibrary\Library\GEOENGINEERS\_DF\_STD\_US\_JUNE\_2017.GLB\GEB\_ENVIRONMENTAL\_STANDARD\_NO\_GW

Drilled	Start 4/29/2019	End 4/29/2019	Total Depth (ft)	12.5	Logged By Checked By	JML SHL	Driller	Environmental West Explorations	Drilling Method	Direct Push	
Surface Elevation (ft) Vertical Datum		360 NAVD88			Hammer Data		N/A		Drilling Equipment		Geoprobe 5400
Easting (X) Northing (Y)		1949043 347275			System Datum		WA State Plane South NAD83 (feet)		See "Remarks" section for groundwater observed		
Notes:											

Elevation (feet)	FIELD DATA					Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
0		30				AC	3 inches asphalt				
					GEI009-DP4 (0.5-1)	ML	Brown silt with trace sand and gravel (medium stiff, moist)	NS	0.0		
					GEI009-DP4 (2-2.5)		Brown silt (medium stiff, moist)	NS	0.1		
					GEI009-DP4 (4-5)			NS	0.0		
5		46			GEI009-DP4 (6-6.5)			NS	0.0		
					GEI009-DP4 (8-9)			NS	0.1		
10		48			GEI009-DP4 (9.5-10)			NS	0.0		
					1	GP	Dark gray fine to coarse gravel with sand (dense, wet)				Groundwater observed at approximately 12 feet below the ground surface Boring refusal at 12½ feet below the 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 GEI009-DP4



Project: Columbia Basin College - Nursing Training Facility  
Project Location: Richland, Washington  
Project Number: 0504-147-00

Date: 6/21/19 Path: \\GEOENGINEERS\COM\WAN\PROJECTS\0504-147\GINT\0504-147\GIB\ENVIRONMENTAL\_STANDARD\_NO\_GW.DBLibrary\Library\GEOENGINEERS\_DF\_STD\_US\_JUNE\_2017.GLB\GIB\_ENVIRONMENTAL\_STANDARD\_NO\_GW

Drilled	Start 4/29/2019	End 4/29/2019	Total Depth (ft)	13	Logged By Checked By	JML SHL	Driller	Environmental West Explorations	Drilling Method	Direct Push
Surface Elevation (ft) Vertical Datum	360 NAVD88			Hammer Data	N/A			Drilling Equipment	Geoprobe 5400	
Easting (X) Northing (Y)	1949032 347281			System Datum	WA State Plane South NAD83 (feet)			See "Remarks" section for groundwater observed		
Notes:										

Elevation (feet)	FIELD DATA					Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing						
0	24					AC	3 inches asphalt				
					GEI009-DP5 (1-1.5)	GP-GM	Brown fine to coarse gravel with silt and sand (medium dense, moist) (fill)	NS	0.6		
						ML	Brown silt with occasional gravel (medium stiff, moist)				
	48				GEI009-DP5 (4-5)		Brown silt (medium stiff, moist)	NS	0.0		
5					GEI009-DP5 (6-6.5) CA			NS	0.0		
	40										
10					GEI009-DP5 (9.5-10)						
	6					GP	Dark gray fine to coarse gravel with sand (dense, wet)				Groundwater observed at approximately 12 feet below the 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 GEI009-DP5



Project: Columbia Basin College - Nursing Training Facility  
Project Location: Richland, Washington  
Project Number: 0504-147-00

Date: 6/21/19 Path: \\GEOENGINEERS\COM\WAN\PROJECTS\0504-147\GINT\050414700.GPJ DBLibrary\Library\GEOENGINEERS\_DF\_STD\_LIS\_JUNE\_2017.GLB\GEB\_ENVIRONMENTAL\_STANDARD\_NO\_GW





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

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

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

## ANALYTICAL REPORT

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

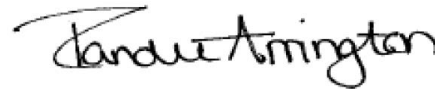
Laboratory Job ID: 590-10899-1

Client Project/Site: CBC WSU Nurse Training/00504-147-00  
Revision: 1

**For:**

GeoEngineers Inc  
523 East Second Ave  
Spokane, Washington 99202

Attn: Scott Lathen



Authorized for release by:  
6/21/2019 1:16:32 PM

Randee Arrington, Project Manager II  
(509)924-9200  
[randee.arrington@testamericainc.com](mailto:randee.arrington@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Sample Summary . . . . .	4
Definitions . . . . .	5
Client Sample Results . . . . .	6
QC Sample Results . . . . .	10
Chronicle . . . . .	13
Certification Summary . . . . .	16
Method Summary . . . . .	17
Chain of Custody . . . . .	18
Receipt Checklists . . . . .	20

# Case Narrative

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

---

## Job ID: 590-10899-1

---

Laboratory: Eurofins TestAmerica, Spokane

---

### Narrative

---

#### Report Revision 06/21/2019

Data was re-evaluated to the method detection limit per the client's request.

#### Receipt

The samples were received on 5/2/2019 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

#### Receipt Exceptions

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): GEI 009-DP5 (12-13) (590-10899-14). The sample was placed on hold.

#### GC/MS VOA

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

#### GC Semi VOA

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.

#### 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.

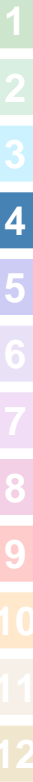


# Sample Summary

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-10899-1	GEI 009-DP1 (9.5-10)	Solid	04/29/19 13:40	05/02/19 09:40	
590-10899-2	GEI 009-DP2 (9.5-10)	Solid	04/29/19 14:25	05/02/19 09:40	
590-10899-3	GEI 009-DP3 (5-5.5)	Solid	04/29/19 14:50	05/02/19 09:40	
590-10899-8	GEI 009-DP5 (6-6.5)	Solid	04/29/19 15:50	05/02/19 09:40	
590-10899-12	GEI 009-DP6 (12.5-13)	Solid	04/29/19 16:50	05/02/19 09:40	
590-10899-13	Trip Blank	Solid	04/29/19 13:40	05/02/19 09:40	



# Definitions/Glossary

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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 Sample Results

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

**Client Sample ID: GEI 009-DP1 (9.5-10)**

**Lab Sample ID: 590-10899-1**

Date Collected: 04/29/19 13:40

Matrix: Solid

Date Received: 05/02/19 09:40

Percent Solids: 79.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.033	0.016	mg/Kg	☼	05/08/19 09:37	05/08/19 12:34	1
Ethylbenzene	ND		0.16	0.027	mg/Kg	☼	05/08/19 09:37	05/08/19 12:34	1
m,p-Xylene	ND		0.66	0.047	mg/Kg	☼	05/08/19 09:37	05/08/19 12:34	1
o-Xylene	ND		0.33	0.038	mg/Kg	☼	05/08/19 09:37	05/08/19 12:34	1
Toluene	ND		0.16	0.022	mg/Kg	☼	05/08/19 09:37	05/08/19 12:34	1
Xylenes, Total	ND		0.99	0.047	mg/Kg	☼	05/08/19 09:37	05/08/19 12:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 120	05/08/19 09:37	05/08/19 12:34	1
4-Bromofluorobenzene (Surr)	106		76 - 122	05/08/19 09:37	05/08/19 12:34	1
Dibromofluoromethane (Surr)	105		80 - 120	05/08/19 09:37	05/08/19 12:34	1
Toluene-d8 (Surr)	104		80 - 120	05/08/19 09:37	05/08/19 12:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		8.2		mg/Kg	☼	05/08/19 09:37	05/08/19 12:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		41.5 - 162	05/08/19 09:37	05/08/19 12:34	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		13		mg/Kg	☼	05/13/19 11:14	05/13/19 13:32	1
Residual Range Organics (RRO) (C25-C36)	ND		31		mg/Kg	☼	05/13/19 11:14	05/13/19 13:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	05/13/19 11:14	05/13/19 13:32	1
n-Triacontane-d62	92		50 - 150	05/13/19 11:14	05/13/19 13:32	1

**Client Sample ID: GEI 009-DP2 (9.5-10)**

**Lab Sample ID: 590-10899-2**

Date Collected: 04/29/19 14:25

Matrix: Solid

Date Received: 05/02/19 09:40

Percent Solids: 78.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.029	0.014	mg/Kg	☼	05/08/19 09:37	05/08/19 12:56	1
Ethylbenzene	ND		0.14	0.023	mg/Kg	☼	05/08/19 09:37	05/08/19 12:56	1
m,p-Xylene	ND		0.57	0.041	mg/Kg	☼	05/08/19 09:37	05/08/19 12:56	1
o-Xylene	ND		0.29	0.033	mg/Kg	☼	05/08/19 09:37	05/08/19 12:56	1
Toluene	ND		0.14	0.019	mg/Kg	☼	05/08/19 09:37	05/08/19 12:56	1
Xylenes, Total	ND		0.86	0.041	mg/Kg	☼	05/08/19 09:37	05/08/19 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 120	05/08/19 09:37	05/08/19 12:56	1
4-Bromofluorobenzene (Surr)	105		76 - 122	05/08/19 09:37	05/08/19 12:56	1
Dibromofluoromethane (Surr)	105		80 - 120	05/08/19 09:37	05/08/19 12:56	1
Toluene-d8 (Surr)	98		80 - 120	05/08/19 09:37	05/08/19 12:56	1

Eurofins TestAmerica, Spokane

# Client Sample Results

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

## Client Sample ID: GEI 009-DP2 (9.5-10)

Date Collected: 04/29/19 14:25

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-2

Matrix: Solid

Percent Solids: 78.8

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		7.2		mg/Kg	☼	05/08/19 09:37	05/08/19 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		41.5 - 162	05/08/19 09:37	05/08/19 12:56	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	☼	05/13/19 11:14	05/13/19 14:12	1

Residual Range Organics (RRO) (C25-C36)	ND		30		mg/Kg	☼	05/13/19 11:14	05/13/19 14:12	1
--	----	--	----	--	-------	---	----------------	----------------	---

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	70		50 - 150	05/13/19 11:14	05/13/19 14:12	1
n-Triacontane-d62	80		50 - 150	05/13/19 11:14	05/13/19 14:12	1

## Client Sample ID: GEI 009-DP3 (5-5.5)

Date Collected: 04/29/19 14:50

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-3

Matrix: Solid

Percent Solids: 84.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.028	0.014	mg/Kg	☼	05/08/19 09:37	05/08/19 13:19	1
Ethylbenzene	ND		0.14	0.022	mg/Kg	☼	05/08/19 09:37	05/08/19 13:19	1
m,p-Xylene	ND		0.55	0.039	mg/Kg	☼	05/08/19 09:37	05/08/19 13:19	1
o-Xylene	ND		0.28	0.032	mg/Kg	☼	05/08/19 09:37	05/08/19 13:19	1
Toluene	ND		0.14	0.018	mg/Kg	☼	05/08/19 09:37	05/08/19 13:19	1
Xylenes, Total	ND		0.83	0.039	mg/Kg	☼	05/08/19 09:37	05/08/19 13:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 120	05/08/19 09:37	05/08/19 13:19	1
4-Bromofluorobenzene (Surr)	100		76 - 122	05/08/19 09:37	05/08/19 13:19	1
Dibromofluoromethane (Surr)	105		80 - 120	05/08/19 09:37	05/08/19 13:19	1
Toluene-d8 (Surr)	98		80 - 120	05/08/19 09:37	05/08/19 13:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		6.9		mg/Kg	☼	05/08/19 09:37	05/08/19 13:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		41.5 - 162	05/08/19 09:37	05/08/19 13:19	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	☼	05/13/19 11:14	05/13/19 14:32	1

Residual Range Organics (RRO) (C25-C36)	ND		30		mg/Kg	☼	05/13/19 11:14	05/13/19 14:32	1
--	----	--	----	--	-------	---	----------------	----------------	---

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	77		50 - 150	05/13/19 11:14	05/13/19 14:32	1
n-Triacontane-d62	81		50 - 150	05/13/19 11:14	05/13/19 14:32	1

Eurofins TestAmerica, Spokane

# Client Sample Results

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

**Client Sample ID: GEI 009-DP5 (6-6.5)**

**Lab Sample ID: 590-10899-8**

Date Collected: 04/29/19 15:50

Matrix: Solid

Date Received: 05/02/19 09:40

Percent Solids: 81.0

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.033	0.017	mg/Kg	☼	05/08/19 09:37	05/08/19 14:03	1
Ethylbenzene	ND		0.17	0.027	mg/Kg	☼	05/08/19 09:37	05/08/19 14:03	1
m,p-Xylene	ND		0.67	0.048	mg/Kg	☼	05/08/19 09:37	05/08/19 14:03	1
o-Xylene	ND		0.33	0.038	mg/Kg	☼	05/08/19 09:37	05/08/19 14:03	1
Toluene	ND		0.17	0.022	mg/Kg	☼	05/08/19 09:37	05/08/19 14:03	1
Xylenes, Total	ND		1.0	0.048	mg/Kg	☼	05/08/19 09:37	05/08/19 14:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		75 - 120	05/08/19 09:37	05/08/19 14:03	1
4-Bromofluorobenzene (Surr)	98		76 - 122	05/08/19 09:37	05/08/19 14:03	1
Dibromofluoromethane (Surr)	105		80 - 120	05/08/19 09:37	05/08/19 14:03	1
Toluene-d8 (Surr)	101		80 - 120	05/08/19 09:37	05/08/19 14:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		8.3		mg/Kg	☼	05/08/19 09:37	05/08/19 14:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		41.5 - 162	05/08/19 09:37	05/08/19 14:03	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	☼	05/13/19 11:14	05/13/19 14:52	1
Residual Range Organics (RRO) (C25-C36)	ND		29		mg/Kg	☼	05/13/19 11:14	05/13/19 14:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	71		50 - 150	05/13/19 11:14	05/13/19 14:52	1
n-Triacontane-d62	73		50 - 150	05/13/19 11:14	05/13/19 14:52	1

**Client Sample ID: GEI 009-DP6 (12.5-13)**

**Lab Sample ID: 590-10899-12**

Date Collected: 04/29/19 16:50

Matrix: Solid

Date Received: 05/02/19 09:40

Percent Solids: 82.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	0.013	mg/Kg	☼	05/08/19 09:37	05/08/19 14:25	1
Ethylbenzene	ND		0.13	0.020	mg/Kg	☼	05/08/19 09:37	05/08/19 14:25	1
m,p-Xylene	ND		0.50	0.036	mg/Kg	☼	05/08/19 09:37	05/08/19 14:25	1
o-Xylene	ND		0.25	0.029	mg/Kg	☼	05/08/19 09:37	05/08/19 14:25	1
Toluene	ND		0.13	0.017	mg/Kg	☼	05/08/19 09:37	05/08/19 14:25	1
Xylenes, Total	ND		0.75	0.036	mg/Kg	☼	05/08/19 09:37	05/08/19 14:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 120	05/08/19 09:37	05/08/19 14:25	1
4-Bromofluorobenzene (Surr)	98		76 - 122	05/08/19 09:37	05/08/19 14:25	1
Dibromofluoromethane (Surr)	103		80 - 120	05/08/19 09:37	05/08/19 14:25	1
Toluene-d8 (Surr)	100		80 - 120	05/08/19 09:37	05/08/19 14:25	1

Eurofins TestAmerica, Spokane

# Client Sample Results

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

## Client Sample ID: GEI 009-DP6 (12.5-13)

Date Collected: 04/29/19 16:50

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-12

Matrix: Solid

Percent Solids: 82.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		6.3		mg/Kg	☼	05/08/19 09:37	05/08/19 14:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		41.5 - 162	05/08/19 09:37	05/08/19 14:25	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	☼	05/13/19 11:14	05/13/19 15:12	1

Residual Range Organics (RRO) (C25-C36)	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	33		30		mg/Kg	☼	05/13/19 11:14	05/13/19 15:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	78		50 - 150	05/13/19 11:14	05/13/19 15:12	1
n-Triacontane-d62	81		50 - 150	05/13/19 11:14	05/13/19 15:12	1

## Client Sample ID: Trip Blank

Date Collected: 04/29/19 13:40

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-13

Matrix: Solid

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.010	mg/Kg		05/08/19 09:37	05/08/19 14:48	1
Ethylbenzene	ND		0.10	0.016	mg/Kg		05/08/19 09:37	05/08/19 14:48	1
m,p-Xylene	ND		0.40	0.029	mg/Kg		05/08/19 09:37	05/08/19 14:48	1
o-Xylene	ND		0.20	0.023	mg/Kg		05/08/19 09:37	05/08/19 14:48	1
Toluene	ND		0.10	0.013	mg/Kg		05/08/19 09:37	05/08/19 14:48	1
Xylenes, Total	ND		0.60	0.029	mg/Kg		05/08/19 09:37	05/08/19 14:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		75 - 120	05/08/19 09:37	05/08/19 14:48	1
4-Bromofluorobenzene (Surr)	100		76 - 122	05/08/19 09:37	05/08/19 14:48	1
Dibromofluoromethane (Surr)	107		80 - 120	05/08/19 09:37	05/08/19 14:48	1
Toluene-d8 (Surr)	105		80 - 120	05/08/19 09:37	05/08/19 14:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.0		mg/Kg		05/08/19 09:37	05/08/19 14:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		41.5 - 162	05/08/19 09:37	05/08/19 14:48	1

# QC Sample Results

Client: GeoEngineers Inc  
 Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

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

**Lab Sample ID: MB 590-22088/1-A**  
**Matrix: Solid**  
**Analysis Batch: 22079**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 22088**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	0.010	mg/Kg		05/08/19 09:37	05/08/19 09:41	1
Ethylbenzene	ND		0.10	0.016	mg/Kg		05/08/19 09:37	05/08/19 09:41	1
m,p-Xylene	ND		0.40	0.029	mg/Kg		05/08/19 09:37	05/08/19 09:41	1
o-Xylene	ND		0.20	0.023	mg/Kg		05/08/19 09:37	05/08/19 09:41	1
Toluene	ND		0.10	0.013	mg/Kg		05/08/19 09:37	05/08/19 09:41	1
Xylenes, Total	ND		0.60	0.029	mg/Kg		05/08/19 09:37	05/08/19 09:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		75 - 120	05/08/19 09:37	05/08/19 09:41	1
4-Bromofluorobenzene (Surr)	100		76 - 122	05/08/19 09:37	05/08/19 09:41	1
Dibromofluoromethane (Surr)	106		80 - 120	05/08/19 09:37	05/08/19 09:41	1
Toluene-d8 (Surr)	97		80 - 120	05/08/19 09:37	05/08/19 09:41	1

**Lab Sample ID: LCS 590-22088/2-A**  
**Matrix: Solid**  
**Analysis Batch: 22079**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 22088**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.500	0.532		mg/Kg		106	76 - 129
Ethylbenzene	0.500	0.549		mg/Kg		110	77 - 133
m,p-Xylene	0.500	0.539		mg/Kg		108	78 - 130
o-Xylene	0.500	0.523		mg/Kg		105	77 - 129
Toluene	0.500	0.554		mg/Kg		111	77 - 131

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		75 - 120
4-Bromofluorobenzene (Surr)	100		76 - 122
Dibromofluoromethane (Surr)	107		80 - 120
Toluene-d8 (Surr)	100		80 - 120

**Lab Sample ID: LCSD 590-22088/3-A**  
**Matrix: Solid**  
**Analysis Batch: 22079**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 22088**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	0.500	0.491		mg/Kg		98	76 - 129	8	25
Ethylbenzene	0.500	0.493		mg/Kg		99	77 - 133	11	25
m,p-Xylene	0.500	0.500		mg/Kg		100	78 - 130	8	32
o-Xylene	0.500	0.491		mg/Kg		98	77 - 129	6	31
Toluene	0.500	0.489		mg/Kg		98	77 - 131	13	36

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		75 - 120
4-Bromofluorobenzene (Surr)	101		76 - 122
Dibromofluoromethane (Surr)	106		80 - 120
Toluene-d8 (Surr)	100		80 - 120

# QC Sample Results

Client: GeoEngineers Inc  
 Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

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

**Lab Sample ID: MB 590-22088/1-A**  
**Matrix: Solid**  
**Analysis Batch: 22080**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 22088**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.0		mg/Kg		05/08/19 09:37	05/08/19 09:41	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		41.5 - 162				05/08/19 09:37	05/08/19 09:41	1

**Lab Sample ID: LCS 590-22088/4-A**  
**Matrix: Solid**  
**Analysis Batch: 22080**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 22088**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	50.0	55.6		mg/Kg		111	74.4 - 124
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		41.5 - 162				

**Lab Sample ID: LCSD 590-22088/5-A**  
**Matrix: Solid**  
**Analysis Batch: 22080**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 22088**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline	50.0	56.6		mg/Kg		113	74.4 - 124	2	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	104		41.5 - 162						

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

**Lab Sample ID: MB 590-22157/1-A**  
**Matrix: Solid**  
**Analysis Batch: 22155**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 22157**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg		05/13/19 11:14	05/13/19 12:31	1
Residual Range Organics (RRO) (C25-C36)	ND		25		mg/Kg		05/13/19 11:14	05/13/19 12:31	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	73		50 - 150				05/13/19 11:14	05/13/19 12:31	1
n-Triacontane-d62	71		50 - 150				05/13/19 11:14	05/13/19 12:31	1

**Lab Sample ID: LCS 590-22157/2-A**  
**Matrix: Solid**  
**Analysis Batch: 22155**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 22157**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	66.7	63.6		mg/Kg		95	50 - 150

Eurofins TestAmerica, Spokane



# QC Sample Results

Client: GeoEngineers Inc  
 Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

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

**Lab Sample ID: LCS 590-22157/2-A**  
**Matrix: Solid**  
**Analysis Batch: 22155**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 22157**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Residual Range Organics (RRO) (C25-C36)	66.7	67.3		mg/Kg		101	50 - 150
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
<i>o-Terphenyl</i>	100		50 - 150				
<i>n-Triacontane-d62</i>	96		50 - 150				

**Lab Sample ID: 590-10899-1 DU**  
**Matrix: Solid**  
**Analysis Batch: 22155**

**Client Sample ID: GEI 009-DP1 (9.5-10)**  
**Prep Type: Total/NA**  
**Prep Batch: 22157**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Diesel Range Organics (DRO) (C10-C25)	ND		ND		mg/Kg	☼	NC	40
Residual Range Organics (RRO) (C25-C36)	ND		ND		mg/Kg	☼	NC	40
<b>DU DU</b>								
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-Terphenyl</i>	75		50 - 150					
<i>n-Triacontane-d62</i>	80		50 - 150					

**Lab Sample ID: 590-10899-2 DU**  
**Matrix: Solid**  
**Analysis Batch: 22155**

**Client Sample ID: GEI 009-DP2 (9.5-10)**  
**Prep Type: Total/NA**  
**Prep Batch: 22157**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Diesel Range Organics (DRO) (C10-C25)	ND		ND		mg/Kg	☼	NC	40
Residual Range Organics (RRO) (C25-C36)	ND		ND		mg/Kg	☼	NC	40
<b>DU DU</b>								
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
<i>o-Terphenyl</i>	54		50 - 150					
<i>n-Triacontane-d62</i>	74		50 - 150					

# Lab Chronicle

Client: GeoEngineers Inc  
 Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

**Client Sample ID: GEI 009-DP1 (9.5-10)**

**Lab Sample ID: 590-10899-1**

Date Collected: 04/29/19 13:40

Matrix: Solid

Date Received: 05/02/19 09:40

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			22052	05/06/19 15:31	SJK	TAL SPK

**Client Sample ID: GEI 009-DP1 (9.5-10)**

**Lab Sample ID: 590-10899-1**

Date Collected: 04/29/19 13:40

Matrix: Solid

Date Received: 05/02/19 09:40

Percent Solids: 79.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.59 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	8260C		1	0.86 mL	43 mL	22079	05/08/19 12:34	MRS	TAL SPK
Total/NA	Prep	5035			4.59 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	0.86 mL	43 mL	22080	05/08/19 12:34	MRS	TAL SPK
Total/NA	Prep	3550C			15.17 g	5 mL	22157	05/13/19 11:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22155	05/13/19 13:32	NMI	TAL SPK

**Client Sample ID: GEI 009-DP2 (9.5-10)**

**Lab Sample ID: 590-10899-2**

Date Collected: 04/29/19 14:25

Matrix: Solid

Date Received: 05/02/19 09:40

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			22052	05/06/19 15:31	SJK	TAL SPK

**Client Sample ID: GEI 009-DP2 (9.5-10)**

**Lab Sample ID: 590-10899-2**

Date Collected: 04/29/19 14:25

Matrix: Solid

Date Received: 05/02/19 09:40

Percent Solids: 78.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.46 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	8260C		1	0.86 mL	43 mL	22079	05/08/19 12:56	MRS	TAL SPK
Total/NA	Prep	5035			5.46 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	0.86 mL	43 mL	22080	05/08/19 12:56	MRS	TAL SPK
Total/NA	Prep	3550C			15.94 g	5 mL	22157	05/13/19 11:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22155	05/13/19 14:12	NMI	TAL SPK

**Client Sample ID: GEI 009-DP3 (5-5.5)**

**Lab Sample ID: 590-10899-3**

Date Collected: 04/29/19 14:50

Matrix: Solid

Date Received: 05/02/19 09:40

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			22052	05/06/19 15:31	SJK	TAL SPK

# Lab Chronicle

Client: GeoEngineers Inc  
 Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

## Client Sample ID: GEI 009-DP3 (5-5.5)

Date Collected: 04/29/19 14:50

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-3

Matrix: Solid

Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	8260C		1	0.86 mL	43 mL	22079	05/08/19 13:19	MRS	TAL SPK
Total/NA	Prep	5035			5.01 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	0.86 mL	43 mL	22080	05/08/19 13:19	MRS	TAL SPK
Total/NA	Prep	3550C			15.10 g	5 mL	22157	05/13/19 11:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22155	05/13/19 14:32	NMI	TAL SPK

## Client Sample ID: GEI 009-DP5 (6-6.5)

Date Collected: 04/29/19 15:50

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-8

Matrix: Solid

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			22052	05/06/19 15:31	SJK	TAL SPK

## Client Sample ID: GEI 009-DP5 (6-6.5)

Date Collected: 04/29/19 15:50

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-8

Matrix: Solid

Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.31 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	8260C		1	0.86 mL	43 mL	22079	05/08/19 14:03	MRS	TAL SPK
Total/NA	Prep	5035			4.31 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	0.86 mL	43 mL	22080	05/08/19 14:03	MRS	TAL SPK
Total/NA	Prep	3550C			15.83 g	5 mL	22157	05/13/19 11:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22155	05/13/19 14:52	NMI	TAL SPK

## Client Sample ID: GEI 009-DP6 (12.5-13)

Date Collected: 04/29/19 16:50

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-12

Matrix: Solid

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			22052	05/06/19 15:31	SJK	TAL SPK

## Client Sample ID: GEI 009-DP6 (12.5-13)

Date Collected: 04/29/19 16:50

Date Received: 05/02/19 09:40

## Lab Sample ID: 590-10899-12

Matrix: Solid

Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.84 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	8260C		1	0.86 mL	43 mL	22079	05/08/19 14:25	MRS	TAL SPK
Total/NA	Prep	5035			5.84 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	0.86 mL	43 mL	22080	05/08/19 14:25	MRS	TAL SPK
Total/NA	Prep	3550C			15.35 g	5 mL	22157	05/13/19 11:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			22155	05/13/19 15:12	NMI	TAL SPK

Eurofins TestAmerica, Spokane

# Lab Chronicle

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 590-10899-13**

**Date Collected: 04/29/19 13:40**

**Matrix: Solid**

**Date Received: 05/02/19 09:40**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	8260C		1	0.86 mL	43 mL	22079	05/08/19 14:48	MRS	TAL SPK
Total/NA	Prep	5035			5 g	5 mL	22088	05/08/19 09:37	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	0.86 mL	43 mL	22080	05/08/19 14:48	MRS	TAL SPK

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

## 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

1

2

3

4

5

6

7

8

9

10

11

12

# Method Summary

Client: GeoEngineers Inc  
Project/Site: CBC WSU Nurse Training/00504-147-00

Job ID: 590-10899-1

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

#### 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.

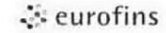
#### Laboratory References:

TAL 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**



Environment Testing  
 TestAmerica

<b>Client Information</b>		Sampler: <u>JML</u>		Lab PM:		Carrier Tracking No(s):		COC No: 590-4564-1472.1					
Client Contact: Scott Lathen		Phone: <u>406-239-7810</u>		E-Mail:				Page: <u>1 of 25</u> <u>lot 2</u>					
Company: GeoEngineers Inc		Due Date Requested:		Analysis Requested  Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) <u>Gx/BTEX</u> <u>0x</u>		Total Number of containers  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)		Job #:					
Address: 523 East Second Ave		TAT Requested (days):											
City: Spokane		PO #:											
State, Zip: WA, 99202		WO #:											
Email: slathen@geoengineers.com		Project #: <u>0504-147-00</u>											
Project Name: <u>CRC Nurse</u>		SSOW#:											
Site:													
<b>Sample Identification</b>		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oi, BT=tissue, A=Ab)		Preservation Code:		Special Instructions/Note:	
<u>GEI 009-DP1 (9.5-10)</u>		<u>4/29/14</u>		<u>1340</u>		<u>G</u>		<u>S</u>					
<u>GEI 009-DP2 (9.5-10)</u>				<u>1425</u>									
<u>GEI 009-DP3 (5-55)</u>				<u>1450</u>									
<u>GEI 009-DP4 (2-2.5)</u>				<u>1510</u>									
<u>GEI 009-DP4 (6-6.5)</u>				<u>1515</u>									
<u>GEI 009-DP4 (9.5-10)</u>				<u>1520</u>									
<u>GEI 009-DP5 (1-1.5)</u>				<u>1540</u>									
<u>GEI 009-DP5 (6-6.5)</u>				<u>1550</u>									
<u>GEI 009-DP5 (9.5-10)</u>				<u>1600</u>									
<u>GEI 009-DP6 (1.5-2)</u>				<u>1620</u>									
<u>GEI 009-DP6 (8.5-9)</u>				<u>1640</u>									
<b>Possible Hazard Identification</b>						<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>							
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:							
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:							
<u>[Signature]</u>		<u>5/2/19 940</u>		<u>RET</u>		<u>Madina Ode</u>							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:			
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:									
<input type="checkbox"/> Yes <input type="checkbox"/> No				<u>2.7</u>									



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

**Chain of Custody Record**



<b>Client Information</b>			Sampler: <u>JML</u>		Lab PM:		Carrier Tracking No(s):			COC No: 590-4564-1472.2																															
Client Contact: Scott Lathen			Phone: <u>406-239-7810</u>		E-Mail:					Page: <u>2 of 25</u> <u>2 of 2</u>																															
Company: GeoEngineers Inc			Due Date Requested:			<b>Analysis Requested</b>						Job #:																													
Address: 523 East Second Ave			TAT Requested (days):									Preservation Codes:																													
City: Spokane			PO #:			Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	GX	13TEX	DX	Total Number of containers	A - HCL	M - Hexane																												
State, Zip: WA, 99202			WO #:									B - NaOH	N - None																												
Email: slathen@geoengineers.com			Project #: <u>0504-147-00</u>			Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	GX	13TEX	DX	Total Number of containers	C - Zn Acetate	O - AsNaO2																								
Phone:			SSOW#:													D - Nitric Acid	P - Na2O4S																								
Project Name: <u>CBC Norse</u>			Site:			Special Instructions/Note:	GX	13TEX	DX	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	GX	13TEX	DX	Total Number of containers	E - NaHSO4	Q - Na2SO3																								
Site:																F - MeOH	R - Na2S2O3																								
Site:						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)																								
Sample Identification			Sample Date			Sample Time			Sample Type (C=comp, G=grab)			Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)			Field Filtered Sample (Yes or No)			Perform MS/MSD (Yes or No)			GX			13TEX			DX			Total Number of containers			Special Instructions/Note:								
<u>GEL 009-DP6 (12.5-B)</u>			<u>7/29/19</u>			<u>1650</u>			<u>G</u>			<u>S</u>																													
<u>Trip Blank</u>																																									
<b>Possible Hazard Identification</b>						<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>																																			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: <u>[Signature]</u>			Date/Time: <u>5/2/19 240</u>			Company: <u>G&amp;T</u>			Received by: <u>Maria Moore</u>			Date/Time: <u>5/2/19 9:40</u>			Company: <u>TASPC</u>																										
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:																										
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:																										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: <u>2.7</u>																																			



# Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-10899-1

**Login Number: 10899**

**List Number: 1**

**Creator: O'Toole, Maria C**

**List Source: Eurofins TestAmerica, Spokane**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (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.

**APPENDIX C**  
**Report Limitations and Guidelines for Use**

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

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

### **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 Columbia Basin College Nurse Training Facility site located at 901 Northgate Drive in Richland, 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 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.

---

<sup>1</sup> Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; [www.asfe.org](http://www.asfe.org).

## **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.

