# Data Gap Investigation

Model Remedy LUST Sites
Ellensburg School District Transportation Facility
1501 East Capitol Avenue
Ellensburg, Washington

*for*
**Washington State Department of Ecology**

December 29, 2016

GeoEngineers
Earth Science + Technology

# Data Gap Investigation

Model Remedy LUST Sites
Ellensburg School District Transportation Facility
1501 East Capitol Avenue
Ellensburg, Washington

*for*
**Washington State Department of Ecology**

December 29, 2016

GeoEngineers

523 East Second Avenue
Spokane, Washington 99202
509.363.3125

# Data Gap Investigation

# Model Remedy LUST Sites
# Ellensburg School District
# Transportation Facility
# 1501 East Capitol Avenue
# Ellensburg, Washington

**File No. 0504-118-00**

**December 29, 2016**

Prepared for:

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

Attention: Jeff Newschwander

Prepared by:

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

(for)

Andrew P. Provant
Senior Geologist

Scott H. Lathen, PE
Environmental Engineer

Bruce D. Williams
Principal

APP: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.

GeoEngineers

## Table of Contents

**1.0 INTRODUCTION** ..... **1**

**2.0 SITE DESCRIPTION AND BACKGROUND** ..... **1**

**3.0 SCOPE OF SERVICES** ..... **1**

**4.0 FIELD ACTIVITIES** ..... **2**

4.1. General ..... 2
4.2. Subsurface Conditions ..... 3
4.3. Field Screening and Sampling ..... 3

**5.0 CHEMICAL ANALYTICAL RESULTS** ..... **3**

5.1. Soil Chemical Analytical Results ..... 3
5.2. Groundwater Chemical Analytical Results ..... 4

**6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS** ..... **5**

**7.0 LIMITATIONS** ..... **6**

**LIST OF FIGURES**

Figure 1. Vicinity Map
Figure 2. Site Plan

**APPENDICES**

Appendix A. Field Procedures and Boring Logs
    Figure A-1 – Key to Exploration Logs
    Figures A-2 through A-4 – Logs of Borings
Appendix B. Chemical Analytical Laboratory Reports
Appendix C. Report Limitations and Guidelines for Use

## 1.0 INTRODUCTION

This report describes soil and groundwater assessment activities conducted at the Ellensburg School District Transportation Facility site located at 1501 East Capitol Avenue in Ellensburg, 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 and groundwater samples collected at the site. The purpose of the assessment activities described herein was to identify if remnant soil and groundwater contamination associated with former underground storage tank (UST) operation was present beneath 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 an Ellensburg School District school bus parking and maintenance facility located next to Ellensburg High School, as shown in Figure 1. The site is bound by the high school track to the south, tennis courts to the west, 3rd Avenue to the north, and Valley View Elementary School to the east. The transportation facility is asphalt paved and occupied by maintenance buildings and bus parking garages.

On August 17, 2000, a fuel dispenser located on the east side of the facility was removed. On August 24, 2000, one 2,000-gallon gasoline (tank 1), one 12,000-gallon diesel (tank 2), one 12,000-gallon gasoline (tank 3), and one 1,500-gallon waste oil (tank 4) UST were decommissioned and removed. Soil samples collected from beneath the diesel dispenser indicated the diesel-range petroleum hydrocarbons (DRPH) concentration (12,000 parts per million [ppm]) exceeded the Washington State Model Toxics Control Act (MTCA) Method A cleanup level (2,000 ppm). A groundwater sample collected from the tank 1, 2 and 3 excavation contained detectable gasoline-range petroleum hydrocarbons (GRPH), benzene, toluene and xylene concentrations; however, only benzene exceeded the current MTCA Method A cleanup level. Remedial action addressing the soil and groundwater contamination has not been conducted. Soil or groundwater impacts were not detected beneath tank 4.

## 3.0 SCOPE OF SERVICES

The scope of services included the following:

1. Prepared a Master Work Plan that included a Sampling and Analysis Plan (SAP), Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP).
2. Coordinated underground utility locating using the one-call system and Utilities Plus, a private utility locator. Per state regulations, the proposed boring locations were marked prior to initiating the locate request.
3. Coordinated subcontractors (drillers, locators and waste disposal contractors) and provided project management services.
4. Conducted field assessment activities including the following:

a. Observing Environmental West Explorations, Inc. (Environmental West) advance three soil borings (B-1 through B-3) using direct-push drilling techniques. Continuous soil samples were collected using 4-foot-long acrylic slip-sleeve samplers.

b. Collecting grab groundwater samples from borings B-1 and B-2.

c. Observing and documenting subsurface soil conditions. At least one soil sample was retained from each slip-sleeve sampler for field screening and potential chemical analysis. Field screening consisted of photo-ionization detector (PID) screening, visual observation and water-sheen testing.

d. Drumming and labeling investigation-derived waste (IDW).

5. Submitting one soil sample from each boring to TestAmerica Laboratories, Inc. (TestAmerica) for chemical analysis. The soil sample with the greatest field screening indication of potential contamination or the sample collected from the bottom of the boring was submitted for chemical analysis. Soil samples were submitted for analysis of benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Method 8260C; gasoline range petroleum hydrocarbons (GRPH) by Northwest Method NWTPH-Gx, and diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH, respectively) using Northwest Method NWTPH-Dx.

6. Collecting grab groundwater samples from boring B-1 and B-2 and submitting the samples for analysis of GRPH, DRPH and BTEX using the methods listed above.

7. Entering analytical data into Ecology's Environmental Information Management (EIM) database.

8. Preparing this draft assessment report for Ecology review and comment. Ecology's comments will be incorporated into the final report.

## 4.0 FIELD ACTIVITIES

### 4.1. General

Field assessment activities were conducted on October 31, 2016, and November 1, 2016. Site utilities, located near the boring locations, were identified and marked by Utilities Plus prior to drilling. Environmental West advanced three borings (B-1 through B-3) in and near the former UST excavation using direct-push drilling methods. The direct-push boring locations are summarized by the following:

- Soil boring B-1 was drilled north of the former UST excavation to 11 feet below ground surface (bgs). One soil sample for potential chemical analysis was collected at the 3-foot interval. Poor recovery was encountered from 4 to 11 feet bgs and soil samples were not collected in those intervals. A temporary well screen was set between 8 and 11 feet bgs and a groundwater sample was collected.
- Soil boring B-2 was drilled within the former UST excavation and north adjacent to the existing fuel dispensers. B-2 was advanced to a maximum depth of 16 feet bgs with soil samples collected at the 2½-, 5½-, 8½ and 13-foot intervals. A temporary well screen was set between 12 and 15 feet bgs and a groundwater sample collected.
- Soil boring B-3 was drilled at the south end of the former UST excavation, and south adjacent to the existing fuel dispensers. B-3 was advanced to a depth of 5 feet bgs before encountering refusal on a cobble or boulder. Soil samples were obtained at the 1½- and 4-foot intervals. The boring was further

advanced to 16 feet bgs using a drive point. A temporary well installation was attempted but the well casing snapped in the hole, and the boring was abandoned.

Environmental West backfilled each boring with bentonite. Excess soil cuttings and temporary well purge water were placed in a 55-gallon steel drum, labeled and placed at a location approved by the site employees (depicted on Figure 2). Boring logs associated with the borings are included in Appendix A.

### 4.2. Subsurface Conditions

Observed soil conditions varied within the borings with fine to coarse gravel with sand, silt with sand, fine to coarse sand with silt, clay with sand and gravel, and cobbles encountered. Groundwater was encountered between 7 and 12 feet bgs.

### 4.3. Field Screening and Sampling

Soil samples from each boring were field-screened for the potential presence of petroleum contamination by PID, visual examination and water-sheen testing. PID headspace vapor measurements were not measured above 1 ppm. Field screening procedures are further described in Appendix A. Contaminated soil field screening indicators were not observed in collected soil samples. One soil sample per slip-sleeve sampler was collected in laboratory supplied containers for chemical analysis.

GeoEngineers installed temporary well screens in borings B-1 and B-2. Boring B-1 was screened from 8 to 11 feet and boring B-2 was screened from 12 to 15 feet. Groundwater sampling procedures are described in Appendix A.

## 5.0 CHEMICAL ANALYTICAL RESULTS

### 5.1. Soil Chemical Analytical Results

Three soil samples were submitted to TestAmerica for the chemical analyses described in "Section 3.0 Scope of Services." Samples from the three borings were submitted from varying depths ranging between 3½ to 12½ feet bgs. Evidence of field screening contamination was not observed in collected soil samples. 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 in Summary of Chemical Analytical Results – Soil, Tables 1 and 2.

BTEX, GRPH and DRPH constituents were not reported at concentrations greater than the laboratory method reporting limits in the three soil samples submitted. ORPH was detected greater than the laboratory method reporting limits in borings B-2 and B-3, but reported concentrations did not exceed the MTCA Method A cleanup levels.

**TABLE 1. SUMMARY OF CHEMICAL ANALYTICAL RESULTS – SOIL (BTEX)**

| Sample Identification | Date Sampled | Units | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total Xylenes |
|---|---|---|---|---|---|---|---|---|
| Site-2: B-1 (3.5-4) | 10/31/16 | mg/kg | <0.027 | <0.13 | <0.13 | <0.54 | <0.27 | <0.81 |
| Site-2: B-2 (8.5-9) | 11/01/16 | mg/kg | <0.025 | <0.13 | <0.13 | <0.50 | <0.25 | <0.75 |
| Site-2: B-3 (4-4.5) | 11/01/16 | mg/kg | <0.024 | <0.12 | <0.12 | <0.48 | <0.24 | <0.73 |
| MTCA Method A CUL[1] | | mg/kg | 0.03 | 7 | 6 | | 9 | |

Notes:

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

mg/kg = milligrams per kilogram

**TABLE 2. SUMMARY OF CHEMICAL ANALYTICAL RESULTS – SOIL (TPH)**

| Sample Identification | Date Sampled | GRPH[1] (mg/kg) | DRPH[2] (mg/kg) | ORPH[2] (mg/kg) |
|---|---|---|---|---|
| Site-2: B-1 (3.5-4) | 10/31/16 | <6.7 | <12 | <30 |
| Site-2: B-2 (8.5-9) | 11/01/16 | <6.3 | <12 | **37** |
| Site-2: B-3 (8-8.5) | 11/01/16 | <6.1 | <99 | **850** |
| MTCA Method A CUL[3] | | 30/100[4] | 2,000 | 2,000 |

Notes:

[1]Analyzed using Northwest Method NWTPH-Gx

[2]Analyzed using Northwest Method NWTPH-Dx

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

[4]Cleanup level for gasoline-range petroleum hydrocarbons is 100 mg/kg if benzene is not detected and the total concentrations of ethylbenzene, toluene, and xylenes are less than 1 percent of the gasoline mixture; otherwise the cleanup level is 30 mg/kg.

**Bold** font analyte concentrations are above the laboratory method reporting limit.

## 5.2. Groundwater Chemical Analytical Results

Two groundwater samples were submitted from borings B-1 and B-2 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 in Summary of Chemical Analytical Results – Groundwater, Tables 3 and 4.

BTEX, GRPH, DRPH and ORPH analytes were not detected at concentrations greater than the laboratory method reporting limits in the submitted samples.

**TABLE 3. SUMMARY OF CHEMICAL ANALYTICAL RESULTS – GROUNDWATER (BTEX)[1]**

| Sample Identification | Date Sampled | Units | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total Xylenes |
|---|---|---|---|---|---|---|---|---|
| Site-2:B:103116 | 10/31/16 | µg/L | <0.20 | <1.0 | <1.0 | <2.0 | <1.0 | <3.0 |
| Site-2:B:110116 | 11/01/16 | µg/L | <0.20 | <1.0 | <1.0 | <2.0 | <1.0 | <3.0 |
| MTCA Method A CUL[2] | | µg/L | 5 | 1,000 | 700 | 1,000 | | |

Notes:

[1]Volatile organic compounds analyzed using Environmental Protection Agency (EPA) Method 8260C

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

µg/L= micrograms per liter

**TABLE 4. SUMMARY OF CHEMICAL ANALYTICAL RESULTS – GROUNDWATER (TPH)**

| Sample Identification | Date Sampled | GRPH[1] (µg/L) | DRPH[2] (mg/L) | ORPH[2] (mg/L) |
|---|---|---|---|---|
| Site-2:B-1:103116 | 10/31/16 | <100 | <0.14 | <0.23 |
| Site-2:B-2:110116 | 11/01/16 | <100 | <0.13 | <0.21 |
| MTCA Method A CUL[3] | | 1,000/800[4] | 500 | 500 |

Notes:

[1]Analyzed using Northwest Method NWTPH-Gx

[2]Analyzed using Northwest Method NWTPH-Dx

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

[4]Cleanup level for gasoline-range petroleum hydrocarbons is 1,000 µg/l if benzene is not detected and the total concentrations of ethylbenzene, toluene, and xylenes are less than 1 percent of the gasoline mixture; otherwise the cleanup level is 800 µg/l.

mg/L = milligrams per liter

## 6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Soil and groundwater assessment activities were conducted October 31, 2016, and November 1, 2016, at the Ellensburg School District Transportation Facility site located at 1501 East Capitol Avenue in Ellensburg, Washington. Three soil borings (B-1 through B-3) were advanced to depths of 11 and 16 feet bgs. Observed soil consisted of silty fine to coarse gravel with sand, cobbles and boulders. Groundwater was encountered in the borings between 7½ and 12 feet bgs.

One soil sample from each boring was submitted for BTEX, GRPH, DRPH and ORPH analysis. BTEX, GRPH, and DRPH analytes were not detected in the submitted samples. ORPH was detected in two soil samples but did not exceed MTCA Method A cleanup levels. Two groundwater samples were submitted for BTEX, GRPH, DRPH and ORPH analysis. The analytes were not detected in the groundwater samples. Based on the chemical analytical results, in our opinion, a SHA ranking is unnecessary and we recommend a No Further Action designation for the site.

Based on the chemical analytical results, IDW concentrations do not exceed MTCA Method A unrestricted land use cleanup levels and can therefore be reused onsite or disposed as solid waste. The accumulated

IDW amounted to less than a drum. Alternatively, a contractor can be retained to pick up, transport and dispose the IDW at an appropriate facility.

## 7.0 LIMITATIONS

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

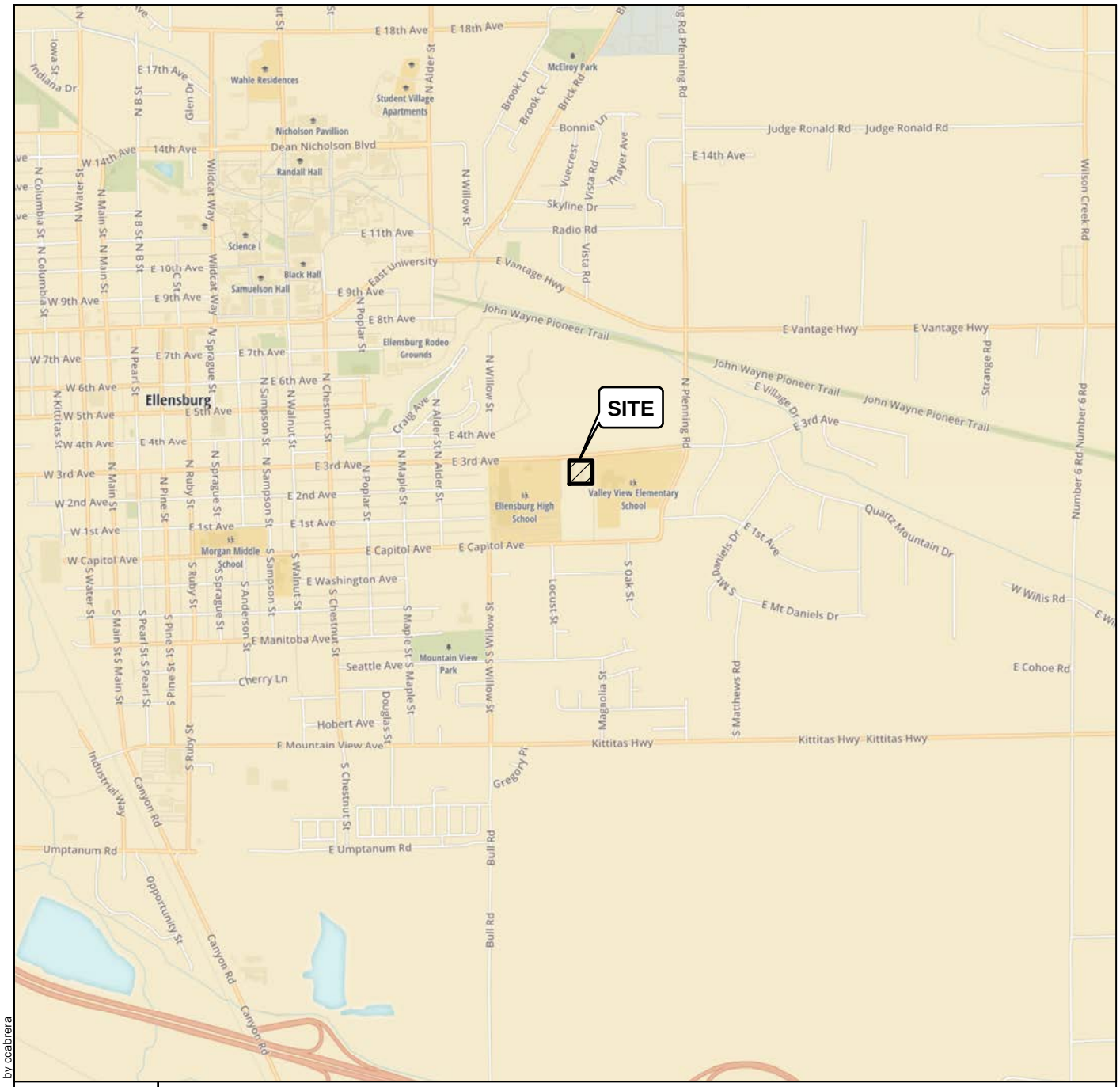
Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge,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

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

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

FIGURES

GeoEngineers



N
W E
S

2,000 0 2,000
Feet

## 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 HARN StatePlane Washington South FIPS 4602 Feet

**Vicinity Map**

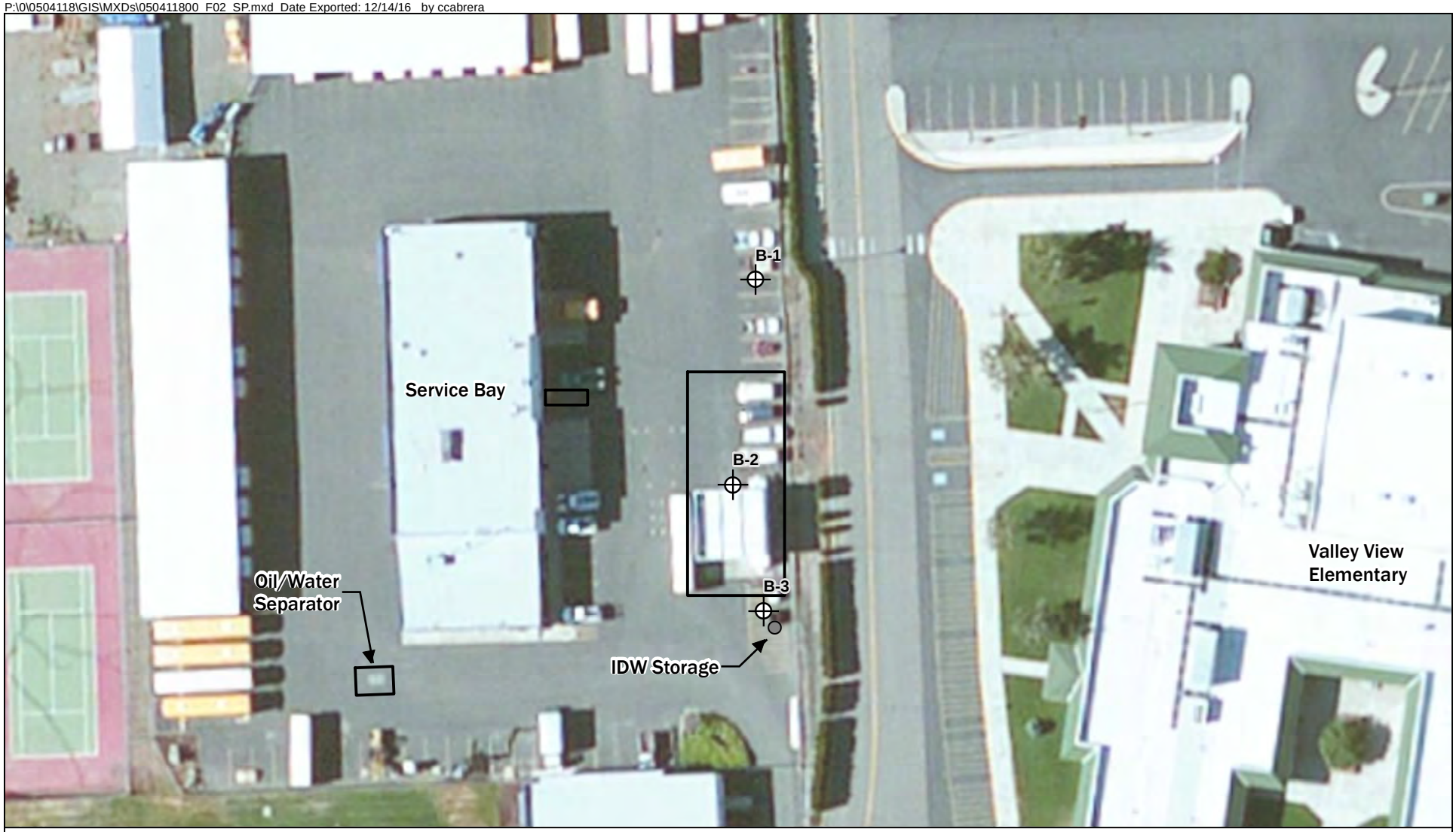
Ellensburg School District
1501 East Capitol Avenue
Ellensburg, Washington

GEOENGINEERS

**Figure 1**

P:\0\0504118\GIS\MXDs\050411800_F01_VM.mxd Date Exported: 09/27/16 by ccabrera

P:\0\0504118\GIS\MXDs\050411800_F02_SP.mxd Date Exported: 12/14/16 by ccabrera




N
W E
S

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: Aerial image from ESRI Data Online.

Projection: NAD 1983 HARN StatePlane Washington South FIPS 4602 Feet

**Legend**

- Investigation Derived Waste (IDW) Storage
- Boring Number and Approximate Location
- Former UST/Dispenser Approximate Location

60 0 60
Feet

**Site Plan**

Ellensburg School District
1501 East Capitol Avenue
Ellensburg, Washington

GeoEngineers

**Figure 2**

APPENDICES

GeoEngineers

# APPENDIX A
## Field Procedures and Boring Logs

## APPENDIX A
## FIELD PROCEDURES AND BORING LOGS

### General

Subsurface conditions at the Ellensburg School District Transportation Facility site were explored on October 31, 2016, and November 1, 2016, by advancing three direct-push borings at the approximate locations shown on Figure 2. The borings were advanced to depths between 11 and 16 feet below existing site grade using a direct-push drill rig. 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 Master Work Plan assessment procedures.

### Soil Sample Collection

Soil samples 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.

Direct-push 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-4. 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.

### Groundwater Sampling

Groundwater samples were collected from the temporary well points consistent with the EPA's low-flow groundwater sampling procedures (EPA 2010; Puls and Barcelona 1996). Dedicated polyethylene tubing and a portable peristaltic pump were used for groundwater purging and sampling. During purging activities, water quality parameters, including pH, temperature, conductivity, dissolved oxygen, and turbidity were measured using a multi-parameter meter equipped with a flow-through cell. Groundwater samples were collected after (1) water quality parameters stabilized; or (2) a maximum purge time of 15 minutes was achieved. During purging and sampling the purge rate did not exceed 400 milliliters per minute. Water quality parameter stabilization criteria included the following:

- Turbidity: ±10 percent for values greater than 5 nephelometric turbidity units;
- Conductivity: ±3 percent;
- pH: ±0.1 unit;
- Temperature: ±3 percent; and
- Dissolved oxygen: ± 10 percent.

Field water quality measurements and depth-to-water measurements were recorded on a Well Purging-Field Water Quality Measurement Form. The groundwater samples were transferred in the field to laboratory-prepared sample containers and kept cool during transport to the testing laboratory. COC procedures were observed from the time of sample collection to delivery to the testing laboratory consistent with the QAPP.

## SOIL CLASSIFICATION CHART

| MAJOR DIVISIONS | | | SYMBOLS GRAPH | SYMBOLS LETTER | TYPICAL DESCRIPTIONS |
|---|---|---|---|---|---|
| COARSE GRAINED SOILS<br>MORE THAN 50% RETAINED ON NO. 200 SIEVE | GRAVEL AND GRAVELLY SOILS<br>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE | CLEAN GRAVELS<br>(LITTLE OR NO FINES) | | GW | WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES |
| | | | | GP | POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES |
| | | GRAVELS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES) | | GM | SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES |
| | | | | GC | CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES |
| | SAND AND SANDY SOILS<br>MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE | CLEAN SANDS<br>(LITTLE OR NO FINES) | | SW | WELL-GRADED SANDS, GRAVELLY SANDS |
| | | | | SP | POORLY-GRADED SANDS, GRAVELLY SAND |
| | | SANDS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES) | | SM | SILTY SANDS, SAND - SILT MIXTURES |
| | | | | SC | CLAYEY SANDS, SAND - CLAY MIXTURES |
| FINE GRAINED SOILS<br>MORE THAN 50% PASSING NO. 200 SIEVE | 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 |
| | 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 |
| | TS | Topsoil/ Forest Duff/Sod |

### 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.**

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

**A "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 |
| DS | Direct shear |
| HA | Hydrometer analysis |
| MC | Moisture content |
| MD | Moisture content and dry density |
| OC | Organic content |
| PM | Permeability or hydraulic conductivity |
| PI | Plasticity index |
| PP | Pocket penetrometer |
| PPM | Parts per million |
| 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 |
| NT | Not Tested |

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**

GEOENGINEERS

**FIGURE A-1**

Rev. 02/16

| Drilled Start 10/31/2016 | End 10/31/2016 | Total Depth (ft) 11 | Logged By CMD / Checked By SHL | Driller Environmental West Exploration, Inc. | Drilling Method Direct-Push |
|---|---|---|---|---|---|
| Surface Elevation (ft) / Vertical Datum | Undetermined | Hammer Data | NA | Drilling Equipment | 5400 Geoprobe |
| Easting (X) / Northing (Y) | | System Datum | | Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft) | See Remarks |
| Notes: | | | | | |

| Elevation (feet) | Depth (feet) | Interval | Recovered (in) | Blows/foot | Collected Sample | Sample Name / Testing | Graphic Log | Group Classification | MATERIAL DESCRIPTION | Sheen | Headspace Vapor (ppm) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | 36 | | | | | AC | Asphalt concrete pavement | | | |
| | | | | | | | | GP | Brown fine to coarse gravel with sand (medium dense, moist) | | | |
| | | | | | | | | ML | Brown silt with sand (medium stiff, moist) | | | |
| | | | | | | B-1 (3.5-4) CA | | | | NS | <1 | |
| | | | 4 | | | | | GP | Fine to coarse gravel with sand and cobbles (dense, moist) | | | Rough drilling |
| | 5 | | | | | | | | | | | |
| | | | 0 | | | | | | | | | Groundwater observed at approximately 8½ feet below ground surface during drilling |
| | 10 | | | | | | | | | | | |

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

# Log of Direct-Push Boring B-1

GEOENGINEERS

Project: Ellensburg School District, 1501 East Capitol Avenue
Project Location: Ellensburg, Washington
Project Number: 0504-118-00

Figure A-2
Sheet 1 of 1

Spokane: Date:12/20/16 Path:P:\0\0504118\GINT\050411800.GPJ DBTemplate/LibTemplate:GEOENGINEERS_DF_STD_US.GDT/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

| Drilled | Start 11/1/2016 | End 11/1/2016 | Total Depth (ft) 16 | Logged By CMD / Checked By SHL | Driller Environmental West Exploration, Inc. | Drilling Method Direct-Push |
|---|---|---|---|---|---|---|
| Surface Elevation (ft) / Vertical Datum | Undetermined | | Hammer Data | NA | Drilling Equipment | 5400 Geoprobe |
| Easting (X) / Northing (Y) | | | System Datum | | Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft) | See Remarks |
| Notes: | | | | | | |

| Elevation (feet) | Depth (feet) | Interval | Recovered (in) | Blows/foot | Collected Sample | Sample Name / Testing | Graphic Log | Group Classification | MATERIAL DESCRIPTION | Sheen | Headspace Vapor (ppm) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | 34 | | | | | AC | Approximately 3 inches of asphalt concrete pavement | | | |
| | | | | | | | | SP | Brown fine to coarse sand with trace silt and gravel (medium dense, moist) | | | |
| | | | | | | B-2 (2-2.5) | | CL | Brown clay with sand and gravel (medium stiff, moist) | NS | <1 | |
| | | | 24 | | | | | | | | | |
| | 5 | | | | | B-2 (5.5-6) | | SP-SM | Dark brown fine to coarse sand with silt, clay and gravel (medium dense, moist) | NS | <1 | |
| | | | | | | | | GP | Gray fine to coarse gravel with trace silt and sand (medium dense, moist) | | | |
| | | | | | | | | CL | Brown clay with sand and gravel (medium stiff, wet) | | | Groundwater observed at approximately 7 feet below ground surface during drilling |
| | | | 24 | | | B-2 (8.5-9) CA | | | | NS | <1 | |
| | | | | | | | | GP | Gray fine to coarse gravel with sand (medium dense, wet) (fill) (pea gravel) | | | |
| | 10 | | | | | | | | | | | |
| | | | 40 | | | | | | | | | |
| | | | | | | B-2 (13-13.5) | | SP-SM | Brown fine to medium sand with silt (medium dense, wet) | NS | <1 | |
| | 15 | | | | | | | | | | | |

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

# Log of Direct-Push Boring B-2

GeoEngineers

Project: Ellensburg School District, 1501 East Capitol Avenue
Project Location: Ellensburg, Washington
Project Number: 0504-118-00

Figure A-3
Sheet 1 of 1

Spokane: Date:12/20/16 Path:P:\0\0504118\GINT\050411800.GPJ DBTemplate/LibTemplate:GEOENGINEERS_DF_STD_US.GDT/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

| Drilled Start 11/1/2016 | End 11/1/2016 | Total Depth (ft) 16 | Logged By CMD / Checked By SHL | Driller Environmental West Exploration, Inc. | Drilling Method Direct-Push |
|---|---|---|---|---|---|
| Surface Elevation (ft) / Vertical Datum: Undetermined | | | Hammer Data: NA | | Drilling Equipment: 5400 Geoprobe |
| Easting (X) / Northing (Y) | | | System Datum | | Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft) |
| Notes: | | | | | See Remarks |

| Elevation (feet) | Depth (feet) | Interval | Recovered (in) | Blows/foot | Collected Sample | Sample Name / Testing | Graphic Log | Group Classification | MATERIAL DESCRIPTION | Sheen | Headspace Vapor (ppm) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | 36 | | | | | AC | Approximately 3 inches of asphalt concrete pavement | | | |
| | | | | | | | | SP | Gray fine to coarse sand with trace silt and gravel (medium dense, moist) | | | |
| | | | | | | B-3 (1.5-2) | | CL | Brown clay with sand and occasional gravel (medium stiff, moist) | NS | <1 | |
| | | | | | | | | GP | Gray fine to coarse gravel with trace silt and sand (medium dense, moist) | | | |
| | | | 10 | | | B-3 (4-4.5) CA | | | | NS | <1 | |
| | 5 | | | | | | | | Refusal on cobbles or boulders; no recovery from 5 feet to 16 feet<br>Continued to use a drive point to 16 feet to collect groundwater sample | | | |
| | | | 0 | | | | | | | | | |
| | 10 | | | | | | | | | | | |
| | | | 0 | | | | | | | | | Groundwater observed at approximately 12 feet below ground surface during drilling |
| | 15 | | | | | | | | | | | |

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

# Log of Direct-Push Boring B-3

GEOENGINEERS

Project: Ellensburg School District, 1501 East Capitol Avenue
Project Location: Ellensburg, Washington
Project Number: 0504-118-00

Figure A-4
Sheet 1 of 1

Spokane: Date:12/20/16 Path:P:\0\0504118\GINT\050411800.GPJ DBTemplate/LibTemplate:GEOENGINEERS_DF_STD_US.GDT/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

# APPENDIX B
## Chemical Analytical Laboratory Reports

# APPENDIX B
# CHEMICAL ANALYTICAL LABORATORY REPORTS

## Samples

Chain-of-custody procedures were followed during the transport of the field samples to TestAmerica located in Spokane, Washington. The samples were held in cold storage pending extraction and/or analysis. The analytical results and quality control records are included in this appendix.

## Analytical Data Review

The laboratory maintains an internal quality assurance/quality control (QA/QC) program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the two laboratory reports, dated November 8 and 14, 2016.

## Analytical Data Review Summary

We reviewed the laboratory internal QA/QC in the context of data quality goals. Based on our review, in our opinion, the quality of the analytical data is acceptable for the intended use.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

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

TestAmerica Job ID: 590-4891-1
Client Project/Site: ESD - Site 2/0504-118-00

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

Attn: Scott Lathen

*Authorized for release by:*
*11/8/2016 4:38:53 PM*

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
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 . . . . . 8
Chronicle . . . . . 12
Certification Summary . . . . . 13
Method Summary . . . . . 14
Chain of Custody . . . . . 15
Receipt Checklists . . . . . 16

# Case Narrative

Client: GeoEngineers Inc
Project/Site: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

## Job ID: 590-4891-1

### Laboratory: TestAmerica Spokane

**Narrative**

**Receipt**
The samples were received on 11/2/2016 1:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7º C.

**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: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 590-4891-1 | Site-2:B-1 (3.5-4) | Solid | 10/31/16 16:45 | 11/02/16 13:25 |
| 590-4891-2 | Site-2:B:103116 | Water | 10/31/16 17:40 | 11/02/16 13:25 |

## 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, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| 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 |
| 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: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

## Client Sample ID: Site-2:B-1 (3.5-4)

**Lab Sample ID: 590-4891-1**
**Date Collected: 10/31/16 16:45**
**Matrix: Solid**
**Date Received: 11/02/16 13:25**
**Percent Solids: 80.6**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.027 | | mg/Kg | ☼ | 11/03/16 10:33 | 11/03/16 15:53 | 1 |
| Ethylbenzene | ND | | 0.13 | | mg/Kg | ☼ | 11/03/16 10:33 | 11/03/16 15:53 | 1 |
| m,p-Xylene | ND | | 0.54 | | mg/Kg | ☼ | 11/03/16 10:33 | 11/03/16 15:53 | 1 |
| o-Xylene | ND | | 0.27 | | mg/Kg | ☼ | 11/03/16 10:33 | 11/03/16 15:53 | 1 |
| Toluene | ND | | 0.13 | | mg/Kg | ☼ | 11/03/16 10:33 | 11/03/16 15:53 | 1 |
| Xylenes, Total | ND | | 0.81 | | mg/Kg | ☼ | 11/03/16 10:33 | 11/03/16 15:53 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *105* | | *75 - 120* | *11/03/16 10:33* | *11/03/16 15:53* | *1* |
| *4-Bromofluorobenzene (Surr)* | *97* | | *76 - 122* | *11/03/16 10:33* | *11/03/16 15:53* | *1* |
| *Dibromofluoromethane (Surr)* | *102* | | *80 - 120* | *11/03/16 10:33* | *11/03/16 15:53* | *1* |
| *Toluene-d8 (Surr)* | *96* | | *80 - 120* | *11/03/16 10:33* | *11/03/16 15:53* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 6.7 | | mg/Kg | ☼ | 11/03/16 10:33 | 11/03/16 15:53 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *97* | | *41.5 - 162* | *11/03/16 10:33* | *11/03/16 15:53* | *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 | ☼ | 11/03/16 13:14 | 11/03/16 17:25 | 1 |
| Residual Range Organics (RRO) (C25-C36) | ND | | 30 | | mg/Kg | ☼ | 11/03/16 13:14 | 11/03/16 17:25 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *100* | | *50 - 150* | *11/03/16 13:14* | *11/03/16 17:25* | *1* |
| *n-Triacontane-d62* | *104* | | *50 - 150* | *11/03/16 13:14* | *11/03/16 17:25* | *1* |

## Client Sample ID: Site-2:B:103116

**Lab Sample ID: 590-4891-2**
**Date Collected: 10/31/16 17:40**
**Matrix: Water**
**Date Received: 11/02/16 13:25**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.20 | | ug/L | | | 11/03/16 14:36 | 1 |
| Ethylbenzene | ND | | 1.0 | | ug/L | | | 11/03/16 14:36 | 1 |
| m,p-Xylene | ND | | 2.0 | | ug/L | | | 11/03/16 14:36 | 1 |
| o-Xylene | ND | | 1.0 | | ug/L | | | 11/03/16 14:36 | 1 |
| Toluene | ND | | 1.0 | | ug/L | | | 11/03/16 14:36 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 11/03/16 14:36 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *121* | | *70 - 125* | | *11/03/16 14:36* | *1* |
| *4-Bromofluorobenzene (Surr)* | *95* | | *69 - 120* | | *11/03/16 14:36* | *1* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* | | *11/03/16 14:36* | *1* |
| *Toluene-d8 (Surr)* | *93* | | *80 - 120* | | *11/03/16 14:36* | *1* |

# Client Sample Results

Client: GeoEngineers Inc
Project/Site: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

## Client Sample ID: Site-2:B:103116

**Lab Sample ID: 590-4891-2**

**Date Collected: 10/31/16 17:40**

**Matrix: Water**

**Date Received: 11/02/16 13:25**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 100 | | ug/L | | | 11/03/16 14:36 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *95* | | *68.7 - 141* | | *11/03/16 14:36* | *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 | | 0.13 | | mg/L | | 11/07/16 12:38 | 11/07/16 16:27 | 1 |
| Residual Range Organics (RRO) (C25-C36) | ND | | 0.21 | | mg/L | | 11/07/16 12:38 | 11/07/16 16:27 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *81* | | *50 - 150* | *11/07/16 12:38* | *11/07/16 16:27* | *1* |
| *n-Triacontane-d62* | *84* | | *50 - 150* | *11/07/16 12:38* | *11/07/16 16:27* | *1* |

# QC Sample Results

Client: GeoEngineers Inc
Project/Site: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

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

**Lab Sample ID: MB 590-9426/5**
**Matrix: Water**
**Analysis Batch: 9426**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.20 | | ug/L | | | 11/03/16 13:08 | 1 |
| Ethylbenzene | ND | | 1.0 | | ug/L | | | 11/03/16 13:08 | 1 |
| m,p-Xylene | ND | | 2.0 | | ug/L | | | 11/03/16 13:08 | 1 |
| o-Xylene | ND | | 1.0 | | ug/L | | | 11/03/16 13:08 | 1 |
| Toluene | ND | | 1.0 | | ug/L | | | 11/03/16 13:08 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 11/03/16 13:08 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *118* | | *70 - 125* | | *11/03/16 13:08* | *1* |
| *4-Bromofluorobenzene (Surr)* | *100* | | *69 - 120* | | *11/03/16 13:08* | *1* |
| *Dibromofluoromethane (Surr)* | *99* | | *80 - 120* | | *11/03/16 13:08* | *1* |
| *Toluene-d8 (Surr)* | *98* | | *80 - 120* | | *11/03/16 13:08* | *1* |

**Lab Sample ID: LCS 590-9426/1003**
**Matrix: Water**
**Analysis Batch: 9426**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 10.0 | 9.14 | | ug/L | | 91 | 80 - 120 |
| Ethylbenzene | 10.0 | 9.32 | | ug/L | | 93 | 80 - 120 |
| m,p-Xylene | 10.0 | 9.26 | | ug/L | | 93 | 80 - 120 |
| o-Xylene | 10.0 | 9.34 | | ug/L | | 93 | 80 - 120 |
| Toluene | 10.0 | 9.39 | | ug/L | | 94 | 80 - 123 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *116* | | *70 - 125* |
| *4-Bromofluorobenzene (Surr)* | *99* | | *69 - 120* |
| *Dibromofluoromethane (Surr)* | *97* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *94* | | *80 - 120* |

**Lab Sample ID: MB 590-9428/1-A**
**Matrix: Solid**
**Analysis Batch: 9430**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 9428**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.020 | | mg/Kg | | 11/03/16 10:33 | 11/03/16 12:42 | 1 |
| Ethylbenzene | ND | | 0.10 | | mg/Kg | | 11/03/16 10:33 | 11/03/16 12:42 | 1 |
| m,p-Xylene | ND | | 0.40 | | mg/Kg | | 11/03/16 10:33 | 11/03/16 12:42 | 1 |
| o-Xylene | ND | | 0.20 | | mg/Kg | | 11/03/16 10:33 | 11/03/16 12:42 | 1 |
| Toluene | ND | | 0.10 | | mg/Kg | | 11/03/16 10:33 | 11/03/16 12:42 | 1 |
| Xylenes, Total | ND | | 0.60 | | mg/Kg | | 11/03/16 10:33 | 11/03/16 12:42 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *75 - 120* | *11/03/16 10:33* | *11/03/16 12:42* | *1* |
| *4-Bromofluorobenzene (Surr)* | *96* | | *76 - 122* | *11/03/16 10:33* | *11/03/16 12:42* | *1* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* | *11/03/16 10:33* | *11/03/16 12:42* | *1* |
| *Toluene-d8 (Surr)* | *102* | | *80 - 120* | *11/03/16 10:33* | *11/03/16 12:42* | *1* |

**Lab Sample ID: LCS 590-9428/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9430** — **Prep Batch: 9428**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.500 | 0.503 | | mg/Kg | | 101 | 76 - 123 |
| Ethylbenzene | 0.500 | 0.505 | | mg/Kg | | 101 | 77 - 121 |
| m,p-Xylene | 0.500 | 0.539 | | mg/Kg | | 108 | 78 - 124 |
| o-Xylene | 0.500 | 0.525 | | mg/Kg | | 105 | 77 - 129 |
| Toluene | 0.500 | 0.518 | | mg/Kg | | 104 | 77 - 125 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *101* | | *75 - 120* |
| *4-Bromofluorobenzene (Surr)* | *96* | | *76 - 122* |
| *Dibromofluoromethane (Surr)* | *100* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *98* | | *80 - 120* |

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

**Lab Sample ID: MB 590-9427/5** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 9427**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 100 | | ug/L | | | 11/03/16 13:08 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *100* | | *68.7 - 141* | | *11/03/16 13:08* | *1* |

**Lab Sample ID: LCS 590-9427/1004** — **Client Sample ID: Lab Control Sample**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 9427**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Gasoline | 1000 | 859 | | ug/L | | 86 | 80 - 120 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *101* | | *68.7 - 141* |

**Lab Sample ID: MB 590-9428/1-A** — **Client Sample ID: Method Blank**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9431** — **Prep Batch: 9428**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 5.0 | | mg/Kg | | 11/03/16 10:33 | 11/03/16 12:42 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *96* | | *41.5 - 162* | *11/03/16 10:33* | *11/03/16 12:42* | *1* |

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

**Lab Sample ID: LCS 590-9428/3-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9431** — **Prep Batch: 9428**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Gasoline | 50.0 | 58.0 | | mg/Kg | | 116 | 74.4 - 124 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *96* | | *41.5 - 162* |

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

**Lab Sample ID: MB 590-9435/1-A** — **Client Sample ID: Method Blank**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9425** — **Prep Batch: 9435**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | ND | | 10 | | mg/Kg | | 11/03/16 13:14 | 11/03/16 15:23 | 1 |
| Residual Range Organics (RRO) (C25-C36) | ND | | 25 | | mg/Kg | | 11/03/16 13:14 | 11/03/16 15:23 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *99* | | *50 - 150* | *11/03/16 13:14* | *11/03/16 15:23* | *1* |
| *n-Triacontane-d62* | *98* | | *50 - 150* | *11/03/16 13:14* | *11/03/16 15:23* | *1* |

**Lab Sample ID: LCS 590-9435/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9425** — **Prep Batch: 9435**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | 67.1 | 61.6 | | mg/Kg | | 92 | 50 - 150 |
| Residual Range Organics (RRO) (C25-C36) | 66.8 | 62.9 | | mg/Kg | | 94 | 50 - 150 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *95* | | *50 - 150* |
| *n-Triacontane-d62* | *102* | | *50 - 150* |

**Lab Sample ID: MB 590-9477/1-A** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 9476** — **Prep Batch: 9477**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | ND | | 0.12 | | mg/L | | 11/07/16 12:38 | 11/07/16 14:46 | 1 |
| Residual Range Organics (RRO) (C25-C36) | ND | | 0.20 | | mg/L | | 11/07/16 12:38 | 11/07/16 14:46 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *83* | | *50 - 150* | *11/07/16 12:38* | *11/07/16 14:46* | *1* |
| *n-Triacontane-d62* | *86* | | *50 - 150* | *11/07/16 12:38* | *11/07/16 14:46* | *1* |

# QC Sample Results

Client: GeoEngineers Inc
Project/Site: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

**Lab Sample ID: LCS 590-9477/2-A**
**Matrix: Water**
**Analysis Batch: 9476**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 9477**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | | | 1.61 | 1.10 | | mg/L | | 68 | 50 - 150 | | |
| Residual Range Organics (RRO) (C25-C36) | | | 1.60 | 1.31 | | mg/L | | 82 | 50 - 150 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *80* | | *50 - 150* |
| *n-Triacontane-d62* | *85* | | *50 - 150* |

**Lab Sample ID: LCSD 590-9477/3-A**
**Matrix: Water**
**Analysis Batch: 9476**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 9477**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | | | 1.61 | 1.42 | | mg/L | | 88 | 50 - 150 | 25 | 25 |
| Residual Range Organics (RRO) (C25-C36) | | | 1.60 | 1.47 | | mg/L | | 92 | 50 - 150 | 12 | 25 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *96* | | *50 - 150* |
| *n-Triacontane-d62* | *98* | | *50 - 150* |

# Lab Chronicle

Client: GeoEngineers Inc
Project/Site: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

## Client Sample ID: Site-2:B-1 (3.5-4)

**Lab Sample ID: 590-4891-1**
**Date Collected: 10/31/16 16:45**
**Matrix: Solid**
**Date Received: 11/02/16 13:25**

| 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 | | | 9437 | 11/03/16 15:39 | EAF | TAL SPK |

## Client Sample ID: Site-2:B-1 (3.5-4)

**Lab Sample ID: 590-4891-1**
**Date Collected: 10/31/16 16:45**
**Matrix: Solid**
**Date Received: 11/02/16 13:25**
**Percent Solids: 80.6**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 5.621 g | 5 mL | 9428 | 11/03/16 10:33 | MRS | TAL SPK |
| Total/NA | Analysis | 8260C | | 1 | 0.86 mL | 43 mL | 9430 | 11/03/16 15:53 | MRS | TAL SPK |
| Total/NA | Prep | 5035 | | | 5.621 g | 5 mL | 9428 | 11/03/16 10:33 | MRS | TAL SPK |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 0.86 mL | 43 mL | 9431 | 11/03/16 15:53 | MRS | TAL SPK |
| Total/NA | Prep | 3550C | | | 15.41 g | 5 mL | 9435 | 11/03/16 13:14 | EAF | TAL SPK |
| Total/NA | Analysis | NWTPH-Dx | | 1 | | | 9425 | 11/03/16 17:25 | NMI | TAL SPK |

## Client Sample ID: Site-2:B:103116

**Lab Sample ID: 590-4891-2**
**Date Collected: 10/31/16 17:40**
**Matrix: Water**
**Date Received: 11/02/16 13:25**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 43 mL | 43 mL | 9426 | 11/03/16 14:36 | MRS | TAL SPK |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 43 mL | 43 mL | 9427 | 11/03/16 14:36 | MRS | TAL SPK |
| Total/NA | Prep | 3510C | | | 232.8 mL | 2 mL | 9477 | 11/07/16 12:38 | NMI | TAL SPK |
| Total/NA | Analysis | NWTPH-Dx | | 1 | | | 9476 | 11/07/16 16:27 | NMI | TAL SPK |

**Laboratory References:**

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

# Certification Summary

Client: GeoEngineers Inc
Project/Site: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

## Laboratory: TestAmerica Spokane

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Alaska (UST) | State Program | 10 | UST-071 | 10-31-17 |
| Washington | State Program | 10 | C569 | 01-06-17 |

# Method Summary

Client: GeoEngineers Inc
Project/Site: ESD - Site 2/0504-118-00

TestAmerica Job ID: 590-4891-1

| 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 |

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

11/8/2016

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11922 E. First Ave., Spokane WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave., Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

## CHAIN OF CUSTODY REPORT

**Work Order #:**

CLIENT:

REPORT TO: Scott Lathen
ADDRESS:

PHONE: FAX:

INVOICE TO:

P.O. NUMBER:

PROJECT NAME: ESD - Site 2
PROJECT NUMBER: 0504-118-00
SAMPLED BY: Callen Driscoll

**TURNAROUND REQUEST** in Business Days *

Organic & Inorganic Analyses: ~~10~~ STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: ~~5~~ STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

| | CLIENT SAMPLE IDENTIFICATION | SAMPLING DATE/TIME | NWTPH Gx | NWTPH Dx | BTEX | MATRIX (W, S, O) | # OF CONT. | LOCATION/ COMMENTS | TA WO ID |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Site-2.B-1(3.5-4) | 10/31/16 1645 | X | X | X | S | 3 | | |
| 2 | Site-2.B-1:103116 | 10/31/16 1740 | X | X | X | W | 3 | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| RELEASED BY: | | DATE: 11/1/16 | RECEIVED BY: | | DATE: 11/1/16 |
| PRINT NAME: Callen Driscoll | FIRM: GEI | TIME: | PRINT NAME: | FIRM: GEI | TIME: 1200 |
| RELEASED BY: | | DATE: 11/2/16 | RECEIVED BY: | | DATE: 11-2-16 |
| PRINT NAME: | FIRM: GEI | TIME: 1325 | PRINT NAME: Chris Williams | FIRM: TASPK | TIME: 1325 |

ADDITIONAL REMARKS:

TEMP: 4.7 PAGE 1 OF 1

TAL-1000 (0714)

590-4891 Chain of Custody

# Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-4891-1

**Login Number: 4891**

**List Source: TestAmerica Spokane**

**List Number: 1**

**Creator: Kratz, Sheila J**

| 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. | 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"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

# ANALYTICAL REPORT

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

TestAmerica Job ID: 590-4924-1
Client Project/Site: Ellensburg SD - Site 2/0504-118-00

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

Attn: Scott Lathen

*Authorized for release by:*
*11/14/2016 10:36:49 AM*

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
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 . . . . . 8
Chronicle . . . . . 13
Certification Summary . . . . . 15
Method Summary . . . . . 16
Chain of Custody . . . . . 17
Receipt Checklists . . . . . 19

# Case Narrative

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

## Job ID: 590-4924-1

### Laboratory: TestAmerica Spokane

**Narrative**

**Receipt**
The samples were received on 11/4/2016 11:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.2º C.

**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: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 590-4924-3 | Site-2:B-2 (8-5.9) | Solid | 11/01/16 13:50 | 11/04/16 11:30 |
| 590-4924-5 | Site-2:B -2:110116 | Water | 11/01/16 14:35 | 11/04/16 11:30 |
| 590-4924-7 | Site-2:B-3 (4-4.5) | Solid | 11/01/16 14:55 | 11/04/16 11:30 |

# Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

## Qualifiers

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| F5 | Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL. |

## 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, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision level concentration |
| MDA | Minimum detectable activity |
| EDL | Estimated Detection Limit |
| MDC | Minimum detectable concentration |
| 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 |
| 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: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

## Client Sample ID: Site-2:B-2 (8-5.9)

**Lab Sample ID: 590-4924-3**
**Date Collected: 11/01/16 13:50**
**Matrix: Solid**
**Date Received: 11/04/16 11:30**
**Percent Solids: 81.4**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.025 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/08/16 19:28 | 1 |
| Ethylbenzene | ND | | 0.13 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/08/16 19:28 | 1 |
| m,p-Xylene | ND | | 0.50 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/08/16 19:28 | 1 |
| o-Xylene | ND | | 0.25 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/08/16 19:28 | 1 |
| Toluene | ND | | 0.13 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/08/16 19:28 | 1 |
| Xylenes, Total | ND | | 0.75 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/08/16 19:28 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *88* | | *75 - 120* | *11/08/16 11:32* | *11/08/16 19:28* | *1* |
| *4-Bromofluorobenzene (Surr)* | *97* | | *76 - 122* | *11/08/16 11:32* | *11/08/16 19:28* | *1* |
| *Dibromofluoromethane (Surr)* | *102* | | *80 - 120* | *11/08/16 11:32* | *11/08/16 19:28* | *1* |
| *Toluene-d8 (Surr)* | *104* | | *80 - 120* | *11/08/16 11:32* | *11/08/16 19:28* | *1* |

### 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 | ☼ | 11/08/16 11:32 | 11/08/16 19:28 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *97* | | *41.5 - 162* | *11/08/16 11:32* | *11/08/16 19:28* | *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 | ☼ | 11/10/16 09:22 | 11/10/16 12:47 | 1 |
| **Residual Range Organics (RRO) (C25-C36)** | **37** | | 30 | | mg/Kg | ☼ | 11/10/16 09:22 | 11/10/16 12:47 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *92* | | *50 - 150* | *11/10/16 09:22* | *11/10/16 12:47* | *1* |
| *n-Triacontane-d62* | *93* | | *50 - 150* | *11/10/16 09:22* | *11/10/16 12:47* | *1* |

## Client Sample ID: Site-2:B -2:110116

**Lab Sample ID: 590-4924-5**
**Date Collected: 11/01/16 14:35**
**Matrix: Water**
**Date Received: 11/04/16 11:30**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.20 | | ug/L | | | 11/07/16 15:14 | 1 |
| Ethylbenzene | ND | | 1.0 | | ug/L | | | 11/07/16 15:14 | 1 |
| m,p-Xylene | ND | | 2.0 | | ug/L | | | 11/07/16 15:14 | 1 |
| o-Xylene | ND | | 1.0 | | ug/L | | | 11/07/16 15:14 | 1 |
| Toluene | ND | | 1.0 | | ug/L | | | 11/07/16 15:14 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 11/07/16 15:14 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *106* | | *70 - 125* | | *11/07/16 15:14* | *1* |
| *4-Bromofluorobenzene (Surr)* | *98* | | *69 - 120* | | *11/07/16 15:14* | *1* |
| *Dibromofluoromethane (Surr)* | *107* | | *80 - 120* | | *11/07/16 15:14* | *1* |
| *Toluene-d8 (Surr)* | *100* | | *80 - 120* | | *11/07/16 15:14* | *1* |

# Client Sample Results

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

## Client Sample ID: Site-2:B -2:110116

**Lab Sample ID: 590-4924-5**
**Matrix: Water**

**Date Collected: 11/01/16 14:35**
**Date Received: 11/04/16 11:30**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 100 | | ug/L | | | 11/07/16 15:14 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *98* | | *68.7 - 141* | | *11/07/16 15:14* | *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 | | 0.14 | | mg/L | | 11/09/16 12:55 | 11/09/16 16:31 | 1 |
| Residual Range Organics (RRO) (C25-C36) | ND | | 0.23 | | mg/L | | 11/09/16 12:55 | 11/09/16 16:31 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *88* | | *50 - 150* | *11/09/16 12:55* | *11/09/16 16:31* | *1* |
| *n-Triacontane-d62* | *72* | | *50 - 150* | *11/09/16 12:55* | *11/09/16 16:31* | *1* |

## Client Sample ID: Site-2:B-3 (4-4.5)

**Lab Sample ID: 590-4924-7**
**Matrix: Solid**
**Percent Solids: 96.0**

**Date Collected: 11/01/16 14:55**
**Date Received: 11/04/16 11:30**

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.024 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/11/16 12:05 | 1 |
| Ethylbenzene | ND | | 0.12 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/11/16 12:05 | 1 |
| m,p-Xylene | ND | | 0.48 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/11/16 12:05 | 1 |
| o-Xylene | ND | | 0.24 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/11/16 12:05 | 1 |
| Toluene | ND | | 0.12 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/11/16 12:05 | 1 |
| Xylenes, Total | ND | | 0.73 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/11/16 12:05 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *84* | | *75 - 120* | *11/08/16 11:32* | *11/11/16 12:05* | *1* |
| *4-Bromofluorobenzene (Surr)* | *106* | | *76 - 122* | *11/08/16 11:32* | *11/11/16 12:05* | *1* |
| *Dibromofluoromethane (Surr)* | *93* | | *80 - 120* | *11/08/16 11:32* | *11/11/16 12:05* | *1* |
| *Toluene-d8 (Surr)* | *104* | | *80 - 120* | *11/08/16 11:32* | *11/11/16 12:05* | *1* |

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

| Analyte | Result | Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 6.1 | | mg/Kg | ☼ | 11/08/16 11:32 | 11/08/16 20:34 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *103* | | *41.5 - 162* | *11/08/16 11:32* | *11/08/16 20:34* | *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 | | 99 | | mg/Kg | ☼ | 11/10/16 09:22 | 11/10/16 13:23 | 10 |
| **Residual Range Organics (RRO) (C25-C36)** | **850** | | 250 | | mg/Kg | ☼ | 11/10/16 09:22 | 11/10/16 13:23 | 10 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *109* | | *50 - 150* | *11/10/16 09:22* | *11/10/16 13:23* | *10* |
| *n-Triacontane-d62* | *110* | | *50 - 150* | *11/10/16 09:22* | *11/10/16 13:23* | *10* |

# QC Sample Results

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

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

**Lab Sample ID: MB 590-9483/5**
**Matrix: Water**
**Analysis Batch: 9483**

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

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.20 | | ug/L | | | 11/07/16 14:53 | 1 |
| Ethylbenzene | ND | | 1.0 | | ug/L | | | 11/07/16 14:53 | 1 |
| m,p-Xylene | ND | | 2.0 | | ug/L | | | 11/07/16 14:53 | 1 |
| o-Xylene | ND | | 1.0 | | ug/L | | | 11/07/16 14:53 | 1 |
| Toluene | ND | | 1.0 | | ug/L | | | 11/07/16 14:53 | 1 |
| Xylenes, Total | ND | | 3.0 | | ug/L | | | 11/07/16 14:53 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *104* | | *70 - 125* | | *11/07/16 14:53* | *1* |
| *4-Bromofluorobenzene (Surr)* | *97* | | *69 - 120* | | *11/07/16 14:53* | *1* |
| *Dibromofluoromethane (Surr)* | *104* | | *80 - 120* | | *11/07/16 14:53* | *1* |
| *Toluene-d8 (Surr)* | *98* | | *80 - 120* | | *11/07/16 14:53* | *1* |

**Lab Sample ID: LCS 590-9483/1003**
**Matrix: Water**
**Analysis Batch: 9483**

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

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 10.0 | 10.7 | | ug/L | | 107 | 80 - 120 |
| Ethylbenzene | 10.0 | 10.2 | | ug/L | | 102 | 80 - 120 |
| m,p-Xylene | 10.0 | 10.4 | | ug/L | | 104 | 80 - 120 |
| o-Xylene | 10.0 | 9.98 | | ug/L | | 100 | 80 - 120 |
| Toluene | 10.0 | 9.88 | | ug/L | | 99 | 80 - 123 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *103* | | *70 - 125* |
| *4-Bromofluorobenzene (Surr)* | *97* | | *69 - 120* |
| *Dibromofluoromethane (Surr)* | *104* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *99* | | *80 - 120* |

**Lab Sample ID: MB 590-9505/1-A**
**Matrix: Solid**
**Analysis Batch: 9490**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 9505**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | | 0.020 | | mg/Kg | | 11/08/16 11:32 | 11/08/16 15:26 | 1 |
| Ethylbenzene | ND | | 0.10 | | mg/Kg | | 11/08/16 11:32 | 11/08/16 15:26 | 1 |
| m,p-Xylene | ND | | 0.40 | | mg/Kg | | 11/08/16 11:32 | 11/08/16 15:26 | 1 |
| o-Xylene | ND | | 0.20 | | mg/Kg | | 11/08/16 11:32 | 11/08/16 15:26 | 1 |
| Toluene | ND | | 0.10 | | mg/Kg | | 11/08/16 11:32 | 11/08/16 15:26 | 1 |
| Xylenes, Total | ND | | 0.60 | | mg/Kg | | 11/08/16 11:32 | 11/08/16 15:26 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *100* | | *75 - 120* | *11/08/16 11:32* | *11/08/16 15:26* | *1* |
| *4-Bromofluorobenzene (Surr)* | *104* | | *76 - 122* | *11/08/16 11:32* | *11/08/16 15:26* | *1* |
| *Dibromofluoromethane (Surr)* | *105* | | *80 - 120* | *11/08/16 11:32* | *11/08/16 15:26* | *1* |
| *Toluene-d8 (Surr)* | *105* | | *80 - 120* | *11/08/16 11:32* | *11/08/16 15:26* | *1* |

# QC Sample Results

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

**Lab Sample ID: LCS 590-9505/2-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9490** — **Prep Batch: 9505**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Benzene | 0.500 | 0.464 | | mg/Kg | | 93 | 76 - 123 |
| Ethylbenzene | 0.500 | 0.497 | | mg/Kg | | 99 | 77 - 121 |
| m,p-Xylene | 0.500 | 0.465 | | mg/Kg | | 93 | 78 - 124 |
| o-Xylene | 0.500 | 0.477 | | mg/Kg | | 95 | 77 - 129 |
| Toluene | 0.500 | 0.521 | | mg/Kg | | 104 | 77 - 125 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *96* | | *75 - 120* |
| *4-Bromofluorobenzene (Surr)* | *95* | | *76 - 122* |
| *Dibromofluoromethane (Surr)* | *101* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *103* | | *80 - 120* |

**Lab Sample ID: LCSD 590-9505/3-A** — **Client Sample ID: Lab Control Sample Dup**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9490** — **Prep Batch: 9505**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.500 | 0.525 | | mg/Kg | | 105 | 76 - 123 | 12 | 25 |
| Ethylbenzene | 0.500 | 0.512 | | mg/Kg | | 102 | 77 - 121 | 3 | 25 |
| m,p-Xylene | 0.500 | 0.505 | | mg/Kg | | 101 | 78 - 124 | 8 | 25 |
| o-Xylene | 0.500 | 0.501 | | mg/Kg | | 100 | 77 - 129 | 5 | 25 |
| Toluene | 0.500 | 0.516 | | mg/Kg | | 103 | 77 - 125 | 1 | 25 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *1,2-Dichloroethane-d4 (Surr)* | *102* | | *75 - 120* |
| *4-Bromofluorobenzene (Surr)* | *107* | | *76 - 122* |
| *Dibromofluoromethane (Surr)* | *97* | | *80 - 120* |
| *Toluene-d8 (Surr)* | *100* | | *80 - 120* |

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

**Lab Sample ID: MB 590-9484/5** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 9484**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 100 | | ug/L | | | 11/07/16 14:53 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *4-Bromofluorobenzene (Surr)* | *97* | | *68.7 - 141* | | *11/07/16 14:53* | *1* |

**Lab Sample ID: LCS 590-9484/1004** — **Client Sample ID: Lab Control Sample**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 9484**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Gasoline | 1000 | 1130 | | ug/L | | 113 | 80 - 120 |

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

**Lab Sample ID: LCS 590-9484/1004** — **Client Sample ID: Lab Control Sample**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 9484**

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 96 | | 68.7 - 141 |

**Lab Sample ID: MB 590-9505/1-A** — **Client Sample ID: Method Blank**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9492** — **Prep Batch: 9505**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Gasoline | ND | | 5.0 | | mg/Kg | | 11/08/16 11:32 | 11/08/16 15:26 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 104 | | 41.5 - 162 | 11/08/16 11:32 | 11/08/16 15:26 | 1 |

**Lab Sample ID: LCS 590-9505/4-A** — **Client Sample ID: Lab Control Sample**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9492** — **Prep Batch: 9505**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | 50.0 | 55.4 | | mg/Kg | | 111 | 74.4 - 124 | | |

| Surrogate | LCS %Recovery | LCS Qualifier | Limits |
|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 104 | | 41.5 - 162 |

**Lab Sample ID: LCSD 590-9505/5-A** — **Client Sample ID: Lab Control Sample Dup**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9492** — **Prep Batch: 9505**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline | | | 50.0 | 53.0 | | mg/Kg | | 106 | 74.4 - 124 | 4 | 20 |

| Surrogate | LCSD %Recovery | LCSD Qualifier | Limits |
|---|---|---|---|
| 4-Bromofluorobenzene (Surr) | 108 | | 41.5 - 162 |

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

**Lab Sample ID: MB 590-9527/1-A** — **Client Sample ID: Method Blank**
**Matrix: Water** — **Prep Type: Total/NA**
**Analysis Batch: 9525** — **Prep Batch: 9527**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | ND | | 0.12 | | mg/L | | 11/09/16 10:53 | 11/09/16 14:01 | 1 |
| Residual Range Organics (RRO) (C25-C36) | ND | | 0.20 | | mg/L | | 11/09/16 10:53 | 11/09/16 14:01 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| o-Terphenyl | 89 | | 50 - 150 | 11/09/16 10:53 | 11/09/16 14:01 | 1 |
| n-Triacontane-d62 | 86 | | 50 - 150 | 11/09/16 10:53 | 11/09/16 14:01 | 1 |

# QC Sample Results

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

**Lab Sample ID: LCS 590-9527/2-A**
**Matrix: Water**
**Analysis Batch: 9525**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 9527**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | 1.61 | 1.28 | | mg/L | | 79 | 50 - 150 |
| Residual Range Organics (RRO) (C25-C36) | 1.60 | 1.39 | | mg/L | | 86 | 50 - 150 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *89* | | *50 - 150* |
| *n-Triacontane-d62* | *90* | | *50 - 150* |

**Lab Sample ID: LCSD 590-9527/3-A**
**Matrix: Water**
**Analysis Batch: 9525**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 9527**

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | 1.61 | 1.22 | | mg/L | | 76 | 50 - 150 | 5 | 25 |
| Residual Range Organics (RRO) (C25-C36) | 1.60 | 1.38 | | mg/L | | 86 | 50 - 150 | 0 | 25 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *90* | | *50 - 150* |
| *n-Triacontane-d62* | *91* | | *50 - 150* |

**Lab Sample ID: MB 590-9547/1-A**
**Matrix: Solid**
**Analysis Batch: 9553**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 9547**

| Analyte | MB Result | MB Qualifier | RL | MDL | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | ND | | 10 | | mg/Kg | | 11/10/16 09:22 | 11/10/16 12:47 | 1 |
| Residual Range Organics (RRO) (C25-C36) | ND | | 25 | | mg/Kg | | 11/10/16 09:22 | 11/10/16 12:47 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *o-Terphenyl* | *104* | | *50 - 150* | *11/10/16 09:22* | *11/10/16 12:47* | *1* |
| *n-Triacontane-d62* | *105* | | *50 - 150* | *11/10/16 09:22* | *11/10/16 12:47* | *1* |

**Lab Sample ID: LCS 590-9547/2-A**
**Matrix: Solid**
**Analysis Batch: 9553**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 9547**

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | 67.1 | 62.4 | | mg/Kg | | 93 | 50 - 150 |
| Residual Range Organics (RRO) (C25-C36) | 66.8 | 66.3 | | mg/Kg | | 99 | 50 - 150 |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *100* | | *50 - 150* |
| *n-Triacontane-d62* | *103* | | *50 - 150* |

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

**Lab Sample ID: 590-4924-3 DU** — **Client Sample ID: Site-2:B-2 (8-5.9)**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9552** — **Prep Batch: 9547**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | ND | | | ND | | mg/Kg | ☼ | | | 37 | 40 |
| Residual Range Organics (RRO) (C25-C36) | 37 | | | 56.6 | F5 | mg/Kg | ☼ | | | 42 | 40 |

| *Surrogate* | *DU %Recovery* | *DU Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *98* | | *50 - 150* |
| *n-Triacontane-d62* | *97* | | *50 - 150* |

**Lab Sample ID: 590-4924-7 DU** — **Client Sample ID: Site-2:B-3 (4-4.5)**
**Matrix: Solid** — **Prep Type: Total/NA**
**Analysis Batch: 9552** — **Prep Batch: 9547**

| Analyte | Sample Result | Sample Qualifier | | DU Result | DU Qualifier | Unit | D | | | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) (C10-C25) | ND | | | ND | | mg/Kg | ☼ | | | 19 | 40 |
| Residual Range Organics (RRO) (C25-C36) | 850 | | | 604 | | mg/Kg | ☼ | | | 34 | 40 |

| *Surrogate* | *DU %Recovery* | *DU Qualifier* | *Limits* |
|---|---|---|---|
| *o-Terphenyl* | *94* | | *50 - 150* |
| *n-Triacontane-d62* | *93* | | *50 - 150* |

# Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

## Client Sample ID: Site-2:B-2 (8-5.9)

**Lab Sample ID: 590-4924-3**
**Date Collected: 11/01/16 13:50**
**Matrix: Solid**
**Date Received: 11/04/16 11:30**

| 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 | | | 9538 | 11/09/16 14:39 | EAF | TAL SPK |

## Client Sample ID: Site-2:B-2 (8-5.9)

**Lab Sample ID: 590-4924-3**
**Date Collected: 11/01/16 13:50**
**Matrix: Solid**
**Date Received: 11/04/16 11:30**
**Percent Solids: 81.4**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 6 g | 5 mL | 9505 | 11/08/16 11:32 | MRS | TAL SPK |
| Total/NA | Analysis | 8260C | | 1 | 0.86 mL | 43 mL | 9490 | 11/08/16 19:28 | MRS | TAL SPK |
| Total/NA | Prep | 5035 | | | 6 g | 5 mL | 9505 | 11/08/16 11:32 | MRS | TAL SPK |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 0.86 mL | 43 mL | 9492 | 11/08/16 19:28 | MRS | TAL SPK |
| Total/NA | Prep | 3550C | | | 15.36 g | 5 mL | 9547 | 11/10/16 09:22 | EAF | TAL SPK |
| Total/NA | Analysis | NWTPH-Dx | | 1 | | | 9552 | 11/10/16 12:47 | NMI | TAL SPK |

## Client Sample ID: Site-2:B -2:110116

**Lab Sample ID: 590-4924-5**
**Date Collected: 11/01/16 14:35**
**Matrix: Water**
**Date Received: 11/04/16 11:30**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Analysis | 8260C | | 1 | 43 mL | 43 mL | 9483 | 11/07/16 15:14 | MRS | TAL SPK |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 43 mL | 43 mL | 9484 | 11/07/16 15:14 | MRS | TAL SPK |
| Total/NA | Prep | 3510C | | | 221.1 mL | 2 mL | 9527 | 11/09/16 12:55 | EAF | TAL SPK |
| Total/NA | Analysis | NWTPH-Dx | | 1 | | | 9525 | 11/09/16 16:31 | NMI | TAL SPK |

## Client Sample ID: Site-2:B-3 (4-4.5)

**Lab Sample ID: 590-4924-7**
**Date Collected: 11/01/16 14:55**
**Matrix: Solid**
**Date Received: 11/04/16 11:30**

| 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 | | | 9538 | 11/09/16 14:39 | EAF | TAL SPK |

## Client Sample ID: Site-2:B-3 (4-4.5)

**Lab Sample ID: 590-4924-7**
**Date Collected: 11/01/16 14:55**
**Matrix: Solid**
**Date Received: 11/04/16 11:30**
**Percent Solids: 96.0**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 5035 | | | 4.447 g | 5 mL | 9505 | 11/08/16 11:32 | MRS | TAL SPK |
| Total/NA | Analysis | 8260C | | 1 | 0.86 mL | 43 mL | 9579 | 11/11/16 12:05 | MRS | TAL SPK |
| Total/NA | Prep | 5035 | | | 4.447 g | 5 mL | 9505 | 11/08/16 11:32 | MRS | TAL SPK |
| Total/NA | Analysis | NWTPH-Gx | | 1 | 0.86 mL | 43 mL | 9492 | 11/08/16 20:34 | MRS | TAL SPK |
| Total/NA | Prep | 3550C | | | 15.81 g | 5 mL | 9547 | 11/10/16 09:22 | EAF | TAL SPK |
| Total/NA | Analysis | NWTPH-Dx | | 10 | | | 9552 | 11/10/16 13:23 | NMI | TAL SPK |

# Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

**Laboratory References:**

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

# Certification Summary

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

## Laboratory: TestAmerica Spokane

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|---|---|---|---|---|
| Alaska (UST) | State Program | 10 | UST-071 | 10-31-17 |
| Washington | State Program | 10 | C569 | 01-06-17 |

# Method Summary

Client: GeoEngineers Inc
Project/Site: Ellensburg SD - Site 2/0504-118-00

TestAmerica Job ID: 590-4924-1

| 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 |

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

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11922 E. First Ave., Spokane WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave., Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

## CHAIN OF CUSTODY REPORT

**Work Order #:**

CLIENT: GEI

REPORT TO: Scott Lathen
ADDRESS: slathen@geoengineers.com

PHONE: FAX:

INVOICE TO:

P.O. NUMBER:

PROJECT NAME: Ellensburg School District Site 2
PROJECT NUMBER: 0504-118-00
SAMPLED BY: Callan Driscoll

**TURNAROUND REQUEST**
in Business Days *
Organic & Inorganic Analyses: 10 (STD.) | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 (STD.) | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

| | CLIENT SAMPLE IDENTIFICATION | SAMPLING DATE/TIME | NWTPH-Gx | NWTPH-Dx | BTEX | MATRIX (W, S, O) | # OF CONT. | LOCATION/ COMMENTS | TA WO ID |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Site-2: B-2(2-2.5) | 11/1/16 1335 | | | | S | 3 | | |
| 2 | Site-2: B-2(5.5-6) | 11/1/16 1345 | | | | S | | | |
| 3 | Site-2: B-2(8.5-9) | 11/1/16 1350 | | | | S | | | |
| 4 | Site-2: B-2(13-13.5) | 11/1/16 1400 | | | | S | | | |
| 5 | Site-2: B-3 11/1/16 | 11/1/16 1435 | | | | W | | | |
| 6 | Site-2: B-3(1.5-2) | 11/1/16 1445 | | | | S | | | |
| 7 | Site-2: B-3(4-4.5) | 11/1/16 1455 | | | | S | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

RELEASED BY: Callan Driscoll
PRINT NAME: Callan Driscoll FIRM: GEI DATE: 11/4/16 TIME: 1130

RECEIVED BY: Sheila Kraft
PRINT NAME: Sheila Kraft FIRM: TA Spok DATE: 11/4/16 TIME: 1130

RELEASED BY: PRINT NAME: FIRM: DATE: TIME:

RECEIVED BY: PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS:

TEMP: 5.2C IR003

PAGE 1 OF 1

590-4924 Chain of Custody

TAD-1000 (0714)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11922 E. First Ave., Spokane WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave., Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

# CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: GSI

REPORT TO: Scott Lathem
ADDRESS: Stationing@geosyntec.com

PHONE: FAX:

INVOICE TO:

P.O. NUMBER:

PROJECT NAME: Site-2 Spring Schematic
PROJECT NUMBER: 0501-118-00
SAMPLED BY: Gallen Driscoll

TURNAROUND REQUEST
in Business Days *
Organic & Inorganic Analyses: 10 (STD.) 7 5 4 3 2 1 <1
Petroleum Hydrocarbon Analyses: 5 (STD.) 4 3 2 1 <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges

PRESERVATIVE

REQUESTED ANALYSES

| | CLIENT SAMPLE IDENTIFICATION | SAMPLING DATE/TIME | MTBE GX | MTBE DX | BTEX | MATRIX (W, S, O) | # OF CONT. | LOCATION/ COMMENTS | TA WO ID |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Site-2:B-2(2-3.5) | 11/1/16 1335 | | | | S | 2 | | |
| 2 | Site-2:B-2(5.5-6) | 11/1/16 1345 | | | | S | 1 | | |
| 3 | Site-2:B-2(8.5-9) | 11/1/16 1350 | X | X | X | S | 1 | | |
| 4 | Site-2:B-2(13-13.5) | 11/1/16 1400 | | | | S | 1 | | |
| 5 | Site-2:B-3(0-1) | 11/1/16 1425 | X | X | X | W | 1 | | |
| 6 | Site-2:B-3(3.5-4) | 11/1/16 1445 | | | | S | 1 | | |
| 7 | Site-2:B-3(4-4.5) | 11/1/16 1455 | X | X | X | S | 1 | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

| | | | |
|---|---|---|---|
| RELEASED BY: Gallen Driscoll | DATE: 11/4/16 | RECEIVED BY: | DATE: |
| PRINT NAME: Gallen Driscoll FIRM: GSI | TIME: 1130 | PRINT NAME: FIRM: | TIME: 1400 |
| RELEASED BY: | DATE: | RECEIVED BY: | DATE: |
| PRINT NAME: FIRM: | TIME: | PRINT NAME: FIRM: | TIME: |

ADDITIONAL REMARKS:

TEMP:

PAGE OF

TAL-1000 (0714)

590-4924 Chain of Custody

Revised CoC Received 11/8/16 RA

# Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-4924-1

**Login Number: 4924**

**List Source: TestAmerica Spokane**

**List Number: 1**

**Creator: Kratz, Sheila J**

| 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. | 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"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# 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 Ellensburg School District site located at 1501 East Capitol Avenue in Ellensburg, 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.

---

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

Have we delivered World Class Client Service?

Please let us know by visiting **www.geoengineers.com/feedback**.

GeoEngineers