Supplemental Soil and Groundwater Assessment

L&L Exxon
Richland, Washington

for
Washington State Department of Ecology

August 20, 2013

GeoEngineers
Earth Science + Technology

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File No. 0504-081-00

August 20, 2013

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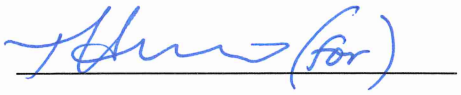

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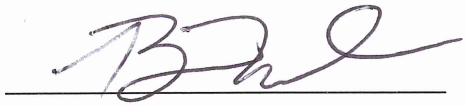

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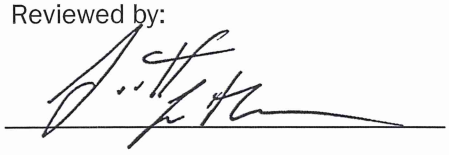

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Table of Contents

APPENDICES (CONTINUED)

1.0 INTRODUCTION

This report describes additional subsurface explorations, groundwater monitoring well installation and groundwater monitoring activities conducted from April through June 2013 at the former L&L Exxon site located at 1315 Lee Boulevard in Richland, Washington (herein referred to as "site"). The site is located approximately as shown in the attached Vicinity Map, Figure 1.

Environmental activities at the site currently 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, and provides recommendations for further assessment. The purpose of the assessment activities described herein was to identify the source and extent of remnant contamination in soil and shallow groundwater beneath the site, if any, associated with operation of three former underground storage tanks (USTs).

2.0 SITE DESCRIPTION AND BACKGROUND

The site was the location of the former L&L Exxon service station, which closed in 1999. Former site features removed at the time of closure included (shown on Site Plan, Figure 2):

- Two 6,000-gallon gasoline USTs (designated as UST-1 and UST-2, respectively), installed in the late 1950s, located on the north side of the property;
- One 4,000-gallon gasoline UST (designated as UST-3), installed in 1979, located south of the 6,000-gallon USTs;
- Two 500-gallon USTs (waste oil and heating oil, designated as UST-4 and UST-5 respectively) located near the south side of the building; and
- Four fuel dispensers and associated subsurface piping, located on the north side of the property west of the USTs.

The site is located in a generally commercial area and currently operates as a used car dealership and maintenance shop. Four historical groundwater monitoring wells (HW-A through HW-D) and a blower, reportedly included as a component of an in-situ remediation system, are located at the site. However, these monitoring wells are in poor condition (including missing caps, caps paved with asphalt) or inaccessible (HW-D was located beneath a storage unit) and are not serviceable to collect future groundwater samples. According to historical assessment and remediation reports, shallow groundwater beneath the site is anticipated to flow toward the east. Existing and historical site features, including former USTs and dispensers and current monitoring wells, are depicted on Figure 2.

Based on a file review of previous environmental reports and interviews with the current property owner and former contractors, the following environmental activities occurred between 1999 and September 2012:

1. Removal of the USTs and the associated fueling systems;

2. Excavation of petroleum-contaminated soil to a depth of about 12 feet below ground surface (bgs);
3. Installation of four groundwater monitoring wells; and
4. In-situ remediation using microbial injection beneath the existing building supplemented with air injection.

Additional details from previous reports and interviews are included in the File Review (GeoEngineers, 2012A). The area of excavation relative to the regions of historical tanks and other facility instruments are depicted in Figure 2.

On September 26 and 27, 2012 GeoEngineers performed subsurface assessment activities including air rotary drilling of six soil borings (B-1 through B-6) near the locations of the former USTs and dispensers. Three additional borings were advanced approximately 8 to 9 feet below the groundwater table and groundwater monitoring wells were constructed (MW-1 through MW-3), which were screened based on groundwater conditions observed in the field. Nine soil samples were analyzed for gasoline-, diesel-, and oil-range petroleum hydrocarbons (GRPH, DRPH, and ORPH, respectively) using Northwest Methods NWTPH-Gx and NWTPH-Dx, benzene, toluene, ethylbenzene, and total xylenes (BTEX), 1,2-Dichloroethane (EDC), methyl-tert-butyl-ether (MTBE) and n-hexane using Environmental Protection Agency (EPA) Method 8260C, 1,2-Dibromoethane (EDB) using EPA Method 8011, lead using EPA Method 6010C, and polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270C. Two soil samples were further analyzed for fractionalized petroleum hydrocarbons (aliphatics and aromatics) using Northwest VPH and EPH methods. Groundwater samples were analyzed for GRPH using Northwest Method NWTPH-Gx; DRPH using Northwest Method NWTPH-Dx, BTEX, EDC, MTBE and n-hexane using EPA Method 8260B; EDB using EPA Method 8011; lead using EPA Method 6010C, and PAHs using EPA Method 8270C-SIM.

GRPH and volatile organic compounds (VOCs) were detected in soil samples collected from GeoEngineers' borings B-1, B-3, B-5, MW-1 and MW-2 at concentrations exceeding MTCA Method A cleanup levels. GRPH and total naphthalenes were detected in groundwater samples collected from MW-1 and MW-2 at concentrations exceeding MTCA Method A cleanup levels. Benzene was detected in the groundwater sample collected from MW-1 at a concentration exceeding MTCA Method A cleanup levels. Additional details regarding the site are presented in our previous report for this project titled "Soil and Groundwater Assessment, L&L Exxon, Richland, Washington," (GeoEngineers, Inc., March 16, 2013).

Based on results of our soil and groundwater assessment performed on September 26 and 27, 2012, the supplemental soil and groundwater assessment described herein was required to further define the extent of shallow soil contamination and to delineate the extent of groundwater contamination, specifically to assess if groundwater contamination has migrated beyond the site boundaries. Supplemental assessment activities included drilling two new monitoring wells (MW-4 and MW-5), located east of the property, on the east side of Goethals Street, as shown on Figure 2. Supplemental assessment activities also included excavating five test pits near borings B-1, B-3, and B-5 to assess subsurface soil contamination.

3.0 SCOPE OF SERVICES

The supplemental assessment scope of services described in this report is designed to confirm if soil and/or groundwater contamination at the site requires further remedial action and/or an environmental covenant, and consisted of the following:

- Coordinated underground utility location services using the state one-call system and a private locating service.
- Coordinated drilling activities with the City of Richland and subcontracted a qualified traffic control company to create a traffic control plan and provide traffic control (including traffic signs and cones as required) during drilling operations.
- Drilled and constructed two monitoring wells (MW-4 and MW-5) using air rotary drilling method. Monitoring wells were drilled and constructed east of the property, on the east side of Goethals Street, as shown on Figure 2.
- Collected soil samples continuously during drilling at approximate 5-foot depth intervals using split-spoon samplers. Selected sub-samples were field-screened using visual observations, water sheen, and headspace vapor measurements with a photoionization detector (PID) to assess possible presence of petroleum-related contaminants.
- Developed monitoring wells using surging and bailing/pumping.
- Subcontracted a qualified environmental services company to excavate and backfill five test pits to depths between 11 and 13 feet bgs near borings B-1, B-3 and B-5.
- Submitted one soil sample from each boring and test pit to TestAmerica Laboratories Inc. (TestAmerica) located in Spokane Valley, Washington for chemical analysis. The samples were collected within the vadose zone of each exploration and exhibited the greatest indications of petroleum contamination based on field-screening measurements. The remaining samples were held at the laboratory or GeoEngineers' Spokane office for potential analysis.
- Soil samples were analyzed for gasoline-, diesel-, and oil-range petroleum hydrocarbons (GRPH, DRPH, and ORPH, respectively) using Northwest Methods NWTPH-Gx and NWTPH-Dx, benzene, toluene, ethylbenzene, and total xylenes (BTEX) and n-hexane using Environmental Protection Agency (EPA) Method 8260C and naphthalenes using EPA Method 8270C. Samples were analyzed on standard turn-around-time.
- Collected groundwater samples from wells MW-4 and MW-5 in May 2013 using low flow/low stress sampling techniques.
- Collected groundwater samples from each site monitoring well (MW-1 through MW-5) in June 2013 using low-flow/low-stress sampling techniques.
- Submitted groundwater samples to TestAmerica for chemical analysis. Samples were analyzed for GRPH using Northwest Method NWTPH-Gx; DRPH using Northwest Method NWTPH-Dx, BTEX, and n-hexane using EPA Method 8260B; and naphthalene, 1-methylnaphthalene, 2-methylnaphthalene using EPA Method 8270D. The samples collected from MW-4 and MW-5 in May 2013 were also analyzed for trichloroethane (TCE) and tetrachloroethane (PCE) using EPA Method 8269C..

- Drummed, labeled, and stored investigation-derived waste (IDW) on-site pending results of analytical testing.

4.0 FIELD ACTIVITIES

4.1. General

Advanced Underground Utility Locating, Inc. of Spokane, Washington conducted a private utility locate of the planned site exploration locations on April 29, 2013. Environmental West Explorations (Environmental West) of Spokane, Washington advanced two borings (MW-4 and MW-5) to depths of about 25 feet bgs using air rotary drilling methods on April 29, 2013. The two soil borings were completed as monitoring wells and are located to the east of the property, on the east side of Goethals Street. NRC Environmental Services Inc. (NRC) of Pasco, Washington, excavated five test pits (TP-1 through TP-5) using a John Deere 310 J backhoe on April 30, 2013 to depths ranging between 11 and 13 feet bgs. Test pits TP-1 through TP-5 were located near the previously drilled borings B-1, B-3, and B-5 to assess subsurface soil contamination in those areas. Soil excavated from each test pit was used to backfill the test pit. NRC also provided 3 inches of crushed rock to place on top of each test pit excavation after it had been backfilled. The locations of monitoring wells MW-4 and MW-5 and test pits TP-1 through TP-5 are shown on Approximate Exploration and Monitoring Well Locations, Figure 3.

Soil cuttings and decontamination/development water were placed in 55-gallon steel drums, labeled, and stored behind the building.

Boring and test pit logs associated with the borings and test pits are provided in Appendix A.

4.2. Subsurface Conditions

4.2.1. Soil

Soil encountered within the borings associated with the two new monitoring well installations generally consisted of brown silty sand to a depth of 5 feet bgs, and brown poorly graded gravel to the completed depths of 25 feet bgs. Soil encountered in test pits TP-1 to TP-4 generally consisted of brown silty sand to depths of approximately 7.5 to 10 feet, underlain by fine to coarse gravel with sand, zones of cobbles and silt to the completed depths. Test pits TP-1 and TP-3 included a thin (≤12 inches) layer of distinctly gray silty sand with trace gravels, at an approximate depth of 8 feet bgs. In test pit TP-5, gray to brown fine to coarse gravel with sand, occasional cobbles and trace silt was encountered to the completed depth of 12 feet bgs. This gravel unit contained a brown silty sand interbed from about 5½ to 11 feet bgs. Debris was observed in test pits TP-3 and TP-5, at depths of approximately 5 and 8 to 10 feet bgs, respectively.

4.2.2. Groundwater

In April 2013, groundwater was encountered during drilling operations in borings MW-4 and MW-5, at depths that ranged from about 16.5 to 17.5 feet bgs. Groundwater was encountered under unconfined (water table) conditions.

4.3. Field Screening and Sampling

Soil samples from each boring were field-screened for the potential presence of petroleum contamination by visual examination, headspace vapor monitoring with a PID, and water-sheen testing. Procedures for field-screening and sampling are provided in Appendix A.

Headspace vapor measurements and sheen observations for each soil sample, as well as a summary of field screening observations is described below:

- No screening evidence of contamination was observed on soil samples collected from borings MW-4, MW-5, TP-1 and TP-2. However during development of the two monitoring wells (MW-4 and MW-5) a slight sheen and slight hydrocarbon odor was detected in the development water.
- Headspace vapor measurements were detected in samples from test pit TP-3 collected at 7½ and 11½ feet bgs with concentrations in excess of 1,250 ppm, and 276 ppm, respectively. Headspace vapors were not detected from shallower sample depths, however a slight sheen was detected at approximately 8 feet and 11½ feet bgs.
- Headspace vapor measurements were not detected in samples from test pit TP-4. However, a slight sheen was observed at approximately 2 feet and 7½ feet bgs.
- Headspace vapor measurements were detected in samples from test pit TP-5 collected at 9 and 12 feet bgs with concentrations of 282 ppm, and 798 ppm, respectively. Headspace vapors were not detected from shallower sample depths. A slight sheen was observed in the samples collected at 5 feet and 12 feet bgs.
- No petroleum-stained soil was observed.
- No groundwater seepage was observed in the test pits.

Eight soil samples collected from the unsaturated zone (one sample from each boring and test pit, plus on additional sample from TP-4) were submitted to TestAmerica for analysis using the methods described in “Section 3.0”; chemical analytical results are discussed in “Section 5.0”. Due to the coarse grain-size common to shallow site soil, poor sample recovery was common throughout the stratigraphic section. The samples submitted for analysis were selected based on sufficient sample volume, field screening evidence of contamination and proximity to the groundwater interface.

4.4. Monitoring Well Installation

Monitoring wells MW-4 and MW-5 were installed in the approximate locations presented in Figure 3. Well construction details for monitoring wells MW-4 and MW-5 are provided in Figures A-2 through A-3 of Appendix A, respectively. The monitoring wells were installed using air rotary drilling techniques and constructed of 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC) casing and 0.010-inch slot Schedule 40 PVC well screen surrounded by a sand filter pack and bentonite seal. Both of the installed well screens for monitoring wells MW-4 and MW-5 extend from depths of about 15 to 25 feet bgs.

Monitoring wells MW-4 and MW-5 were completed with flush-mount surface monuments. Lockable compression caps were installed to seal the top of the PVC well casings. A concrete surface seal

was constructed around each monument at the ground surface to divert surface water away from the well casings.

4.5. Groundwater Monitoring

Following installation and development of monitoring wells MW-4 and MW-5, GeoEngineers used surveying equipment to measure the relative elevation of the top of the PVC well casing. Top of casing elevation and groundwater elevation were measured relative to a site specific datum set at 100.00 feet. Static depth to groundwater was measured in site monitoring wells MW-1 through MW-5 on June 3, 2013 using an electronic water level indicator. Depths ranged from 15.16 feet (MW-4) to 15.70 feet (MW-1) below the top of well casing. Corresponding groundwater elevations ranged from 82.26 to 82.40 feet. Elevations in this report are referenced to a site-specific datum located at the top of the concrete light-post base near the northeast corner of the site. These data suggest that the shallow groundwater elevation distribution below the site is relatively complex, with a variable flow direction depending on site location. However, the complex distribution could be related to an erroneous casing elevation in MW-4. This elevation will be confirmed by re-survey during an upcoming site visit.

Monitoring wells MW-4 and MW-5 were purged and sampled on May 6, 2013 and monitoring wells MW-1 through MW-5 were purged and sampled on June 3, 2013 using standard low-flow sampling methodology. A peristaltic pump equipped with disposable tubing was used to purge and sample each well. Groundwater water quality parameters generally were measured at 3-minute intervals during well purging. Groundwater samples were collected when each water quality parameter had stabilized in conformance with the criteria presented in Appendix A. Stabilized parameter data for monitoring wells MW-1 through MW-5 are tabulated in Summary of Groundwater Elevations and Natural Attenuation Parameters, Table 1. Purge water generated during groundwater sampling was placed in a 55-gallon sealed drum, labeled and stored behind the building pending analytical results for profiling and disposal.

A summary of site groundwater elevation and water quality parameter data is provided in Table 1. Groundwater samples were submitted to TestAmerica for analysis using the methods described in “Section 3.0”; chemical analytical results are discussed in “Section 5.0”.

5.0 CHEMICAL ANALYTICAL RESULTS

5.1. Soil Chemical Analytical Results

Seven soil samples collected from the unsaturated zone (one sample from each of the five test pits and one sample each from monitoring wells MW-4 and MW-5) were submitted to TestAmerica for the chemical analyses described in “Section 3.0”. The TestAmerica 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 Samples, Table 2. Chemical analytical results for the submitted soil samples are summarized by the following:

- GRPH were detected in soil samples collected from test pits TP-1, TP-3 and TP-5 at concentrations of 13.1 milligrams per kilogram (mg/kg), 14,800 mg/kg and 1,770 mg/kg,

respectively. The detected concentrations from test pits TP-3 and TP-5 exceed the MTCA Method A cleanup level of 100 mg/kg (when benzene is not detected).

- DRPH were detected in soil samples collected from test pits and boring MW-5 (10.4 mg/kg), TP-3 (1,480 mg/kg), and TP-5 (227 mg/kg). However, these DRPH concentrations do not exceed the MTCA Method A cleanup level of 2,000 mg/kg. ORPH were not detected.
- Volatile organic compounds (VOCs) were detected in samples collected from test pits TP-3 and TP-5 at concentrations exceeding MTCA Method A cleanup levels. Ethylbenzene exceeded cleanup levels in test pit TP-3; and total xylenes exceeded cleanup levels in test pits TP-3 and TP-5. BTEX was either not detected or detected at concentrations less than MTCA Method A cleanup levels from the remaining test pits and monitoring wells MW-4 and MW-5.
- Total naphthalenes (naphthalene, 1-methylnaphthalene and 2-methylnaphthalene) concentrations exceeded MTCA Method A cleanup levels in soil samples from test pits TP-3 and TP-5. Total naphthalenes were not detected in the remaining samples.

5.2. Groundwater Chemical Analytical Results

5.2.1. General

Groundwater samples were collected from monitoring wells MW-4 and MW-5 on May 6, 2013 and from MW-1 through MW-5 on June 3, 2013. Groundwater samples were submitted to TestAmerica for the chemical analyses described in "Section 3.0". The TestAmerica laboratory report is included in Appendix B. Chemical analytical results are tabulated and compared to MTCA Method A cleanup levels in Summary of Chemical Analytical Results - Groundwater, Table 3.

5.2.2. Contaminants of Concern

Groundwater analytical results from the June 2013 groundwater sampling event for the project contaminants of concern (COCs) are summarized by the following:

- GRPH were detected at concentrations of 51,000 micrograms per liter (µg/L) in the sample collected from MW-1, and 10,200 µg/L from the sample collected from MW-2. These concentrations exceed the MTCA Method A cleanup level of 800 µg/L (when benzene is present) or 1,000 µg/L (when benzene is not present). GRPH were not detected in samples collected from monitoring wells MW-3, MW-4 and MW-5.
- DRPH were detected in concentrations of 2.09 milligrams per liter (mg/l) from the sample collected from MW-1, and 2.91 mg/l in the sample collected from MW-2. These concentrations exceed the MTCA Method A cleanup level of 0.5 mg/l. DRPH were not detected in samples collected from monitoring wells MW-3, MW-4 and MW-5.
- ORPH were not detected in samples collected from monitoring wells MW-1 through MW-5.
- Benzene was detected in the sample collected from MW-2 at a concentration of 300 µg/L. This exceeds the MTCA Method A cleanup level of 5 µg/L. Benzene was not detected in the samples collected from MW-1, MW-3 and MW-4. However, the reporting limit (20 µg/L) used in the analysis performed on the sample from MW-1 exceeds the MTCA Method A cleanup level of 5 µg/L.

- Toluene was detected in the sample collected from MW-1 at a concentration of 7,120 µg/L, which exceeds the MTCA Method A cleanup level of 1,000 µg/L. Toluene was also detected in the sample collected from MW-2 at a concentration of 159 µg/L. Toluene was not detected in the samples collected from MW-3 through MW-5.
- Ethylbenze was detected in the sample collected from MW-1 at a concentration of 1,320 µg/L, which exceeds the MTCA Method A cleanup level of 700 µg/L. Ethylbenzene was also detected in the sample collected from MW-2 at a concentration of 316 µg/L. Ethylbenzene was not detected in the samples collected from monitoring wells MW-3 through MW-5.
- Total xylenes were detected at a concentration of 6,160 µg/L in the sample collected from MW-1, and at a concentration of 1,171 µg/L in the sample collected from MW-2. These concentrations exceed the MTCA Method A cleanup level of 1,000 µg/L for total xylenes. Xylenes were not detected in the samples collected from monitoring wells MW-3 though MW-5.
- Hexane was not detected.
- Trichloroethene (TCE) was detected in the samples collected from monitoring wells MW-3 through MW-5 at concentrations of 0.97 µg/L, 0.64 µg/L, and 1.05 µg/L, respectively, which are less than the MTCA Method A cleanup level of 5 µg/L. Tetrachloroethene (PCE) also was detected in samples collected from wells MW-3 through MW-5; the concentrations were greater than the MTCA Method A cleanup level of 5 µg/L in the samples collected from monitoring wells MW-3 and MW-5. TCE and PCE analyses were not requested; however, TestAmerica observed the likely presence of TCE and PCE. At Ecology's request, the laboratory quantified the PCE and TCE concentrations, which likely originated from a nearby site.
- Total naphthalenes were detected in the sample collected from monitoring well MW-2 at a concentration of 437.7 µg/L, which exceeds the MTCA Method A cleanup level of 160 µg/L. Total naphthalenes were also detected in the sample collected from monitoring well MW-1 a concentration of 107 µg/L. Total naphthalenes were not detected in the samples collected from monitoring wells MW-3 through MW-5.

6.0 GROUNDWATER TRENDS ANALYSIS

The following trends in groundwater contaminant concentrations were observed in samples collected from monitoring wells MW-1, MW-2 and MW-3 during the period from October 2012 to June 2013:

- MW-1: GRPH concentrations steadily increased, and were consistently detected to be greater than the MTCA cleanup level. The May 2013 GRPH concentration was over 50 times the MTCA method A cleanup level. DRPH, Benzene, ethylbenzene, total xylenes, and naphthalene concentrations all peaked in April 2013 (with concentrations greater than respective MTCA Method A cleanup levels), and decreased during May 2013..
- MW-2: COC concentrations generally peaked in January 2013, relative to prior and subsequent events.
- MW-3: COC concentrations generally were not detected during the analysis period.

7.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

7.1. Subsurface Conditions

Monitoring well installation activities were conducted April 29, 2013 at the former L&L Exxon site located at 1315 Lee Boulevard in Richland, Washington. Two soil borings (MW-4 and MW-5) were advanced to depths of 25 feet. Five test pits (TP-1 through TP-5) were explored on April 30, 2013 near borings B-1, B-3, and B-5 to assess subsurface soil contamination.

Observed native soil conditions generally consisted of brown fine sand with silt to depths between 5 and 10 feet bgs underlain by gravel. The groundwater table was encountered during drilling at depths of about 16.5 to 17.5 feet.

Soil samples from each boring were field-screened for the potential presence of petroleum contamination. Field screening results indicated the presence of contaminants in test pits TP-3 and TP-5.

7.2. Chemical Analytical Results

Chemical analytical results are summarized by the following:

- COCs were detected at concentrations greater than MTCA Method A cleanup levels in the soil samples collected from test pits TP-3 and TP-5.
- COCs were detected at concentrations greater than MTCA Method A cleanup levels in groundwater samples collected from monitoring wells MW-1 and MW-2.
- Trichloroethene and tetrachloroethene were detected in the samples collected from monitoring wells MW-3 through MW-5. Tetrachloroethene was detected at concentrations greater than the MTCA Method A cleanup level in monitoring wells MW-3 though MW-5.

7.3. Contaminant Distribution

The chemical analytical results summarized in the preceding report section indicates that subsurface soil contamination is concentrated in the central region and northeast corner of the property. These areas formerly contained three USTs and fuel dispensers. The project dataset also indicate groundwater contamination is centered around monitoring wells MW-1 and MW-2, which suggests these are downgradient of the contaminant source(s). Chemical analytical results of groundwater in monitoring wells MW-3 though MW-5 did not indicate the presence of COCs in groundwater, except for those of tri- and tetra-chloroethene; contaminants unlikely related to UST and fuel dispenser leakages.

7.4. MTCA Method B Calculations

Using the EPH and VPH analytical results obtained from borings B-3 and B-5, MTCA Method B cleanup levels were calculated using Ecology's MTCATPH spreadsheet version 11.1. Based on the analytical results from B-3, the calculated Method B total petroleum hydrocarbon (TPH) cleanup level is 2,782 mg/kg. These site-specific cleanup levels were exceeded in borings B-3 and B-5.

7.5. Recommendations

The observed petroleum contamination observed represents residual impact associated with former service station UST operation. As a result, we recommend that:

- Prepare a draft and final Interim Action Plan. The plan will detail the preferred remediation alternative.
- Continue the quarterly groundwater monitoring program currently planned for the site, including monitoring of natural attenuation parameters.

8.0 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.

9.0 REFERENCES

GeoEngineers, Inc., 2012A. File Review, Former L&L Exxon, 1315 Lee Boulevard, Richland, Washington. Prepared by GeoEngineers, Inc., Spokane, Wash. for Washington State Department of Ecology, Yakima, Wash., May 16.

GeoEngineers, Inc. 2012B. Sampling and Analysis Plan, Soil and Groundwater Assessment, Former L&L Exxon, Richland, Washington. Prepared by GeoEngineers, Inc., Spokane, Wash. for Washington State Department of Ecology, Yakima, Wash. May 16.

TABLES

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Table 1

Summary of Groundwater Elevations and Natural Attenuation Parameters

Former L&L Exxon, 1315 Lee Boulevard
Richland, Washington

Well Number and Top of Casing Elevation[1] (feet)	Date Measured	Depth to Water (feet)	Groundwater Elevation[1] (feet)	pH (pH units)	Specific Conductivity (µS/cm)	Redox Potential (millivolts)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Temperature (degrees C)
MW-1	10/19/12	17.67	80.29	7.10	1096	-91	0.07	9.15	20.18
97.96	01/17/13	18.16	79.80	6.78	1206	-129	0.03	0.32	18.00
	04/01/13	16.08	81.88	7.05	1400	-78.80	-0.04	NA	18.98
	06/03/13	15.70	82.26	7.16	1072	-179	0.03	0.3728	18.50
MW-2	10/19/12	17.53	80.36	7.06	1295	-72	0.06	6.17	20.02
97.89	01/17/13	18.02	79.87	6.73	1216	-166	0.03	0.76	17.75
	04/01/13	15.95	81.94	7.12	1200	-24	-0.03	NA	19.06
	06/03/13	15.54	82.35	7.07	1059	-257	0.02	2.871	18.41
MW-3	10/19/12	17.52	80.31	7.24	853	133	4.96	2.69	18.75
97.83	01/17/13	17.95	79.88	6.77	859	128	0.79	0.42	17.41
	04/01/13	15.89	81.94	7.43	800	40.20	0.14	NA	18.79
	06/03/13	15.51	82.32	7.34	742.9	360	0.33	0.6254	18.18
MW-4	05/06/13	15.55	82.28	7.48	952.4	387	0.65	0.0581	17.66
97.56	06/03/13	15.16	82.40	7.42	979.2	396	0.64	-0.3368	19.54
MW-5	05/06/13	15.63	81.86	7.51	890.4	401	6.27	1.410	17.66
97.49	06/03/13	15.24	82.25	7.41	920.3	428	0.52	3.996	19.36

Notes:

[1]Groundwater elevations were measured relative to a site specific datum. Groundwater elevations were calculated through use of the following formula:

Groundwater elevation = Top of Casing Elevation - Depth to Water.

Dissolved oxygen, redox potential, specific conductivity, pH and temperature measurements in this table were recorded at the conclusion of well purging.

'-- = Not measured; NTU = nephelometric turbidity units; mg/l = milligrams per liter; µS/cm = microSiemens per centimeter

https://projects.geoengineers.com/sites/0050408100/Draft/Supplemental Soil and GW Assessment/[LL Exxon GW ReportTables_June2013.xlsx]Table 1

Table 2

Summary of Chemical Analytical Results - Soil Samples[1]

Former L&L Exxon, 1315 Lee Boulevard
Richland, Washington

Sample Number	TP-1	TP-2	TP-3	TP-4	TP-5	MW-4	MW-5	
Date Sampled	04/30/13	04/30/13	04/30/13	04/30/13	04/30/13	04/29/13	04/29/13	MTCA Method A
Sample Depth (feet bgs)	8	9½	7½	13½	12	15	15	Cleanup Levels[2]
GRPH[3] (mg/kg)	13.1	<7.46	**14,800**	<5.07	**1,770**	<6.50	<4.54	30/100
DRPH[4] (mg/kg)	<12.3	<10.6	1,480	<10.1	227	<10.4	10.4	2,000
ORPH[4] (mg/kg)	<30.7	<26.5	<607	<25.2	<25.6	<26.0	<25.9	2,000
Benzene[5] (mg/kg)	<0.00702	<0.00746	<0.0769	<0.00507	<0.00585	<0.00650	0.00454	0.03
Ethylbenzene[5] (mg/kg)	<0.140	<0.149	**19.3**	<0.101	1.80	<0.130	<0.0908	6
Toluene[5] (mg/kg)	<0.140	<0.149	<1.54	<0.101	1.37	<0.130	<0.0908	7
Total Xylenes[5] (mg/kg)	<2.11	<2.24	**120**	<1.52	**58.4**	<1.95	<1.36	9
Naphthalene[6]	<0.0119	<0.0106	**17.5**	<0.0118	**5.07**	<0.0102	<0.0101	
2-Methylnaphthalene[6]	<0.0119	<0.0106	**47.6**	<0.0118	**6.35**	<0.0102	<0.0101	5[7]
1-Methylnaphthalene[6]	<0.0119	<0.0106	**25.8**	<0.0118	**3.08**	<0.0102	<0.0101	
Hexane[5] (mg/kg)	<0.140	<0.149	<1.54	<0.101	<0.117	<0.130	<0.0908	NE

Notes:

[1]Samples analyzed by TestAmerica Laboratories, Inc. located in Spokane Valley, Washington.

[2]Washington State Model Toxics Control Act (MTCA) Method A Unrestricted Land Use cleanup levels.

[3]Gasoline-range petroleum hydrocarbons (GRPH) analyzed byNorthwest Method NWTPH-Gx. GRPH cleanup levels are 30 mg/kg when benzene is detected and 100 mg/kg when benzene is not detected.

[4]Diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH, respectively) analyzed byNorthwest Method NWTPH-Dx.

[5]Volatile organic compounds (VOCs) analyzed by Environmental Protection Agency (EPA) Method 8260C. Total Xylenes include m,p and o-xylenes.

[6]Naphthalene, 2-Methylnaphthalene, and 1-Methylnaphthalene analyzed using EPA Method 8270C.

[7]Cleanup level for total naphthalenes (naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene).

Bold indicates the analyte was detected at concentrations greater than MTCA Method A CULs.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; bgs = below ground surface; NE = Not Established

https://projects.geoengineers.com/sites/0050408100/Draft/Supplemental Soil and GW Assessment/[LL Exxon GW ReportTables_June2013.xlsx]Table 2

Table 3

Summary of Chemical Analytical Results - Groundwater[1]

Former L&L Exxon, 1315 Lee Boulevard
Richland, Washington

Monitoring Well ID	Date Sampled	Petroleum-Range Hydrocarbons			Volatile Organic Compounds[5] (µg/L)								Non-carcinogenic PAHs[6] (ug/L)		
		GRPH[3] (µg/L)	DRPH[4] (mg/L)	ORPH[4] (mg/L)	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Hexane	Trichloro -ethene	Tetrachloro - ethene	Naphthalene	1-Methyl-naphthalene	2- Methyl-naphthalene
MTCA Method A CUL[2]		**800/1,000[7]**	**0.5**	**0.5**	**5**	**1,000**	**700**	**1,000[8]**		**480[9]**	**5**	**5**	**160[10]**		
MW-1	10/19/12	**3,740**	**2.40**	<0.299	**178**	100	16.5	334	139	4.53	NA	NA	**110**	**30**	**38**
	01/17/13	**8,080**	**2.92**	<0.380	**628**	675	581	**1,290**	**365**	<1.00	NA	NA	87.4	19.4	18.4
	04/01/13	**35,400**	**10.7**	<0.251	**1,620**	**1,330**	**1,440**	**4,930**	**1,220**	<20	NA	NA	**498**	**93.3**	**133**
	06/03/13	**51,000**	**2.09**	<0.379	**<20.0**	**7,120**	**1,320**	**4,180**	**1,980**	<100	NA	NA	73.3	15.9	18.1
MW-2	10/19/12	**19,500**	**2.32**	<0.305	0.990	**2,400**	**834**	**2,720**	**982**	6.66	NA	NA	**170**	**37**	**49**
	01/17/13	**98,400**	**3.35**	<0.381	3.23	**9,560**	**1,530**	**5,060**	**2,060**	21.8	NA	NA	**236**	**46.9**	**72.6**
	04/01/13	**50,600**	**1.27**	<0.305	**<20**	**7,710**	**1,550**	**4,630**	**2,180**	<100	NA	NA	**300**	**55.8**	**84.9**
	06/03/13	**10,200**	**2.91**	<0.382	**300**	159	316	**985**	**186**	<100	NA	NA	**292**	**58.2**	**87.5**
MW-3	10/19/12	<90.0	<0.149	<0.298	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	NA	NA	0.16	<0.0095	<0.012
	01/17/13	<90.0	<0.237	<0.379	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	NA	NA	<0.0951	<0.0951	<0.0951
	04/01/13	<90.0	<0.187	<0.299	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	NA	NA	<0.262	<0.262	<0.262
	06/03/13	<90.0	<0.237	<0.380	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	0.970[11]	**9.25**	<0.190	<0.190	<0.190
MW-4	05/06/13	<90.0	<0.238	<0.382	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	NA	NA	<0.191	<0.191	<0.191
	06/03/13	<90.0	<0.236	<0.378	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	0.640[11]	**4.12**	<0.190	<0.190	<0.190
MW-5	05/06/13	<90.0	<0.251	<0.402	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	NA	NA	<0.195	<0.195	<0.195
	06/03/13	<90.0	<0.238	<0.381	<0.200	<0.500	<0.500	<0.500	<0.500	<1.00	1.05	**6.94**	<0.190	<0.190	<0.190
Duplicate-1	10/19/12	**5,080**	**2.44**	<0.298	**261**	98	184	433	180	4.36	NA	NA	**120**	**31**	**41**
	01/17/13	**9,890**	**2.63**	<0.380	**562**	628	529	**1,220**	**345**	<1.00	NA	NA	101	21.9	21.0
	04/01/13	**32,400**	**11.3**	<0.258	**1,450**	**1,190**	**1,310**	**4,580**	**1,130**	<20	NA	NA	**278**	**49.9**	**72.1**
	06/03/13	**<9,000**	**2.01**	<0.381	**289**	185	292	**971**	**189**	<100	NA	NA	105	26.2	26.6

Notes:

[1]Samples analyzed by TestAmerica Laboratories, Inc. located in Spokane Valley, Washington.

[2]Washington State Model Toxics Control Act (MTCA) Method A cleanup levels (CUL) for groundwater.

[3]Gasoline-range petroleum hydrocarbons (GRPH) analyzed using Northwest Method NWTPH-Gx.

[4]Diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH, respectively) analyzed using Northwest Method NWTPH-Dx.

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

[6]Polycyclic aromatic hydrocarbons (PAHs) analyzed using EPA Method 8270D.

[7]MTCA Method A cleanup level for gasoline-range petroleum hydrocarbons is 1,000 µg/l if benzene is not detected; otherwise the cleanup level is 800 µg/l.

[8]Cleanup level for total xylenes (m,p-xylene and o-xylene).

[9]MTCA Method B (non-carcinogen) cleanup level.

[10]Cleanup level for total naphthalenes (naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene).

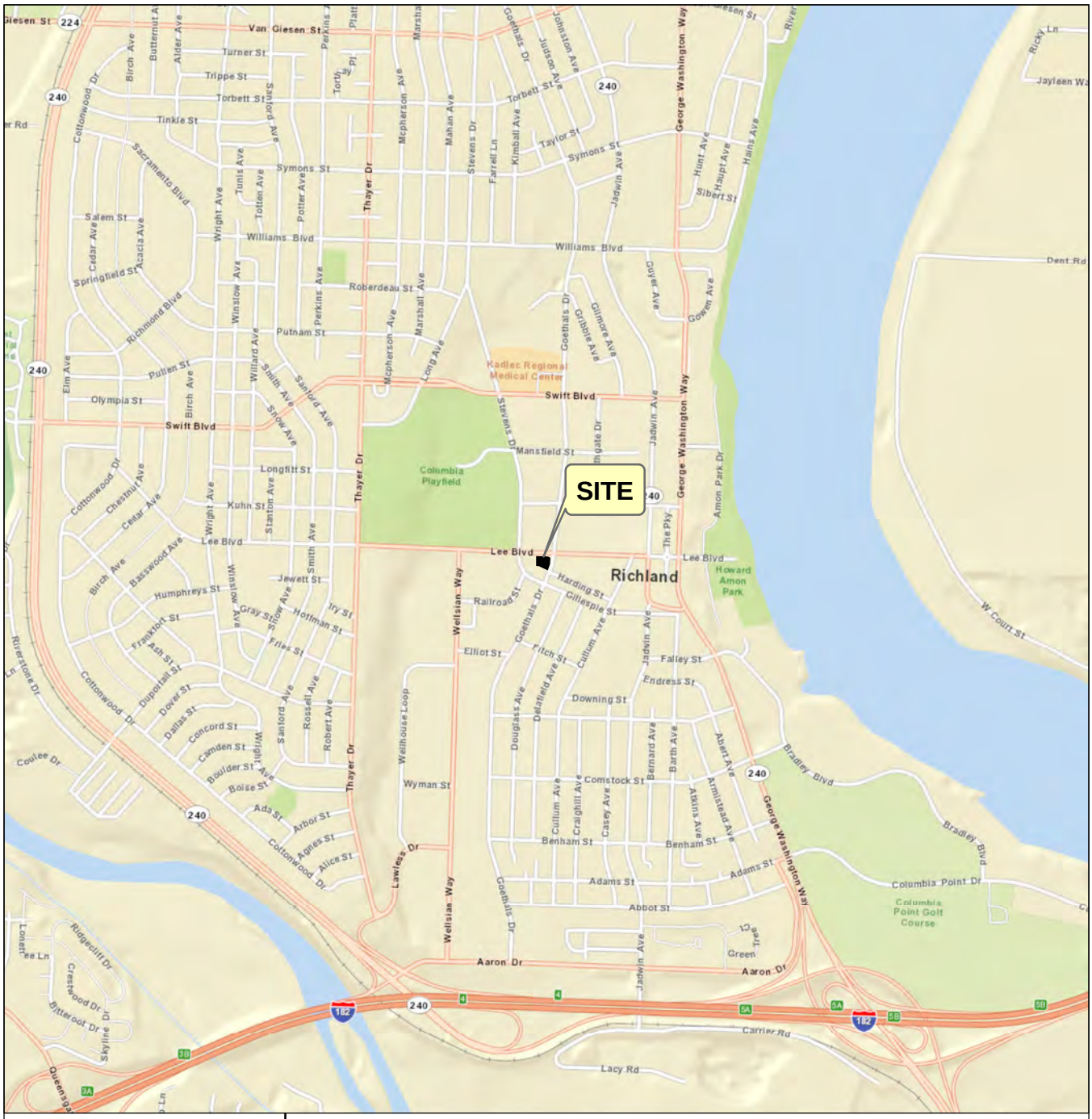
[11]Analytical result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

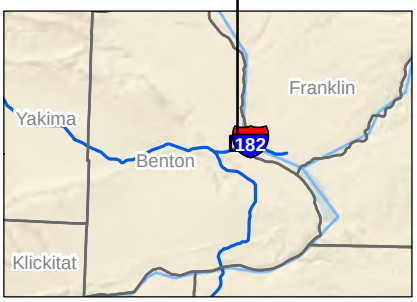
Bold indicates analyte was detected at a concentration greater than MTCA Method A cleanup level; NE= not established; µg/L = microgram per liter; mg/L = milligram per liter

https://projects.geoengineers.com/sites/0050408100/Draft/Supplemental Soil and GW Assessment/[LL Exxon GW ReportTables_June2013.xlsx]Table 2

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 Sources: ESRI Data & Maps, Street Maps 2008.
Basemap streets base from ESRI Data Online.
Projection: NAD 1983, UTM Zone 11 North.

Vicinity Map

Former L&L Exxon
1315 Lee Boulevard
Richland, Washington

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Figure 1

Office: PORT Path: P:\0\0504081_SPOK_GIS\00\GIS\050408100_F1_VM.mxd Map Revised: 5/01/2012 CRC

Previous Soil Boring Approximate Location

MW-1 (79.80) Monitoring Well Number, Approximate Location and Relative Elevation

Approximate Location of Remediation System

Approximate Location of Transformer

Historical Monitoring Well Number and Approximate Location

UST Number and Approximate Location

Approximate Location of Excavation Area

Historical Fuel Dispenser and Approximate Location

Approximate Shallow Groundwater Flow Direction

N W E S

0 40

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 Sources: ESRI Data & Maps, Street Maps 2008.
Basemap streets base from ESRI Data Online.
Projection: NAD 1983, UTM Zone 11 North.

Site Map

Former L&L Exxon
1315 Lee Boulevard
Richland, Washington

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Figure 2

Office: PORT Path: P:\0\0504081_SPOK_GIS\00\GIS\0504081 00_F2_SP.mxd Map Revised: 8/16/2013 CRC

TP-1 Test Pit Identification and Approximate Location

MW-1 Monitoring Well Number and Approximate Location

N
W E
S

0 40
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.
3. bgs = below ground surface

Data Sources: ESRI Data & Maps, Street Maps 2008.
Basemap streets base from ESRI Data Online.
Projection: NAD 1983, UTM Zone 11 North.

Approximate Exploration and Monitoring Well Locations

Former L&L Exxon
1315 Lee Boulevard
Richland, Washington

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Figure 3

Office:PORT Path: P:\0\0504081_SPOK_GIS\00\GIS\0504081100_TestPitLocs_MW.mxd Map Revised: 19 August 2013 ccabrera

MW-1 (82.26) Monitoring Well Number, Approximate Location and Relative Elevation (feet)

N W E S

0 40

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 Sources: ESRI Data & Maps, Street Maps 2008. Basemap streets base from ESRI Data Online. Projection: NAD 1983, UTM Zone 11 North.

Groundwater Elevations
June 2013

Former L&L Exxon
1315 Lee Boulevard
Richland, Washington

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Figure 4

Office:PORT Path: P:\0\0504081_SPOK_GIS\00\GIS\0504081100_F4_GW0613.mxd Map Revised: 19 August 2013 ccabrera

APPENDICES

GeoEngineers

APPENDIX A
Field Procedures and Boring Logs

APPENDIX A
FIELD PROCEDURES AND BORING LOGS

General

Subsurface conditions at the L&L Exxon site were explored on April 29 and 30, 2013 by advancing two borings (MW-4 and MW-5) and five test pits (TP-1 through TP-5) at the approximate locations shown on Figure 2. The borings were advanced to a depth of 25 feet below existing site grade using an air rotary drill rig. The test pits were excavated to depths between 11 feet and 13 feet below existing site grade using a John Deere 310 J backhoe. The two borings (MW-4 and MW-5) were completed as 2-inch (inside diameter) PVC monitoring wells with well screens extending from about 15 to 25 feet below existing site grade. The five test pits (TP-1 through TP-5) were backfilled with the excavated material and the subcontractor provided 3 inches of crushed rock to place on top of each test pit excavation after it had been backfilled.

Field methods generally were performed in compliance with the project Sampling and Analysis Plan (SAP) dated May 16, 2012 (GeoEngineers, 2012B).

Soil Sample Collection

Where practicable, Environmental Protection Agency (EPA) 5035 sampling methods were used to collect the soil samples for gasoline-range petroleum hydrocarbon (GRPH), volatile organic compounds (VOC) and fractionalized petroleum hydrocarbon analyses. For analysis of other parameters, soil was placed in laboratory-supplied sample bottles and filled to minimize headspace. Soil samples were stored in a chilled cooler until delivery to the analytical laboratory.

The air rotary drilling operations were monitored by staff from our firm who examined and classified the soil encountered, obtained soil samples, and maintained a continuous log of exploration. 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. Logs of the monitoring wells and test pits are presented in Figures A-2 through A-8. The logs are based on interpretation of the field data 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) visual screening; (2) water-sheen screening; and (3) headspace-vapor screening using a MiniRAE Photo Ionization Detector (PID) calibrated to isobutylene on the day of testing.

Visual screening consisted 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.

Headspace vapor screening involved placing a soil sample in a plastic sample bag. Air was captured in the bag, and the bag was shaken to expose the soil to the air trapped in the bag. Headspace vapor screening targeted volatile petroleum hydrocarbon compounds. In this application, the PID measured concentration of organic vapors ionizable by a 10.6 electron volt (ev) lamp in the range between 1.0 and 2,000 parts per million (ppm), with a resolution of +/- 2 ppm.

Field screening results can be site specific. The effectiveness of field screening can vary with temperature, moisture content, organic content, soil type and type and age of contaminant. The presence or absence of a sheen or headspace vapors does not necessarily indicate the presence or absence of contaminants.

Monitoring Well Construction and Development

Monitoring wells MW-4 and MW-5 were constructed using approximate 2-inch-diameter Schedule 40 PVC pipe and well screen material with a 0.010-inch slot size. Processed 10-20 Colorado silica sand was used as filter pack. Bentonite chips were used as impermeable backfill. At the ground surface, the wells were protected by steel flush-mount monuments. Well construction details for monitoring wells MW-4 and MW-5 are presented graphically in Figures A-2 and A-3, respectively.

After installation, monitoring wells were developed by a combination of pumping and surging until purge water was relatively clear and free of suspended sediment.

Groundwater Elevations

Depths to groundwater were measured relative to the monitoring well casing rim using an electric water level indicator. The probe of the water level indicator was decontaminated between wells using a detergent wash, followed by two distilled water rinses.

Low-Flow Groundwater Sampling Procedures

Groundwater sampling was performed consistent with the EPA's low-flow groundwater sampling procedure, as described by EPA (1996) and Puls and Barcelona (1996). Monitoring well purging and sampling activities were accomplished using a peristaltic pump with disposable tubing. During purging activities, water quality parameters, including pH, conductivity, temperature, turbidity, oxidation-reduction potential and dissolved oxygen, were measured using an In-Situ Troll 9500 multi-parameter meter equipped with a flow-through cell; measurements were recorded approximately every three minutes. The meter calibration was verified at the beginning of each work day consistent with manufacturer recommendations prior to purging and sampling activities.

Groundwater samples were collected after (1) water quality parameters had stabilized; or (2) a maximum purge time of 60 minutes was achieved. During purging and sampling, purge rate was not allowed to exceed 500 milliliters per minute. Water quality parameter stabilization criteria include the following:

- Turbidity: ±10 percent or ±10 nephelometric turbidity units (NTU);
- Dissolved oxygen: ±10 percent;
- Conductivity: ±3 percent;
- pH: ±0.1 unit;
- Temperature: ±3 percent; and
- Oxidation reduction potential: ±10 percent or ±10 millivolts (mV).

After groundwater quality stabilization criteria were reached, the pump's discharge tubing was disconnected from the flow-through cell and groundwater samples were collected for analysis.

Each sample was pumped directly into sample containers supplied by the laboratory. Groundwater samples collected for chemical analysis were kept cool during on-site storage and transport to the laboratory. Chain-of-custody procedures were observed during transport of the groundwater samples.

SOIL CLASSIFICATION CHART

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

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

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	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 or geologic units

Approximate location of soil strata change within a geologic soil unit

Material Description Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

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.

Laboratory / Field Tests

%F	Percent fines
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

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FIGURE A-1

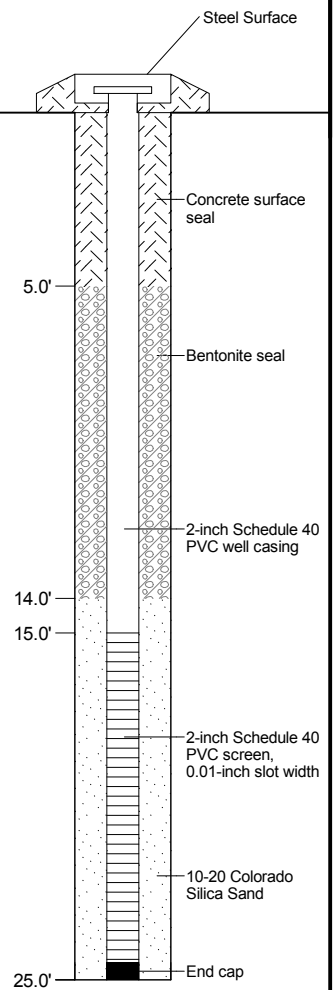
Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/29/2013	4/29/2013	25	ERH / JER	Environmental West Explorations	Air-Rotary

Hammer Data	Drilling Equipment	
140 (lbs) / 30 (in) Drop	Mobile B-90 Truck	A 2 (in) well was installed on 4/29/2013 to a depth of 25 (ft).
Surface Elevation (ft) / Vertical Datum: Undetermined / Site Datum	Top of Casing Elevation (ft): 97.56	Groundwater — Date Measured: 6/3/2013; Depth to Water (ft): 16.85; Elevation (ft):
Easting (X) / Northing (Y)	Horizontal Datum	

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0							AC	Up to 10 inches asphalt		
								SM	Brown silty sand with trace coarse sand (medium dense, wet)		
	5	12	68		1					NS	<1
								GP	Gray and brown fine to coarse gravel with sand and trace silt (very dense, dry)		
	10	10	78		2					NS	<1
	15	10	63		3	▼			Abrupt color change to dark brown-black	NS	<1
	20	8	41		4					NS	<1
	25								End of boring at 25 feet, no sample collected below 21.5 feet		

WELL LOG



Notes: Please refer to Figure A-1 for an explanation of symbols.

Log of Monitoring Well MW-4

GeoEngineers

Project: Former L&L Exxon, 1315 Lee Boulevard
Project Location: Richland, Washington
Project Number: 0504-081-00

Figure A-2
Sheet 1 of 1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
4/29/2013	4/29/2013	25	ERH / JER	Environmental West Explorations	Air-Rotary

Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	Mobile B-90 Truck
Surface Elevation (ft) Vertical Datum	Undetermined Site Datum	Top of Casing Elevation (ft)	97.49
Easting (X) Northing (Y)		Horizontal Datum	

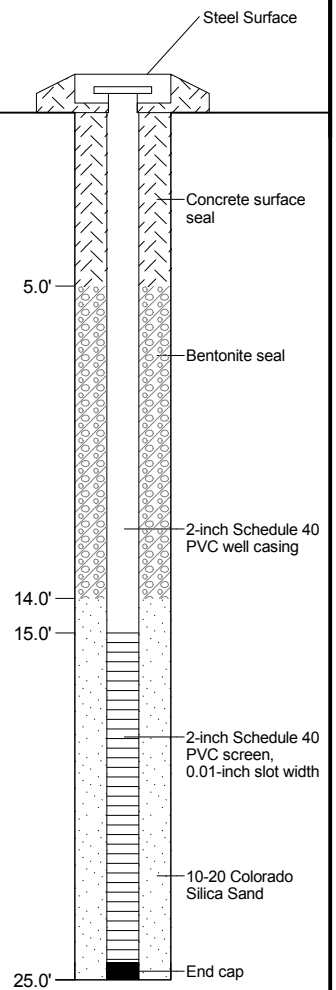
A 2 (in) well was installed on 4/29/2013 to a depth of 25 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
6/3/2013	17.58	

Notes:

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0							AC	9 inches asphalt		
								SM	Brown silty sand with oocasional fine to coarse gravel (very dense, moist)		
	5	2	50/2"		1			GP	Gray to brown fine to coarse gravel with sand and trace silt (very dense, moist)	NS	<1
	10	7.5	74		2					NS	<1
	15	9	73		3				Occasional lenses of fine to coarse sand and silt (very dense, moist)	NS	<1
								GP-GM	Brown fine to coarse gravel with sand and silt (dense, wet)		
	20	10	48		4					NS	<1
	25								End of boring at 25 feet, no sample collected below 21.5 feet		

WELL LOG



Notes: Please refer to Figure A-1 for an explanation of symbols.

Log of Monitoring Well MW-5

GeoEngineers

Project: Former L&L Exxon, 1315 Lee Boulevard
Project Location: Richland, Washington
Project Number: 0504-081-00

Figure A-3
Sheet 1 of 1

Date Excavated: 4/30/2013 Logged By: ERH

Equipment: Backhoe Total Depth (ft) 11.0

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	Encountered Water	MATERIAL DESCRIPTION	Sheen	Headspace Vapor	Notes
					AC		Approximately 5 inches asphalt concrete pavement			
	1				SM		Brown silty fine sand with occasional gravels and cobbles (moist)			
	2									
	3									
	4	X	1					NS	<1	
	5									
	6									
	7				GP		Fine to coarse gravels with sand and trace silt			
					GM		Gray fine to coarse gravel with silt			
	8	X	2		SM		Gray sand with silt and occasional gravel	NS	<1	
	9				GM		Fine to coarse gravel with silt			
	10									
	11	X	3					NS	<1	

Test pit completed at approximately 11 foot depth
No groundwater seepage observed
No caving observed

Notes: Please refer to Figure A-1 for an explanation of symbols.

Log of Test Pit TP-1

GeoEngineers

Project: Former L&L Exxon, 1315 Lee Boulevard
Project Location: Richland, Washington
Project Number: 0504-081-00

Figure A-4
Sheet 1 of 1

Date Excavated: 4/30/2013 Logged By: ERH

Equipment: Backhoe Total Depth (ft) 11.5

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	Encountered Water	MATERIAL DESCRIPTION	Sheen	Headspace Vapor	Notes
	0				AC		Approximately 1 inch asphalt concrete pavement			
					CC		Approximately 4 to 6 inches concrete with mesh reinforcing			
	1				SM		Brown silty sand with occasional gravel and cobbles			
	2									
	3									
	4									
	5	X	1					NS	<1	
	6									
	7									
	8									
	9									
		X	2		GP		Gray to brown fine to coarse gravel with trace silt, sand and cobbles	NS	<1	
	10									
	11									
		X	3				Test pit completed approximately 11½ foot depth No groundwater seepage observed Minor caving observed	NS	<1	

Notes: Please refer to Figure A-1 for an explanation of symbols.

Log of Test Pit TP-2

GeoEngineers

Project: Former L&L Exxon, 1315 Lee Boulevard

Project Location: Richland, Washington

Project Number: 0504-081-00

Figure A-5

Sheet 1 of 1

Date Excavated: 4/30/2013 Logged By: ERH

Equipment: Backhoe Total Depth (ft) 12.0

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	Encountered Water	MATERIAL DESCRIPTION	Sheen	Headspace Vapor	Notes
	0				SM		Light brown to brown silty sand with trace gravel (moist)			
	5	X	1					NS	<1	
	7.5				SM		Gray silty sand with trace gravel and debris			
	8	X	2					NS-SS	>1250	
	8.5				GP		Gray fine to coarse gravel with sand and trace silt			
	11.5	X	3					SS	276	
	12						Test pit completed at approximately 12 foot depth No groundwater seepage observed Minor caving observed			

Notes: Please refer to Figure A-1 for an explanation of symbols.

Log of Test Pit TP-3

GeoEngineers

Project: Former L&L Exxon, 1315 Lee Boulevard

Project Location: Richland, Washington

Project Number: 0504-081-00

Figure A-6

Sheet 1 of 1

Date Excavated: 4/30/2013 Logged By: ERH

Equipment: Backhoe Total Depth (ft) 13.0

Elevation (feet) / Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	Encountered Water	MATERIAL DESCRIPTION	Sheen	Headspace Vapor	Notes
0				GP-GM		Brown fine to coarse gravel with sand, small cobbles and silt (moist)			
2	X	1					SS	<1	
2.5				SM		Brown silty sand with gravel (moist)			
7.5	X	2		GP		Brown fine to coarse gravel with sand, cobbles and trace silt	SS	<1	
12.5	X	3					NS	<1	

Test pit completed at approximately 13 foot depth
No groundwater seepage observed
Minor caving observed

Notes: Please refer to Figure A-1 for an explanation of symbols.

Log of Test Pit TP-4

GeoEngineers

Project: Former L&L Exxon, 1315 Lee Boulevard
Project Location: Richland, Washington
Project Number: 0504-081-00

Figure A-7
Sheet 1 of 1

Date Excavated: 4/30/2013 Logged By: ERH

Equipment: Backhoe Total Depth (ft) 12.0

Elevation (feet)	Depth (feet)	SAMPLE: Testing Sample	SAMPLE: Sample Name Testing	Graphic Log	Group Classification	Encountered Water	MATERIAL DESCRIPTION	Sheen	Headspace Vapor	Notes
	0				AC		Approximately 1 inch asphalt concrete pavement			
							Approximately 3 to 5 inches gray angular gravel with sand and trace silt			
					GP		Brown fine to coarse gravel with sand, occasional cobbles and trace silt			
	1									
	2									
	3									
	4									
	5	X	1					SS	<1	
					SM		Brown silty sand with gravel and trace cobbles			
	6									
	7									
	8									
	9	X	2					NS	282	
	10									
	11				GP		Grayish-brown fine to coarse gravel with cobbles, wood debris, trace boulders and silt			
		X	3					SS	798	
	12						Test pit completed at approximately 12 foot depth No groundwater seepage observed Moderate caving observed			

Notes: Please refer to Figure A-1 for an explanation of symbols.

Log of Test Pit TP-5

GeoEngineers

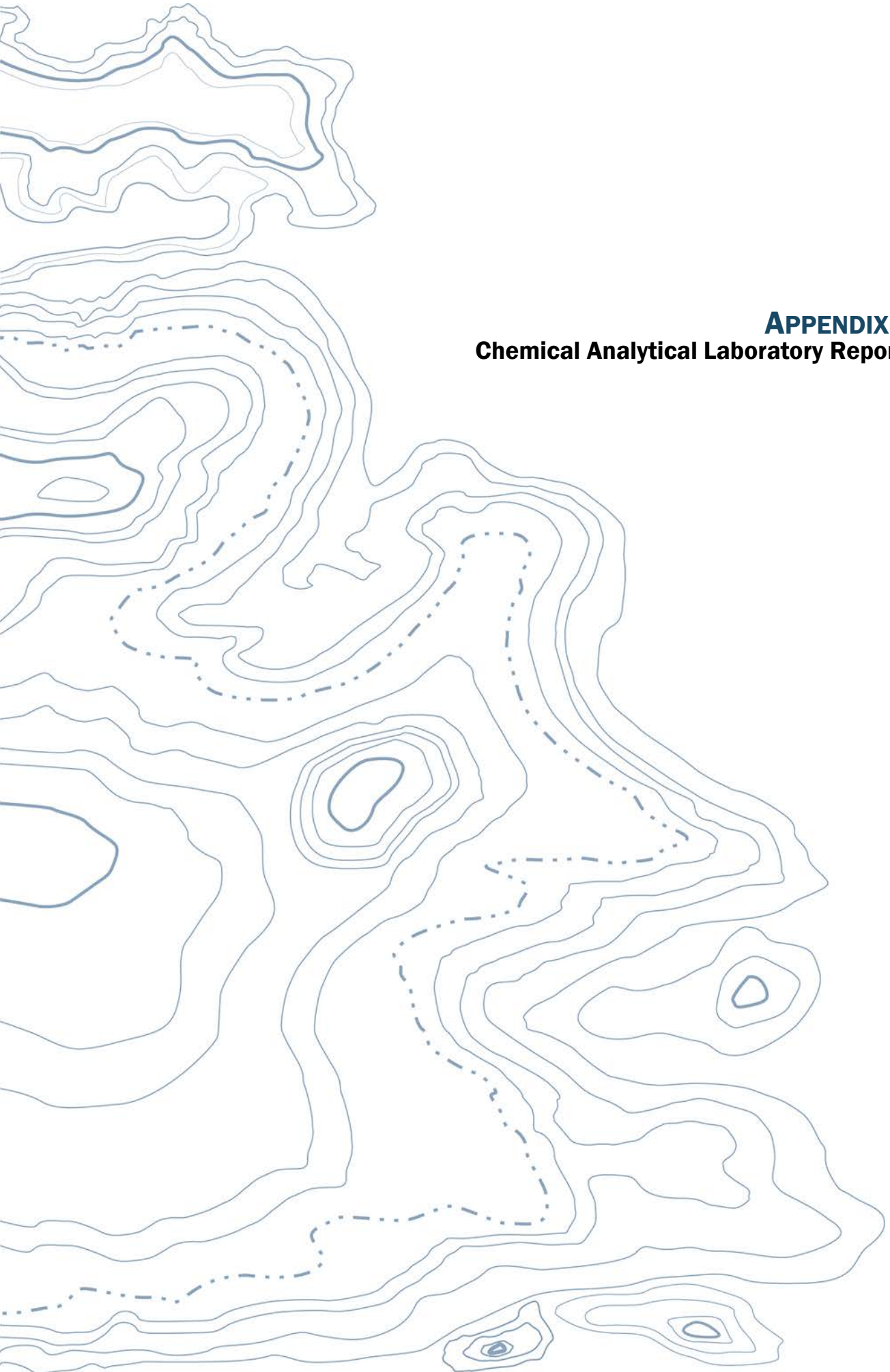
Project: Former L&L Exxon, 1315 Lee Boulevard

Project Location: Richland, Washington

Project Number: 0504-081-00

Figure A-8

Sheet 1 of 1



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 Laboratories, Inc. located in Spokane Valley, 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 (MS) recoveries, matrix spike duplicate (MSD) 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 laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted the following exceptions in their laboratory report associated with project soil samples, dated January 2, 2013.

The laboratory did not note any exceptions in their laboratory report associated with project groundwater samples, dated November 6, 2012.

Analytical Data Review Summary

We reviewed the laboratory internal quality assurance/quality control (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. Avenue
Spokane, WA 99206
Tel: (509)924-9200

TestAmerica Job ID: SWE0004
Client Project/Site: 0504-081-00
Client Project Description: L&L Exxon

For:
Geo Engineers - Spokane
523 East Second Ave.
Spokane, WA 99202

Attn: Scott Lathen

Authorized for release by:
5/13/2013 11:20:22 AM

Randee Decker, Project Manager
Randee.Decker@testamericainc.com

Table of Contents

Sample Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0004

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
SWE0004-02	TP-5(12)	Soil	04/30/13 14:20	05/01/13 09:00
SWE0004-05	TP-4(13.5)	Soil	04/30/13 13:15	05/01/13 09:00
SWE0004-06	TP-2(9.5)	Soil	04/30/13 10:25	05/01/13 09:00
SWE0004-08	TP-3(7.5)	Soil	04/30/13 11:35	05/01/13 09:00
SWE0004-11	TP-1(8)	Soil	04/30/13 09:08	05/01/13 09:00
SWE0004-18	MW-4(15)	Soil	04/29/13 10:02	05/01/13 09:00
SWE0004-23	MW-5(15)	Soil	04/29/13 14:35	05/01/13 09:00

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0004

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
ZX	Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.

Semivolatiles

Qualifier	Qualifier Description
Z3	The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
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)
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 ID: TP-5(12)

Lab Sample ID: SWE0004-02

Date Collected: 04/30/13 14:20

Matrix: Soil

Date Received: 05/01/13 09:00

Percent Solids: 95.6

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	**1770**		58.5		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:13	10.0
Benzene	ND		0.00585		mg/kg dry	☼	05/01/13 13:06	05/02/13 12:53	1.00
Ethylbenzene	**1.80**		0.117		mg/kg dry	☼	05/01/13 13:06	05/02/13 12:53	1.00
Toluene	**1.37**		0.117		mg/kg dry	☼	05/01/13 13:06	05/02/13 12:53	1.00
o-Xylene	**21.1**		2.34		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:13	10.0
m,p-Xylene	**37.3**		4.68		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:13	10.0
Hexane	ND		0.117		mg/kg dry	☼	05/01/13 13:06	05/02/13 12:53	1.00
Xylenes (total)	**58.4**		17.6		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:13	10.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 12:53*	*1.00*
1,2-dichloroethane-d4	*93.4*		*50 - 150*	*05/01/13 13:06*	*05/02/13 12:53*	*1.00*
Toluene-d8	*102*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 12:53*	*1.00*
4-bromofluorobenzene	*143*		*41.5 - 162*	*05/01/13 13:06*	*05/02/13 12:53*	*1.00*

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**5.07**		0.264		mg/kg dry	☼	05/01/13 15:35	05/01/13 19:20	10.0
2-Methylnaphthalene	**6.35**		0.264		mg/kg dry	☼	05/01/13 15:35	05/01/13 19:20	10.0
1-Methylnaphthalene	**3.08**		0.264		mg/kg dry	☼	05/01/13 15:35	05/01/13 19:20	10.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*84.0*		*54 - 129*	*05/01/13 15:35*	*05/01/13 19:20*	*10.0*
2-FBP	*78.0*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 19:20*	*10.0*
p-Terphenyl-d14	*90.0*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 19:20*	*10.0*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	**227**		10.3		mg/kg dry	☼	05/01/13 10:40	05/01/13 13:55	1.00
Heavy Oil Range Hydrocarbons	ND		25.6		mg/kg dry	☼	05/01/13 10:40	05/01/13 13:55	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*97.9*		*50 - 150*	*05/01/13 10:40*	*05/01/13 13:55*	*1.00*
n-Triacontane-d62	*94.9*		*50 - 150*	*05/01/13 10:40*	*05/01/13 13:55*	*1.00*

Client Sample ID: TP-4(13.5)

Lab Sample ID: SWE0004-05

Date Collected: 04/30/13 13:15

Matrix: Soil

Date Received: 05/01/13 09:00

Percent Solids: 95.2

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		5.07		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00
Benzene	ND		0.00507		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00
Ethylbenzene	ND		0.101		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00
Toluene	ND		0.101		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00
o-Xylene	ND		0.203		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00
m,p-Xylene	ND		0.406		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00
Hexane	ND		0.101		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00
Xylenes (total)	ND		1.52		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:33	1.00

Client Sample ID: TP-4(13.5)

Lab Sample ID: SWE0004-05

Date Collected: 04/30/13 13:15

Matrix: Soil

Date Received: 05/01/13 09:00

Percent Solids: 95.2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*101*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 13:33*	*1.00*
1,2-dichloroethane-d4	*93.8*		*50 - 150*	*05/01/13 13:06*	*05/02/13 13:33*	*1.00*
Toluene-d8	*106*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 13:33*	*1.00*
4-bromofluorobenzene	*106*		*41.5 - 162*	*05/01/13 13:06*	*05/02/13 13:33*	*1.00*

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.0118		mg/kg dry	☼	05/01/13 15:35	05/01/13 19:46	1.00
2-Methylnaphthalene	ND		0.0118		mg/kg dry	☼	05/01/13 15:35	05/01/13 19:46	1.00
1-Methylnaphthalene	ND		0.0118		mg/kg dry	☼	05/01/13 15:35	05/01/13 19:46	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*82.2*		*54 - 129*	*05/01/13 15:35*	*05/01/13 19:46*	*1.00*
2-FBP	*85.4*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 19:46*	*1.00*
p-Terphenyl-d14	*89.4*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 19:46*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		10.1		mg/kg dry	☼	05/01/13 10:40	05/01/13 14:13	1.00
Heavy Oil Range Hydrocarbons	ND		25.2		mg/kg dry	☼	05/01/13 10:40	05/01/13 14:13	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*105*		*50 - 150*	*05/01/13 10:40*	*05/01/13 14:13*	*1.00*
n-Triacontane-d62	*104*		*50 - 150*	*05/01/13 10:40*	*05/01/13 14:13*	*1.00*

Client Sample ID: TP-2(9.5)

Lab Sample ID: SWE0004-06

Date Collected: 04/30/13 10:25

Matrix: Soil

Date Received: 05/01/13 09:00

Percent Solids: 93.8

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		7.46		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00
Benzene	ND		0.00746		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00
Ethylbenzene	ND		0.149		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00
Toluene	ND		0.149		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00
o-Xylene	ND		0.298		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00
m,p-Xylene	ND		0.597		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00
Hexane	ND		0.149		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00
Xylenes (total)	ND		2.24		mg/kg dry	☼	05/01/13 13:06	05/02/13 13:52	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 13:52*	*1.00*
1,2-dichloroethane-d4	*93.8*		*50 - 150*	*05/01/13 13:06*	*05/02/13 13:52*	*1.00*
Toluene-d8	*105*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 13:52*	*1.00*
4-bromofluorobenzene	*107*		*41.5 - 162*	*05/01/13 13:06*	*05/02/13 13:52*	*1.00*

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.0106		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:06	1.00
2-Methylnaphthalene	ND		0.0106		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:06	1.00
1-Methylnaphthalene	ND		0.0106		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:06	1.00

Client Sample ID: TP-2(9.5)

Lab Sample ID: SWE0004-06
Date Collected: 04/30/13 10:25
Matrix: Soil
Date Received: 05/01/13 09:00
Percent Solids: 93.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	*79.2*		*54 - 129*	*05/01/13 15:35*	*05/01/13 21:06*	*1.00*
2-FBP	*73.0*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 21:06*	*1.00*
p-Terphenyl-d14	*97.0*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 21:06*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		10.6		mg/kg dry	☼	05/01/13 10:40	05/01/13 15:27	1.00
Heavy Oil Range Hydrocarbons	ND		26.5		mg/kg dry	☼	05/01/13 10:40	05/01/13 15:27	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-FBP	*97.3*		*50 - 150*	*05/01/13 10:40*	*05/01/13 15:27*	*1.00*
n-Triacontane-d62	*95.3*		*50 - 150*	*05/01/13 10:40*	*05/01/13 15:27*	*1.00*

Client Sample ID: TP-3(7.5)

Lab Sample ID: SWE0004-08
Date Collected: 04/30/13 11:35
Matrix: Soil
Date Received: 05/01/13 09:00
Percent Solids: 79.6

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	**14800**		769		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:32	100
Benzene	ND		0.0769		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:12	10.0
Ethylbenzene	**19.3**		1.54		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:12	10.0
Toluene	ND		1.54		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:12	10.0
o-Xylene	**9.99**		3.08		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:12	10.0
m,p-Xylene	**100**		61.5		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:32	100
Hexane	ND		1.54		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:12	10.0
Xylenes (total)	**120**		23.1		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:12	10.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	*120*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 14:12*	*10.0*
1,2-dichloroethane-d4	*109*		*50 - 150*	*05/01/13 13:06*	*05/02/13 14:12*	*10.0*
Toluene-d8	*116*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 14:12*	*10.0*
4-bromofluorobenzene	*172*	*ZX*	*41.5 - 162*	*05/01/13 13:06*	*05/02/13 14:12*	*10.0*

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**17.5**		1.51		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:33	50.0
2-Methylnaphthalene	**47.6**		1.51		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:33	50.0
1-Methylnaphthalene	**25.8**		1.51		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:33	50.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	*390*	*Z3*	*54 - 129*	*05/01/13 15:35*	*05/01/13 21:33*	*50.0*
2-FBP	*110*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 21:33*	*50.0*
p-Terphenyl-d14	*80.0*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 21:33*	*50.0*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	**1480**		243		mg/kg dry	☼	05/01/13 10:40	05/02/13 17:23	20.0
Heavy Oil Range Hydrocarbons	ND		607		mg/kg dry	☼	05/01/13 10:40	05/02/13 17:23	20.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-FBP	*87.6*		*50 - 150*	*05/01/13 10:40*	*05/02/13 17:23*	*20.0*

Client Sample ID: TP-3(7.5)

Date Collected: 04/30/13 11:35
Date Received: 05/01/13 09:00

Lab Sample ID: SWE0004-08

Matrix: Soil
Percent Solids: 79.6

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Triacontane-d62	*86.0*		*50 - 150*	*05/01/13 10:40*	*05/02/13 17:23*	*20.0*

Client Sample ID: TP-1(8)

Date Collected: 04/30/13 09:08
Date Received: 05/01/13 09:00

Lab Sample ID: SWE0004-11

Matrix: Soil
Percent Solids: 81

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	**13.1**		7.02		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00
Benzene	ND		0.00702		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00
Ethylbenzene	ND		0.140		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00
Toluene	ND		0.140		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00
o-Xylene	ND		0.281		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00
m,p-Xylene	ND		0.561		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00
Hexane	ND		0.140		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00
Xylenes (total)	ND		2.11		mg/kg dry	☼	05/01/13 13:06	05/02/13 14:51	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*117*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 14:51*	*1.00*
1,2-dichloroethane-d4	*110*		*50 - 150*	*05/01/13 13:06*	*05/02/13 14:51*	*1.00*
Toluene-d8	*122*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 14:51*	*1.00*
4-bromofluorobenzene	*121*		*41.5 - 162*	*05/01/13 13:06*	*05/02/13 14:51*	*1.00*

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.0119		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:59	1.00
2-Methylnaphthalene	ND		0.0119		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:59	1.00
1-Methylnaphthalene	ND		0.0119		mg/kg dry	☼	05/01/13 15:35	05/01/13 21:59	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*78.0*		*54 - 129*	*05/01/13 15:35*	*05/01/13 21:59*	*1.00*
2-FBP	*74.6*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 21:59*	*1.00*
p-Terphenyl-d14	*89.8*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 21:59*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		12.3		mg/kg dry	☼	05/01/13 10:40	05/01/13 16:02	1.00
Heavy Oil Range Hydrocarbons	ND		30.7		mg/kg dry	☼	05/01/13 10:40	05/01/13 16:02	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*94.0*		*50 - 150*	*05/01/13 10:40*	*05/01/13 16:02*	*1.00*
n-Triacontane-d62	*95.8*		*50 - 150*	*05/01/13 10:40*	*05/01/13 16:02*	*1.00*

Client Sample ID: MW-4(15)

Date Collected: 04/29/13 10:02
Date Received: 05/01/13 09:00

Lab Sample ID: SWE0004-18

Matrix: Soil
Percent Solids: 95.9

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		6.50		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00
Benzene	ND		0.00650		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00

Client Sample ID: MW-4(15) — **Lab Sample ID: SWE0004-18**
Date Collected: 04/29/13 10:02 — **Matrix: Soil**
Date Received: 05/01/13 09:00 — **Percent Solids: 95.9**

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.130		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00
Toluene	ND		0.130		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00
o-Xylene	ND		0.260		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00
m,p-Xylene	ND		0.520		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00
Hexane	ND		0.130		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00
Xylenes (total)	ND		1.95		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:11	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 15:11*	*1.00*
1,2-dichloroethane-d4	*95.0*		*50 - 150*	*05/01/13 13:06*	*05/02/13 15:11*	*1.00*
Toluene-d8	*106*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 15:11*	*1.00*
4-bromofluorobenzene	*104*		*41.5 - 162*	*05/01/13 13:06*	*05/02/13 15:11*	*1.00*

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.0102		mg/kg dry	☼	05/01/13 15:35	05/01/13 22:26	1.00
2-Methylnaphthalene	ND		0.0102		mg/kg dry	☼	05/01/13 15:35	05/01/13 22:26	1.00
1-Methylnaphthalene	ND		0.0102		mg/kg dry	☼	05/01/13 15:35	05/01/13 22:26	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*67.4*		*54 - 129*	*05/01/13 15:35*	*05/01/13 22:26*	*1.00*
2-FBP	*65.6*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 22:26*	*1.00*
p-Terphenyl-d14	*89.2*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 22:26*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		10.4		mg/kg dry	☼	05/01/13 10:40	05/02/13 17:40	1.00
Heavy Oil Range Hydrocarbons	ND		26.0		mg/kg dry	☼	05/01/13 10:40	05/02/13 17:40	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*89.8*		*50 - 150*	*05/01/13 10:40*	*05/02/13 17:40*	*1.00*
n-Triacontane-d62	*87.9*		*50 - 150*	*05/01/13 10:40*	*05/02/13 17:40*	*1.00*

Client Sample ID: MW-5(15) — **Lab Sample ID: SWE0004-23**
Date Collected: 04/29/13 14:35 — **Matrix: Soil**
Date Received: 05/01/13 09:00 — **Percent Solids: 94.2**

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		4.54		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00
Benzene	ND		0.00454		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00
Ethylbenzene	ND		0.0908		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00
Toluene	ND		0.0908		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00
o-Xylene	ND		0.182		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00
m,p-Xylene	ND		0.363		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00
Hexane	ND		0.0908		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00
Xylenes (total)	ND		1.36		mg/kg dry	☼	05/01/13 13:06	05/02/13 15:31	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*105*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 15:31*	*1.00*
1,2-dichloroethane-d4	*96.8*		*50 - 150*	*05/01/13 13:06*	*05/02/13 15:31*	*1.00*

Client Sample ID: MW-5(15)
Date Collected: 04/29/13 14:35
Date Received: 05/01/13 09:00

Lab Sample ID: SWE0004-23
Matrix: Soil
Percent Solids: 94.2

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8	*108*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 15:31*	*1.00*
4-bromofluorobenzene	*106*		*41.5 - 162*	*05/01/13 13:06*	*05/02/13 15:31*	*1.00*

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.0101		mg/kg dry	☼	05/01/13 15:35	05/01/13 22:52	1.00
2-Methylnaphthalene	ND		0.0101		mg/kg dry	☼	05/01/13 15:35	05/01/13 22:52	1.00
1-Methylnaphthalene	ND		0.0101		mg/kg dry	☼	05/01/13 15:35	05/01/13 22:52	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	*80.0*		*54 - 129*	*05/01/13 15:35*	*05/01/13 22:52*	*1.00*
2-FBP	*83.0*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 22:52*	*1.00*
p-Terphenyl-d14	*93.8*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 22:52*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	**10.4**		10.4		mg/kg dry	☼	05/01/13 10:40	05/02/13 17:56	1.00
Heavy Oil Range Hydrocarbons	ND		25.9		mg/kg dry	☼	05/01/13 10:40	05/02/13 17:56	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-FBP	*93.6*		*50 - 150*	*05/01/13 10:40*	*05/02/13 17:56*	*1.00*
n-Triacontane-d62	*88.1*		*50 - 150*	*05/01/13 10:40*	*05/02/13 17:56*	*1.00*

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Lab Sample ID: 13E0007-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 13E0007 — **Prep Batch: 13E0007_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		5.00		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00
Benzene	ND		0.00500		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00
Ethylbenzene	ND		0.100		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00
Toluene	ND		0.100		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00
o-Xylene	ND		0.200		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00
m,p-Xylene	ND		0.400		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00
Hexane	ND		0.100		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00
Xylenes (total)	ND		1.50		mg/kg wet		05/01/13 13:06	05/02/13 11:54	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*101*		*42.4 - 163*	*05/01/13 13:06*	*05/02/13 11:54*	*1.00*
1,2-dichloroethane-d4	*92.3*		*50 - 150*	*05/01/13 13:06*	*05/02/13 11:54*	*1.00*
Toluene-d8	*101*		*45.8 - 155*	*05/01/13 13:06*	*05/02/13 11:54*	*1.00*
4-bromofluorobenzene	*101*		*41.5 - 162*	*05/01/13 13:06*	*05/02/13 11:54*	*1.00*

Lab Sample ID: 13E0007-BS1 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 13E0007 — **Prep Batch: 13E0007_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	50.0	52.0		mg/kg wet		104	74.4 - 124

Lab Sample ID: 13E0007-BS2 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 13E0007 — **Prep Batch: 13E0007_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	0.500	0.501		mg/kg wet		100	79 - 127
Benzene	0.500	0.520		mg/kg wet		104	75.9 - 123
Ethylbenzene	0.500	0.477		mg/kg wet		95.4	80.7 - 112
Toluene	0.500	0.487		mg/kg wet		97.4	77.3 - 126
o-Xylene	0.500	0.505		mg/kg wet		101	85.3 - 117
m,p-Xylene	0.500	0.477		mg/kg wet		95.4	86.1 - 116
Naphthalene	0.500	0.520		mg/kg wet		104	58.8 - 130
1,2-Dichloroethane (EDC)	0.500	0.524		mg/kg wet		105	60 - 140
1,2-Dibromoethane	0.500	0.504		mg/kg wet		101	60 - 140
Hexane	0.500	0.460		mg/kg wet		92.0	50 - 150
Xylenes (total)	1.00	0.982		mg/kg wet		98.2	50 - 150

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Lab Sample ID: 13E0009-BLK1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 13E0009 — **Prep Batch: 13E0009_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
2-Methylnaphthalene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Lab Sample ID: 13E0009-BLK1
Matrix: Soil
Analysis Batch: 13E0009

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13E0009_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Acenaphthylene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Acenaphthene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Fluorene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Phenanthrene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Anthracene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Fluoranthene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Pyrene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Benzo (a) anthracene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Chrysene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Benzo (b) fluoranthene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Benzo (k) fluoranthene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Benzo (a) pyrene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Indeno (1,2,3-cd) pyrene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Dibenzo (a,h) anthracene	ND		0.00600		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00
Benzo (ghi) perylene	ND		0.0100		mg/kg wet		05/01/13 15:35	05/01/13 18:00	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*77.4*		*54 - 129*	*05/01/13 15:35*	*05/01/13 18:00*	*1.00*
2-FBP	*84.6*		*64.2 - 121*	*05/01/13 15:35*	*05/01/13 18:00*	*1.00*
p-Terphenyl-d14	*94.4*		*27.5 - 140*	*05/01/13 15:35*	*05/01/13 18:00*	*1.00*

Lab Sample ID: 13E0009-BS1
Matrix: Soil
Analysis Batch: 13E0009

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13E0009_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	0.133	0.119		mg/kg wet		89.5	59 - 120
Fluorene	0.133	0.129		mg/kg wet		96.5	52.8 - 115
Chrysene	0.133	0.127		mg/kg wet		95.0	61.4 - 122
Indeno (1,2,3-cd) pyrene	0.133	0.129		mg/kg wet		96.5	61.5 - 147

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*79.8*		*54 - 129*
2-FBP	*81.4*		*64.2 - 121*
p-Terphenyl-d14	*89.4*		*27.5 - 140*

Lab Sample ID: 13E0009-MS1
Matrix: Soil
Analysis Batch: 13E0009

Client Sample ID: TP-4(13.5)
Prep Type: Total
Prep Batch: 13E0009_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	ND		0.280	0.236		mg/kg dry	☼	84.5	30 - 120
Fluorene	ND		0.280	0.263		mg/kg dry	☼	94.0	30 - 140
Chrysene	ND		0.280	0.239		mg/kg dry	☼	85.5	30 - 133
Indeno (1,2,3-cd) pyrene	ND		0.280	0.256		mg/kg dry	☼	91.5	30 - 140

Method: EPA 8270C - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Lab Sample ID: 13E0009-MS1
Matrix: Soil
Analysis Batch: 13E0009

Client Sample ID: TP-4(13.5)
Prep Type: Total
Prep Batch: 13E0009_P

Surrogate	Matrix Spike %Recovery	Matrix Spike Qualifier	Limits
Nitrobenzene-d5	*78.2*		*54 - 129*
2-FBP	*79.6*		*64.2 - 121*
p-Terphenyl-d14	*88.6*		*27.5 - 140*

Lab Sample ID: 13E0009-MSD1
Matrix: Soil
Analysis Batch: 13E0009

Client Sample ID: TP-4(13.5)
Prep Type: Total
Prep Batch: 13E0009_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	ND		0.264	0.244		mg/kg dry	☼	92.5	30 - 120	3.35	35
Fluorene	ND		0.264	0.307		mg/kg dry	☼	116	30 - 140	15.3	35
Chrysene	ND		0.264	0.260		mg/kg dry	☼	98.5	30 - 133	8.46	35
Indeno (1,2,3-cd) pyrene	ND		0.264	0.260		mg/kg dry	☼	98.5	30 - 140	1.68	35

Surrogate	Matrix Spike Dup %Recovery	Matrix Spike Dup Qualifier	Limits
Nitrobenzene-d5	*84.6*		*54 - 129*
2-FBP	*89.4*		*64.2 - 121*
p-Terphenyl-d14	*95.4*		*27.5 - 140*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Lab Sample ID: 13E0002-BLK1
Matrix: Soil
Analysis Batch: 13E0002

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13E0002_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		10.0		mg/kg wet		05/01/13 08:52	05/01/13 11:22	1.00
Heavy Oil Range Hydrocarbons	ND		25.0		mg/kg wet		05/01/13 08:52	05/01/13 11:22	1.00

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-FBP	*92.2*		*50 - 150*	*05/01/13 08:52*	*05/01/13 11:22*	*1.00*
n-Triacontane-d62	*94.4*		*50 - 150*	*05/01/13 08:52*	*05/01/13 11:22*	*1.00*

Lab Sample ID: 13E0002-BS1
Matrix: Soil
Analysis Batch: 13E0002

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13E0002_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Hydrocarbons			83.3	90.4		mg/kg wet		108	73 - 133		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-FBP	*101*		*50 - 150*
n-Triacontane-d62	*98.6*		*50 - 150*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx (Continued)

Lab Sample ID: 13E0002-MS1 — **Client Sample ID: Matrix Spike**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 13E0002 — **Prep Batch: 13E0002_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Hydrocarbons	ND		84.0	84.0		mg/kg dry	☼	100	70.1 - 139

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
2-FBP	*91.4*		*50 - 150*
n-Triacontane-d62	*89.0*		*50 - 150*

Lab Sample ID: 13E0002-DUP1 — **Client Sample ID: Duplicate**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 13E0002 — **Prep Batch: 13E0002_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Diesel Range Hydrocarbons	ND		ND		mg/kg dry	☼		40
Heavy Oil Range Hydrocarbons	ND		ND		mg/kg dry	☼		40

Surrogate	*Duplicate %Recovery*	*Duplicate Qualifier*	*Limits*
2-FBP	*91.5*		*50 - 150*
n-Triacontane-d62	*92.3*		*50 - 150*

Lab Chronicle

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0004

Client Sample ID: TP-5(12)

Lab Sample ID: SWE0004-02

Date Collected: 04/30/13 14:20

Matrix: Soil

Date Received: 05/01/13 09:00

Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.08	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		10.0	13E0007	05/02/13 13:13	CBW	TAL SPK
Total	Prep	GC/MS Volatiles		1.08	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0007	05/02/13 12:53	CBW	TAL SPK
Total	Prep	EPA 3550B		2.52	13E0009_P	05/01/13 15:35	MS	TAL SPK
Total	Analysis	EPA 8270C		10.0	13E0009	05/01/13 19:20	MS	TAL SPK
Total	Prep	EPA 3550B		0.980	13E0002_P	05/01/13 10:40	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0002	05/01/13 13:55	MS	TAL SPK
Total	Prep	Wet Chem		1.00	13E0019_P	05/01/13 12:00	MS	TAL SPK
Total	Analysis	TA SOP		1.00	13E0019	05/02/13 14:55	MS	TAL SPK

Client Sample ID: TP-4(13.5)

Lab Sample ID: SWE0004-05

Date Collected: 04/30/13 13:15

Matrix: Soil

Date Received: 05/01/13 09:00

Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		0.917	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0007	05/02/13 13:33	CBW	TAL SPK
Total	Prep	EPA 3550B		1.13	13E0009_P	05/01/13 15:35	MS	TAL SPK
Total	Analysis	EPA 8270C		1.00	13E0009	05/01/13 19:46	MS	TAL SPK
Total	Prep	EPA 3550B		0.961	13E0002_P	05/01/13 10:40	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0002	05/01/13 14:13	MS	TAL SPK
Total	Prep	Wet Chem		1.00	13E0019_P	05/01/13 12:00	MS	TAL SPK
Total	Analysis	TA SOP		1.00	13E0019	05/02/13 14:55	MS	TAL SPK

Client Sample ID: TP-2(9.5)

Lab Sample ID: SWE0004-06

Date Collected: 04/30/13 10:25

Matrix: Soil

Date Received: 05/01/13 09:00

Percent Solids: 93.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.34	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0007	05/02/13 13:52	CBW	TAL SPK
Total	Prep	EPA 3550B		0.991	13E0009_P	05/01/13 15:35	MS	TAL SPK
Total	Analysis	EPA 8270C		1.00	13E0009	05/01/13 21:06	MS	TAL SPK
Total	Prep	EPA 3550B		0.993	13E0002_P	05/01/13 10:40	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0002	05/01/13 15:27	MS	TAL SPK
Total	Prep	Wet Chem		1.00	13E0019_P	05/01/13 12:00	MS	TAL SPK
Total	Analysis	TA SOP		1.00	13E0019	05/02/13 14:55	MS	TAL SPK

Client Sample ID: TP-3(7.5)

Lab Sample ID: SWE0004-08

Date Collected: 04/30/13 11:35
Matrix: Soil
Date Received: 05/01/13 09:00
Percent Solids: 79.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.02	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		10.0	13E0007	05/02/13 14:12	CBW	TAL SPK
Total	Prep	GC/MS Volatiles		1.02	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		100	13E0007	05/02/13 14:32	CBW	TAL SPK
Total	Prep	EPA 3550B		2.40	13E0009_P	05/01/13 15:35	MS	TAL SPK
Total	Analysis	EPA 8270C		50.0	13E0009	05/01/13 21:33	MS	TAL SPK
Total	Prep	EPA 3550B		0.966	13E0002_P	05/01/13 10:40	MS	TAL SPK
Total	Analysis	NWTPH-Dx		20.0	13E0002	05/02/13 17:23	MS	TAL SPK
Total	Prep	Wet Chem		1.00	13E0019_P	05/01/13 12:00	MS	TAL SPK
Total	Analysis	TA SOP		1.00	13E0019	05/02/13 14:55	MS	TAL SPK

Client Sample ID: TP-1(8)

Lab Sample ID: SWE0004-11

Date Collected: 04/30/13 09:08
Matrix: Soil
Date Received: 05/01/13 09:00
Percent Solids: 81

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		0.947	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0007	05/02/13 14:51	CBW	TAL SPK
Total	Prep	EPA 3550B		0.966	13E0009_P	05/01/13 15:35	MS	TAL SPK
Total	Analysis	EPA 8270C		1.00	13E0009	05/01/13 21:59	MS	TAL SPK
Total	Prep	EPA 3550B		0.994	13E0002_P	05/01/13 10:40	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0002	05/01/13 16:02	MS	TAL SPK
Total	Prep	Wet Chem		1.00	13E0019_P	05/01/13 12:00	MS	TAL SPK
Total	Analysis	TA SOP		1.00	13E0019	05/02/13 14:55	MS	TAL SPK

Client Sample ID: MW-4(15)

Lab Sample ID: SWE0004-18

Date Collected: 04/29/13 10:02
Matrix: Soil
Date Received: 05/01/13 09:00
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.20	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0007	05/02/13 15:11	CBW	TAL SPK
Total	Prep	EPA 3550B		0.975	13E0009_P	05/01/13 15:35	MS	TAL SPK
Total	Analysis	EPA 8270C		1.00	13E0009	05/01/13 22:26	MS	TAL SPK
Total	Prep	EPA 3550B		0.996	13E0002_P	05/01/13 10:40	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0002	05/02/13 17:40	MS	TAL SPK
Total	Prep	Wet Chem		1.00	13E0019_P	05/01/13 12:00	MS	TAL SPK
Total	Analysis	TA SOP		1.00	13E0019	05/02/13 14:55	MS	TAL SPK

Lab Chronicle

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0004

Client Sample ID: MW-5(15)
Date Collected: 04/29/13 14:35
Date Received: 05/01/13 09:00

Lab Sample ID: SWE0004-23
Matrix: Soil
Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		0.797	13E0007_P	05/01/13 13:06	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0007	05/02/13 15:31	CBW	TAL SPK
Total	Prep	EPA 3550B		0.954	13E0009_P	05/01/13 15:35	MS	TAL SPK
Total	Analysis	EPA 8270C		1.00	13E0009	05/01/13 22:52	MS	TAL SPK
Total	Prep	EPA 3550B		0.977	13E0002_P	05/01/13 10:40	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0002	05/02/13 17:56	MS	TAL SPK
Total	Prep	Wet Chem		1.00	13E0019_P	05/01/13 12:00	MS	TAL SPK
Total	Analysis	TA SOP		1.00	13E0019	05/02/13 14:55	MS	TAL SPK

Laboratory References:

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

Certification Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0004

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	10-31-13
Washington	State Program	10	C569	01-06-14

Method Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0004

Method	Method Description	Protocol	Laboratory
EPA 8260C	NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C		TAL SPK
EPA 8270C	Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring		TAL SPK
NWTPH-Dx	Semivolatile Petroleum Products by NWTPH-Dx		TAL SPK
TA SOP	Conventional Chemistry Parameters by APHA/EPA Methods		TAL SPK

Protocol References:

Laboratory References:

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

5755 8th Street East, Tacoma, WA 98424-1317 253-922-2310 FAX 922-5047
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 #: SWE0004

CLIENT: GeoEngineers
REPORT TO: S. Lathen
ADDRESS: 523 E 2nd Ave Spokane WA 99202
PHONE: FAX:

INVOICE TO:
P.O. NUMBER:

PROJECT NAME: L+L Exxon
PROJECT NUMBER: 0504-081-00
SAMPLED BY: SHL/ERH

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.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: NWTPH-Dx	NWTPH-Gx	n-hexane wipes	naphthalene	1-methyl naphthalene	2-methyl naphthalene	VOCs	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	TP-5 (9)	4/30/13 1405												
2	TP-5 (12)	1420		✓	✓	✓	✓	✓	✓	✓				
3	TP-2(5)	1015												
4	TP-5(7)	1355												
5	TP-4(13.5)	1315		✓	✓	✓	✓	✓	✓	✓				
6	TP-2 (9.5)	1025		✓	✓	✓	✓	✓	✓	✓				
7	TP-3 (11.5)	1152												
8	TP-3 (7.5)	1135		✓	✓	✓	✓	✓	✓	✓				
9	TP-4 (2)	1250												
10	TP-4 (8)	1300												

RELEASED BY: PRINT NAME: Elliya Hogan FIRM: GeoEngineers Inc DATE: 4/30/13 TIME: 9:00 am

RECEIVED BY: PRINT NAME: Cal Hamilton FIRM: TA DATE: 5-1-13 TIME: 9:00

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

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

ADDITIONAL REMARKS:

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TAL-1000 (0612)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

5755 8th Street East, Tacoma, WA 98424-1317 253-922-2310 FAX 922-5047
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 #: SWE0004

CLIENT: GeoEngineers
REPORT TO: S Lathen
ADDRESS: 523 E 2nd Ave Spokane WA 99202
PHONE: 509 363 FAX: 509 363 3126
PROJECT NAME: L+L Exxon
PROJECT NUMBER: 0504-081-00
SAMPLED BY: SHL/EEH

INVOICE TO: GEOEN
P.O. NUMBER:

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.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: NWTPH-Gx (GRPH)	BTEX	n-hexane	naphthalene	1-methyl naphthalene	2-methyl naphthalene	NWTPH-Dx	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	TP-1(8)	4/30/13 0908		✓	✓	✓	✓	✓	✓	✓				
2	TP-1(11)	0930												
3	TP-1(4)	0900												
4	MW-5(35)	4/29/13 1405												
5	TP-3(5)	4/30/13 1130												
6	TP-2(11.5)	1045												
7	MW-4(20)	4/29/13 1033												
8	MW-4(15)	1002		✓	✓	✓	✓	✓	✓	✓				
9	MW-4(10)	0954												
10	MW-4(5)	0945												

RELEASED BY: PRINT NAME: Chiya Horton FIRM: GeoEngineers DATE: 5/2/13 TIME: 9:00am
RECEIVED BY: PRINT NAME: Cat Stapleton FIRM: TA DATE: 5-2-13 TIME: 9:00
RELEASED BY: PRINT NAME: FIRM: DATE: TIME:
RECEIVED BY: PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS:

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TAL-1000 (0612)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

5755 8th Street East, Tacoma, WA 98424-1317 253-922-2310 FAX 922-5047
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 #: SWE0004

CLIENT: GeoEngineers

INVOICE TO: GeoEngineers

REPORT TO: S. Lathen

ADDRESS: 523 E 2nd Ave Spokane WA

PHONE: 509 363 3125 FAX: 509 363 3126

P.O. NUMBER:

PROJECT NAME: L+L Exxon

PROJECT NUMBER: 0504-081-00

SAMPLED BY: SHL/EPH

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.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	NWTPH-Dx**	NWTPH-Dx	NWTPH-Gx	n-hexane	BTEX	naphthal.	1-methyl naphth.	2-methyl naphth.					MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	MW-5 (5'20)	4/29/13 1455																	
2	MW-5 (10)	1418																	
3	MW-5 (15)	1435		✓		✓	✓	✓	✓	✓	✓	✓							
4																			
5																			
6																			
7																			
8																			
9																			
10																			

RELEASED BY: Emma Hogan PRINT NAME: FIRM: GeoEngineers DATE: 5/01/13 TIME: 9:00am

RECEIVED BY: Cat Stapleton PRINT NAME: FIRM: TA DATE: 5-1-13 TIME: 9:20

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

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

ADDITIONAL REMARKS:

TEMP: 3.4

PAGE OF

TAL-1000 (0612)

TestAmerica Spokane
Sample Receipt Form

Work Order #: SWE0004	Client: GeoEngineers	Project: LTL Exxon
Date/Time Received: 5-1-13 9:00	By: CS	

Samples Delivered By: ☐Shipping Service ☒Courier ☐Client ☐Other: _____

List Air Bill Number(s) or Attach a photocopy of the Air Bill:

Receipt Phase	Yes	No	NA	Comments
Were samples received in a cooler:	X			
Custody Seals are present and intact:			X	
Are CoC documents present:	X			
Necessary signatures:	X			

Thermal Preservation Type: ☐Blue Ice ☐Gel Ice ☒Real Ice ☐Dry Ice ☐None ☐Other: _____

Temperature: 3.4 °C Thermometer (Circle one Serial #122208348 Keyring IR Serial # 111874910 IR Gun 2)(acceptance criteria 0-6

Temperature out of range: ☐Not enough ice ☐Ice melted ☐w/in 4hrs of collection ☐NA ☐Other: _____

Log-in Phase Date/Time: 5-1-13 10:11 By: CS	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	X			
Samples containers were received intact:	X			
Do sample IDs match the CoC	X			
Appropriate sample containers were received for tests requested	X			
Are sample volumes adequate for tests requested	X			
Appropriate preservatives were used for the tests requested	X			
pH of inorganic samples checked and is within method specification	X			
Are VOC samples free of bubbles >6mm (1/4" diameter)			X	
Are dissolved parameters field filtered			X	
Do any samples need to be filtered or preserved by the lab			X	
Does this project require quick turnaround analysis			X	
Are there any short hold time tests (see chart below)		X		
Are any samples within 2 days of or past expiration		X		
Was the CoC scanned	X			
Were there Non-conformance issues at login		X		
If yes, was a CAR generated # _____			X	

24 hours or less	48 hours	7 days
Coliform Bacteria	BOD, Color, MBAS	TDS, TSS, VDS, FDS
Chromium +6	Nitrate/Nitrite	Sulfide
	Orthophosphate	Aqueous Organic Prep

Form No. SP-FORM-SPL-002 12 December 2012

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: SWE0061
Client Project/Site: 0504-081-00
Client Project Description: L&L Exxon

For:
Geo Engineers - Spokane
523 East Second Ave.
Spokane, WA 99202

Attn: Scott Lathen

Authorized for release by:
5/21/2013 1:43:45 PM

Randee Decker, Project Manager
Randee.Decker@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

Sample Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0061

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
SWE0061-01	MW-4-050613	Water	05/06/13 14:24	05/07/13 13:50
SWE0061-02	MW-5-050613	Water	05/06/13 12:33	05/07/13 13:50

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0061

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
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)
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: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0061

Client Sample ID: MW-4-050613

Lab Sample ID: SWE0061-01

Date Collected: 05/06/13 14:24
Matrix: Water
Date Received: 05/07/13 13:50

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		05/09/13 07:45	05/09/13 13:24	1.00
Benzene	ND		0.200		ug/l		05/09/13 07:45	05/09/13 13:24	1.00
Toluene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 13:24	1.00
Ethylbenzene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 13:24	1.00
m,p-Xylene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 13:24	1.00
o-Xylene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 13:24	1.00
Xylenes (total)	ND		1.50		ug/l		05/09/13 07:45	05/09/13 13:24	1.00
Hexane	ND		1.00		ug/l		05/09/13 07:45	05/09/13 13:24	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*98.0*		*71.2 - 143*	*05/09/13 07:45*	*05/09/13 13:24*	*1.00*
1,2-dichloroethane-d4	*87.3*		*70 - 140*	*05/09/13 07:45*	*05/09/13 13:24*	*1.00*
Toluene-d8	*101*		*74.1 - 135*	*05/09/13 07:45*	*05/09/13 13:24*	*1.00*
4-bromofluorobenzene	*102*		*68.7 - 141*	*05/09/13 07:45*	*05/09/13 13:24*	*1.00*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.191		ug/l		05/13/13 08:24	05/13/13 13:25	1.00
2-Methylnaphthalene	ND		0.191		ug/l		05/13/13 08:24	05/13/13 13:25	1.00
1-Methylnaphthalene	ND		0.191		ug/l		05/13/13 08:24	05/13/13 13:25	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*63.0*		*31.6 - 137*	*05/13/13 08:24*	*05/13/13 13:25*	*1.00*
2-FBP	*59.6*		*35.1 - 129*	*05/13/13 08:24*	*05/13/13 13:25*	*1.00*
p-Terphenyl-d14	*83.4*		*0 - 149*	*05/13/13 08:24*	*05/13/13 13:25*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		0.238		mg/l		05/14/13 08:00	05/16/13 04:21	1.00
Heavy Oil Range Hydrocarbons	ND		0.382		mg/l		05/14/13 08:00	05/16/13 04:21	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*77.5*		*50 - 150*	*05/14/13 08:00*	*05/16/13 04:21*	*1.00*
n-Triacontane-d62	*67.3*		*50 - 150*	*05/14/13 08:00*	*05/16/13 04:21*	*1.00*

Client Sample ID: MW-5-050613

Lab Sample ID: SWE0061-02

Date Collected: 05/06/13 12:33
Matrix: Water
Date Received: 05/07/13 13:50

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		05/09/13 07:45	05/09/13 14:03	1.00
Benzene	ND		0.200		ug/l		05/09/13 07:45	05/09/13 14:03	1.00
Toluene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 14:03	1.00
Ethylbenzene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 14:03	1.00
m,p-Xylene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 14:03	1.00
o-Xylene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 14:03	1.00
Xylenes (total)	ND		1.50		ug/l		05/09/13 07:45	05/09/13 14:03	1.00
Hexane	ND		1.00		ug/l		05/09/13 07:45	05/09/13 14:03	1.00

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0061

Client Sample ID: MW-5-050613
Date Collected: 05/06/13 12:33
Date Received: 05/07/13 13:50

Lab Sample ID: SWE0061-02
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*97.5*		*71.2 - 143*	*05/09/13 07:45*	*05/09/13 14:03*	*1.00*
1,2-dichloroethane-d4	*86.0*		*70 - 140*	*05/09/13 07:45*	*05/09/13 14:03*	*1.00*
Toluene-d8	*100*		*74.1 - 135*	*05/09/13 07:45*	*05/09/13 14:03*	*1.00*
4-bromofluorobenzene	*102*		*68.7 - 141*	*05/09/13 07:45*	*05/09/13 14:03*	*1.00*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.195		ug/l		05/13/13 08:24	05/13/13 13:52	1.00
2-Methylnaphthalene	ND		0.195		ug/l		05/13/13 08:24	05/13/13 13:52	1.00
1-Methylnaphthalene	ND		0.195		ug/l		05/13/13 08:24	05/13/13 13:52	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*60.4*		*31.6 - 137*	*05/13/13 08:24*	*05/13/13 13:52*	*1.00*
2-FBP	*55.7*		*35.1 - 129*	*05/13/13 08:24*	*05/13/13 13:52*	*1.00*
p-Terphenyl-d14	*78.1*		*0 - 149*	*05/13/13 08:24*	*05/13/13 13:52*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		0.251		mg/l		05/14/13 08:00	05/16/13 04:39	1.00
Heavy Oil Range Hydrocarbons	ND		0.402		mg/l		05/14/13 08:00	05/16/13 04:39	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*74.9*		*50 - 150*	*05/14/13 08:00*	*05/16/13 04:39*	*1.00*
n-Triacontane-d62	*66.3*		*50 - 150*	*05/14/13 08:00*	*05/16/13 04:39*	*1.00*

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Lab Sample ID: 13E0060-BLK1
Matrix: Water
Analysis Batch: 13E0060

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13E0060_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		05/09/13 07:45	05/09/13 09:47	1.00
Benzene	ND		0.200		ug/l		05/09/13 07:45	05/09/13 09:47	1.00
Toluene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 09:47	1.00
Ethylbenzene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 09:47	1.00
m,p-Xylene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 09:47	1.00
o-Xylene	ND		0.500		ug/l		05/09/13 07:45	05/09/13 09:47	1.00
Xylenes (total)	ND		1.50		ug/l		05/09/13 07:45	05/09/13 09:47	1.00
Hexane	ND		1.00		ug/l		05/09/13 07:45	05/09/13 09:47	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*98.2*		*71.2 - 143*	*05/09/13 07:45*	*05/09/13 09:47*	*1.00*
Toluene-d8	*101*		*74.1 - 135*	*05/09/13 07:45*	*05/09/13 09:47*	*1.00*
4-bromofluorobenzene	*105*		*68.7 - 141*	*05/09/13 07:45*	*05/09/13 09:47*	*1.00*

Lab Sample ID: 13E0060-BS1
Matrix: Water
Analysis Batch: 13E0060

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13E0060_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	1000	1040		ug/l		104	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*95.1*		*71.2 - 143*
Toluene-d8	*101*		*74.1 - 135*
4-bromofluorobenzene	*105*		*68.7 - 141*

Lab Sample ID: 13E0060-BS2
Matrix: Water
Analysis Batch: 13E0060

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13E0060_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	10.0	10.7		ug/l		107	80.1 - 128
Benzene	10.0	9.63		ug/l		96.3	84.2 - 122
Toluene	10.0	9.30		ug/l		93.0	85 - 123
Ethylbenzene	10.0	9.26		ug/l		92.6	83.6 - 111
m,p-Xylene	10.0	9.71		ug/l		97.1	85 - 115
o-Xylene	10.0	9.59		ug/l		95.9	85 - 116
Naphthalene	10.0	12.6		ug/l		126	62.8 - 132
Xylenes (total)	20.0	19.3		ug/l		96.5	85 - 115
Hexane	10.0	9.52		ug/l		95.2	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*96.3*		*71.2 - 143*
Toluene-d8	*101*		*74.1 - 135*
4-bromofluorobenzene	*102*		*68.7 - 141*

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C (Continued)

Lab Sample ID: 13E0060-MS1 — **Client Sample ID: MW-4-050613**
Matrix: Water — **Prep Type: Total**
Analysis Batch: 13E0060 — **Prep Batch: 13E0060_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	42.9		1000	1150		ug/l		111	55.6 - 126

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*95.1*		*71.2 - 143*
Toluene-d8	*99.9*		*74.1 - 135*
4-bromofluorobenzene	*103*		*68.7 - 141*

Lab Sample ID: 13E0060-MS2 — **Client Sample ID: MW-5-050613**
Matrix: Water — **Prep Type: Total**
Analysis Batch: 13E0060 — **Prep Batch: 13E0060_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	ND		10.0	10.0		ug/l		100	44.3 - 150
Benzene	ND		10.0	9.96		ug/l		99.6	72.3 - 120
Toluene	ND		10.0	9.45		ug/l		94.5	62.7 - 137
Ethylbenzene	ND		10.0	9.48		ug/l		94.8	71.2 - 128
m,p-Xylene	ND		10.0	9.86		ug/l		98.6	70 - 134
o-Xylene	ND		10.0	9.71		ug/l		97.1	78.5 - 120
Naphthalene	ND		10.0	10.7		ug/l		107	45.4 - 150
Xylenes (total)	ND		20.0	19.6		ug/l		97.8	80 - 130
Hexane	ND		10.0	9.31		ug/l		93.1	70 - 130

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*98.1*		*71.2 - 143*
Toluene-d8	*98.0*		*74.1 - 135*
4-bromofluorobenzene	*100*		*68.7 - 141*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Lab Sample ID: 13E0076-BLK1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total**
Analysis Batch: 13E0076 — **Prep Batch: 13E0076_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.100		ug/l		05/13/13 08:24	05/13/13 12:05	1.00
2-Methylnaphthalene	ND		0.100		ug/l		05/13/13 08:24	05/13/13 12:05	1.00
1-Methylnaphthalene	ND		0.100		ug/l		05/13/13 08:24	05/13/13 12:05	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*91.3*		*31.6 - 137*	*05/13/13 08:24*	*05/13/13 12:05*	*1.00*
2-FBP	*88.8*		*35.1 - 129*	*05/13/13 08:24*	*05/13/13 12:05*	*1.00*
p-Terphenyl-d14	*91.9*		*0 - 149*	*05/13/13 08:24*	*05/13/13 12:05*	*1.00*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Lab Sample ID: 13E0076-BS1
Matrix: Water
Analysis Batch: 13E0076

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13E0076_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Naphthalene			2.00	1.50		ug/l		74.8	27.6 - 122		
Fluorene			2.00	1.55		ug/l		77.5	51.7 - 120		
Chrysene			2.00	1.76		ug/l		87.8	0 - 189		
Indeno (1,2,3-cd) pyrene			2.00	2.06		ug/l		103	0 - 207		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*71.8*		*31.6 - 137*
2-FBP	*70.4*		*35.1 - 129*
p-Terphenyl-d14	*76.6*		*0 - 149*

Lab Sample ID: 13E0076-BSD1
Matrix: Water
Analysis Batch: 13E0076

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13E0076_P

Analyte			Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			2.00	1.34		ug/l		67.0	27.6 - 122	10.9	30
Fluorene			2.00	1.51		ug/l		75.5	51.7 - 120	2.61	30
Chrysene			2.00	1.66		ug/l		82.8	0 - 189	5.87	30
Indeno (1,2,3-cd) pyrene			2.00	1.99		ug/l		99.5	0 - 207	3.21	30

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Nitrobenzene-d5	*74.1*		*31.6 - 137*
2-FBP	*67.8*		*35.1 - 129*
p-Terphenyl-d14	*74.2*		*0 - 149*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Lab Sample ID: 13E0081-BLK1
Matrix: Water
Analysis Batch: 13E0081

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13E0081_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		0.250		mg/l		05/14/13 08:00	05/16/13 03:44	1.00
Heavy Oil Range Hydrocarbons	ND		0.400		mg/l		05/14/13 08:00	05/16/13 03:44	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*84.8*		*50 - 150*	*05/14/13 08:00*	*05/16/13 03:44*	*1.00*
n-Triacontane-d62	*78.0*		*50 - 150*	*05/14/13 08:00*	*05/16/13 03:44*	*1.00*

Lab Sample ID: 13E0081-BS1
Matrix: Water
Analysis Batch: 13E0081

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13E0081_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Hydrocarbons			2.50	1.98		mg/l		79.4	54.5 - 136		

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx (Continued)

Lab Sample ID: 13E0081-BS1
Matrix: Water
Analysis Batch: 13E0081

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13E0081_P

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-FBP	88.1		50 - 150
n-Triacontane-d62	80.5		50 - 150

Lab Chronicle

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0061

Client Sample ID: MW-4-050613

Lab Sample ID: SWE0061-01

Date Collected: 05/06/13 14:24

Matrix: Water

Date Received: 05/07/13 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13E0060_P	05/09/13 07:45	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0060	05/09/13 13:24	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.91	13E0076_P	05/13/13 08:24	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13E0076	05/13/13 13:25	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		0.954	13E0081_P	05/14/13 08:00	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0081	05/16/13 04:21	MRS	TAL SPK

Client Sample ID: MW-5-050613

Lab Sample ID: SWE0061-02

Date Collected: 05/06/13 12:33

Matrix: Water

Date Received: 05/07/13 13:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13E0060_P	05/09/13 07:45	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13E0060	05/09/13 14:03	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.95	13E0076_P	05/13/13 08:24	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13E0076	05/13/13 13:52	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		1.01	13E0081_P	05/14/13 08:00	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13E0081	05/16/13 04:39	MRS	TAL SPK

Laboratory References:

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

Certification Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0061

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	10-31-13
Washington	State Program	10	C569	01-06-14

Method Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWE0061

Method	Method Description	Protocol	Laboratory
EPA 8260C	NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C		TAL SPK
EPA 8270D	Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring		TAL SPK
NWTPH-Dx	Semivolatile Petroleum Products by NWTPH-Dx		TAL SPK

Protocol References:

Laboratory References:

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

5755 8th Street East, Tacoma, WA 98424-1317 253-922-2310 FAX 922-5047
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

5/21/2013

CHAIN OF CUSTODY REPORT

Work Order #: SWE0061

CLIENT: GEI

REPORT TO: 523 E 2ND AVE
ADDRESS: SPOKANE, WA 99223

PHONE: 509-363-3125

INVOICE TO: SCOTT LATHEN

P.O. NUMBER:

PROJECT NAME: LL EXXON
PROJECT NUMBER: 0504-087-00
SAMPLED BY: ERH

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.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE / REQUESTED ANALYSES: ~~8260~~ NWTPH-Gx	BTEX 8260	Halogens 8260	NWTPH-Dx	Naphthalenes	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	MW-4-050613	5/6/13 1424	X	X	X	X	X	W	7	LL EXXON, RICHLAND	
2	MW-5-050613	5/6/13 1233	X	X	X	X	X	W	7		
3											
4											
5											
6											
7											
8											
9											
10											

RELEASED BY: ELWA HOGAN — FIRM: GEOENGINEERS — DATE: 5/7/13 — TIME: 800
PRINT NAME:

RECEIVED BY: [signature] — PRINT NAME: Scott Lathen — FIRM: GEI — DATE: 5/7/13 — TIME: 0800

RELEASED BY: Scott Lathen — FIRM: GEI — DATE: 5/7/13 — TIME: 1350
PRINT NAME:

RECEIVED BY: [signature] — PRINT NAME: Andrea Beck — FIRM: TestAmerica — DATE: 5/7/13 — TIME: 1350

ADDITIONAL REMARKS:
Naphthalenes = naphthalene, 1-methylnaphthalene, & 2-methylnaphtalene

TEMP: 5.1°C

PAGE 1 OF 1

TAL-1000 (0612)

TestAmerica Spokane
Sample Receipt Form

Work Order #: SW60001	**Client:** GeoEngineers	**Project:** GI Exxon
Date/Time Received: 5/7/13 1350	By: BD	

Samples Delivered By: ☐Shipping Service ☐Courier ☒Client ☐Other:

List Air Bill Number(s) or Attach a photocopy of the Air Bill:

Receipt Phase	Yes	No	NA	Comments
Were samples received in a cooler:	X			
Custody Seals are present and intact:			X	
Are CoC documents present:	X			
Necessary signatures:	X			

Thermal Preservation Type: ☐Blue Ice ☒Gel Ice ☐Real Ice ☐Dry Ice ☐None ☐Other:

Temperature: 5.1 °C Thermometer (Circle **one** Serial #122208348 Keyring IR Serial # 111874910 IR Gun 2)(acceptance criteria 0-6

Temperature out of range: ☐Not enough ice ☐Ice melted ☐w/in 4hrs of collection ☐NA ☐Other:

Log-in Phase Date/Time: 5-7-13 1405 By: RC	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	X			
Samples containers were received intact:	X			
Do sample IDs match the CoC	X			
Appropriate sample containers were received for tests requested	X			
Are sample volumes adequate for tests requested	X			
Appropriate preservatives were used for the tests requested	X			
pH of inorganic samples checked and is within method specification	X			
Are VOC samples free of bubbles >6mm (1/4" diameter)	X			
Are dissolved parameters field filtered			X	
Do any samples need to be filtered or preserved by the lab		X		
Does this project require quick turnaround analysis		X		
Are there any short hold time tests (see chart below)		X		
Are any samples within 2 days of or past expiration		X		
Was the CoC scanned	X			
Were there Non-conformance issues at login		X		
If yes, was a CAR generated #			X	

24 hours or less	48 hours	7 days
Coliform Bacteria	BOD, Color, MBAS	TDS, TSS, VDS, FDS
Chromium +6	Nitrate/Nitrite	Sulfide
	Orthophosphate	Aqueous Organic Prep

Form No. SP-FORM-SPL-002 12 December 2012

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: SWF0013
Client Project/Site: 0504-081-00
Client Project Description: L&L Exxon

For:
Geo Engineers - Spokane
523 East Second Ave.
Spokane, WA 99202

Attn: Scott Lathen

Authorized for release by:
6/18/2013 4:18:00 PM

Randee Decker, Project Manager
Randee.Decker@testamericainc.com

Table of Contents

Sample Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
SWF0013-01	MW-1-060313	Water	06/03/13 16:14	06/04/13 13:00
SWF0013-02	MW-2-060313	Water	06/03/13 15:19	06/04/13 13:00
SWF0013-03	MW-3-060313	Water	06/03/13 12:25	06/04/13 13:00
SWF0013-04	MW-4-060313	Water	06/03/13 13:30	06/04/13 13:00
SWF0013-05	MW-5-060313	Water	06/03/13 14:27	06/04/13 13:00
SWF0013-06	Duplicate-1-060313	Water	06/03/13 12:34	06/04/13 13:00
SWF0013-07	Trip Blank	Water	05/29/13 00:00	06/04/13 13:00

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
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 ID: MW-1-060313

Lab Sample ID: SWF0013-01

Date Collected: 06/03/13 16:14

Matrix: Water

Date Received: 06/04/13 13:00

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	**51000**		9000		ug/l		06/05/13 07:11	06/05/13 13:56	100
Benzene	ND		20.0		ug/l		06/05/13 07:11	06/05/13 13:56	100
Toluene	**7120**		50.0		ug/l		06/05/13 07:11	06/05/13 13:56	100
Ethylbenzene	**1320**		50.0		ug/l		06/05/13 07:11	06/05/13 13:56	100
m,p-Xylene	**4180**		50.0		ug/l		06/05/13 07:11	06/05/13 13:56	100
o-Xylene	**1980**		50.0		ug/l		06/05/13 07:11	06/05/13 13:56	100
Xylenes (total)	**6160**		150		ug/l		06/05/13 07:11	06/05/13 13:56	100
Hexane	ND		100		ug/l		06/05/13 07:11	06/05/13 13:56	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*93.7*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 13:56*	*100*
1,2-dichloroethane-d4	*83.9*		*70 - 140*	*06/05/13 07:11*	*06/05/13 13:56*	*100*
Toluene-d8	*97.3*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 13:56*	*100*
4-bromofluorobenzene	*109*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 13:56*	*100*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**73.3**		2.59		ug/l		06/06/13 11:50	06/07/13 10:19	20.0
2-Methylnaphthalene	**18.1**		2.59		ug/l		06/06/13 11:50	06/07/13 10:19	20.0
1-Methylnaphthalene	**15.9**		2.59		ug/l		06/06/13 11:50	06/07/13 10:19	20.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*60.0*		*31.6 - 137*	*06/06/13 11:50*	*06/06/13 17:48*	*1.00*
2-FBP	*65.6*		*35.1 - 129*	*06/06/13 11:50*	*06/06/13 17:48*	*1.00*
p-Terphenyl-d14	*94.0*		*0 - 149*	*06/06/13 11:50*	*06/06/13 17:48*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	**2.09**		0.237		mg/l		06/17/13 09:08	06/17/13 14:06	1.00
Heavy Oil Range Hydrocarbons	ND		0.379		mg/l		06/17/13 09:08	06/17/13 14:06	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*90.7*		*50 - 150*	*06/17/13 09:08*	*06/17/13 14:06*	*1.00*
n-Triacontane-d62	*85.2*		*50 - 150*	*06/17/13 09:08*	*06/17/13 14:06*	*1.00*

Client Sample ID: MW-2-060313

Lab Sample ID: SWF0013-02

Date Collected: 06/03/13 15:19

Matrix: Water

Date Received: 06/04/13 13:00

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	**10200**		9000		ug/l		06/05/13 07:11	06/05/13 14:15	100
Benzene	**300**		20.0		ug/l		06/05/13 07:11	06/05/13 14:15	100
Toluene	**159**		50.0		ug/l		06/05/13 07:11	06/05/13 14:15	100
Ethylbenzene	**316**		50.0		ug/l		06/05/13 07:11	06/05/13 14:15	100
m,p-Xylene	**985**		50.0		ug/l		06/05/13 07:11	06/05/13 14:15	100
o-Xylene	**186**		50.0		ug/l		06/05/13 07:11	06/05/13 14:15	100
Xylenes (total)	**1170**		150		ug/l		06/05/13 07:11	06/05/13 14:15	100
Hexane	ND		100		ug/l		06/05/13 07:11	06/05/13 14:15	100

Client Sample ID: MW-2-060313

Lab Sample ID: SWF0013-02

Date Collected: 06/03/13 15:19

Matrix: Water

Date Received: 06/04/13 13:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	*93.4*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 14:15*	*100*
1,2-dichloroethane-d4	*83.6*		*70 - 140*	*06/05/13 07:11*	*06/05/13 14:15*	*100*
Toluene-d8	*95.7*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 14:15*	*100*
4-bromofluorobenzene	*110*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 14:15*	*100*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**292**		9.46		ug/l		06/06/13 11:50	06/07/13 10:46	50.0
2-Methylnaphthalene	**87.5**		9.46		ug/l		06/06/13 11:50	06/07/13 10:46	50.0
1-Methylnaphthalene	**58.2**		9.46		ug/l		06/06/13 11:50	06/07/13 10:46	50.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	*66.6*		*31.6 - 137*	*06/06/13 11:50*	*06/06/13 18:14*	*1.00*
2-FBP	*74.1*		*35.1 - 129*	*06/06/13 11:50*	*06/06/13 18:14*	*1.00*
p-Terphenyl-d14	*98.3*		*0 - 149*	*06/06/13 11:50*	*06/06/13 18:14*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	**2.91**		0.238		mg/l		06/17/13 09:08	06/17/13 14:27	1.00
Heavy Oil Range Hydrocarbons	ND		0.382		mg/l		06/17/13 09:08	06/17/13 14:27	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-FBP	*93.5*		*50 - 150*	*06/17/13 09:08*	*06/17/13 14:27*	*1.00*
n-Triacontane-d62	*87.5*		*50 - 150*	*06/17/13 09:08*	*06/17/13 14:27*	*1.00*

Client Sample ID: MW-3-060313

Lab Sample ID: SWF0013-03

Date Collected: 06/03/13 12:25

Matrix: Water

Date Received: 06/04/13 13:00

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		06/05/13 07:11	06/05/13 14:34	1.00
Benzene	ND		0.200		ug/l		06/05/13 07:11	06/05/13 14:34	1.00
Toluene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 14:34	1.00
Ethylbenzene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 14:34	1.00
m,p-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 14:34	1.00
o-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 14:34	1.00
Xylenes (total)	ND		1.50		ug/l		06/05/13 07:11	06/05/13 14:34	1.00
Hexane	ND		1.00		ug/l		06/05/13 07:11	06/05/13 14:34	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	*93.9*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*
1,2-dichloroethane-d4	*85.4*		*70 - 140*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*
Toluene-d8	*96.0*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*
4-bromofluorobenzene	*110*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**0.970**	**J**	1.00	0.200	ug/l		06/05/13 07:11	06/05/13 14:34	1.00
Tetrachloroethene	**9.25**		1.00	0.0800	ug/l		06/05/13 07:11	06/05/13 14:34	1.00

Client Sample ID: MW-3-060313

Lab Sample ID: SWF0013-03

Date Collected: 06/03/13 12:25

Matrix: Water

Date Received: 06/04/13 13:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	*93.9*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*
1,2-dichloroethane-d4	*85.4*		*70 - 140*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*
Toluene-d8	*96.0*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*
4-bromofluorobenzene	*110*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 14:34*	*1.00*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 18:41	1.00
2-Methylnaphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 18:41	1.00
1-Methylnaphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 18:41	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	*66.5*		*31.6 - 137*	*06/06/13 11:50*	*06/06/13 18:41*	*1.00*
2-FBP	*66.1*		*35.1 - 129*	*06/06/13 11:50*	*06/06/13 18:41*	*1.00*
p-Terphenyl-d14	*93.8*		*0 - 149*	*06/06/13 11:50*	*06/06/13 18:41*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		0.237		mg/l		06/17/13 09:08	06/17/13 14:47	1.00
Heavy Oil Range Hydrocarbons	ND		0.380		mg/l		06/17/13 09:08	06/17/13 14:47	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-FBP	*94.0*		*50 - 150*	*06/17/13 09:08*	*06/17/13 14:47*	*1.00*
n-Triacontane-d62	*88.0*		*50 - 150*	*06/17/13 09:08*	*06/17/13 14:47*	*1.00*

Client Sample ID: MW-4-060313

Lab Sample ID: SWF0013-04

Date Collected: 06/03/13 13:30

Matrix: Water

Date Received: 06/04/13 13:00

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		06/05/13 07:11	06/05/13 15:13	1.00
Benzene	ND		0.200		ug/l		06/05/13 07:11	06/05/13 15:13	1.00
Toluene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:13	1.00
Ethylbenzene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:13	1.00
m,p-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:13	1.00
o-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:13	1.00
Xylenes (total)	ND		1.50		ug/l		06/05/13 07:11	06/05/13 15:13	1.00
Hexane	ND		1.00		ug/l		06/05/13 07:11	06/05/13 15:13	1.00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	*94.2*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*
1,2-dichloroethane-d4	*83.1*		*70 - 140*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*
Toluene-d8	*96.3*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*
4-bromofluorobenzene	*108*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**0.640**	**J**	1.00	0.200	ug/l		06/05/13 07:11	06/05/13 15:13	1.00
Tetrachloroethene	**4.12**		1.00	0.0800	ug/l		06/05/13 07:11	06/05/13 15:13	1.00

Client Sample ID: MW-4-060313

Lab Sample ID: SWF0013-04

Date Collected: 06/03/13 13:30

Matrix: Water

Date Received: 06/04/13 13:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94.2*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*
1,2-dichloroethane-d4	*83.1*		*70 - 140*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*
Toluene-d8	*96.3*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*
4-bromofluorobenzene	*108*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 15:13*	*1.00*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 19:08	1.00
2-Methylnaphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 19:08	1.00
1-Methylnaphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 19:08	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*63.8*		*31.6 - 137*	*06/06/13 11:50*	*06/06/13 19:08*	*1.00*
2-FBP	*60.4*		*35.1 - 129*	*06/06/13 11:50*	*06/06/13 19:08*	*1.00*
p-Terphenyl-d14	*91.8*		*0 - 149*	*06/06/13 11:50*	*06/06/13 19:08*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		0.236		mg/l		06/17/13 09:08	06/17/13 15:08	1.00
Heavy Oil Range Hydrocarbons	ND		0.378		mg/l		06/17/13 09:08	06/17/13 15:08	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*95.3*		*50 - 150*	*06/17/13 09:08*	*06/17/13 15:08*	*1.00*
n-Triacontane-d62	*88.9*		*50 - 150*	*06/17/13 09:08*	*06/17/13 15:08*	*1.00*

Client Sample ID: MW-5-060313

Lab Sample ID: SWF0013-05

Date Collected: 06/03/13 14:27

Matrix: Water

Date Received: 06/04/13 13:00

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		06/05/13 07:11	06/05/13 15:52	1.00
Benzene	ND		0.200		ug/l		06/05/13 07:11	06/05/13 15:52	1.00
Toluene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:52	1.00
Ethylbenzene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:52	1.00
m,p-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:52	1.00
o-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 15:52	1.00
Xylenes (total)	ND		1.50		ug/l		06/05/13 07:11	06/05/13 15:52	1.00
Hexane	ND		1.00		ug/l		06/05/13 07:11	06/05/13 15:52	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94.1*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*
1,2-dichloroethane-d4	*85.5*		*70 - 140*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*
Toluene-d8	*96.0*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*
4-bromofluorobenzene	*107*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	**1.05**		1.00	0.200	ug/l		06/05/13 07:11	06/05/13 15:52	1.00
Tetrachloroethene	**6.94**		1.00	0.0800	ug/l		06/05/13 07:11	06/05/13 15:52	1.00

Client Sample ID: MW-5-060313

Lab Sample ID: SWF0013-05

Date Collected: 06/03/13 14:27

Matrix: Water

Date Received: 06/04/13 13:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94.1*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*
1,2-dichloroethane-d4	*85.5*		*70 - 140*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*
Toluene-d8	*96.0*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*
4-bromofluorobenzene	*107*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 15:52*	*1.00*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 19:34	1.00
2-Methylnaphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 19:34	1.00
1-Methylnaphthalene	ND		0.190		ug/l		06/06/13 11:50	06/06/13 19:34	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*65.6*		*31.6 - 137*	*06/06/13 11:50*	*06/06/13 19:34*	*1.00*
2-FBP	*65.4*		*35.1 - 129*	*06/06/13 11:50*	*06/06/13 19:34*	*1.00*
p-Terphenyl-d14	*86.5*		*0 - 149*	*06/06/13 11:50*	*06/06/13 19:34*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		0.238		mg/l		06/17/13 09:08	06/17/13 16:10	1.00
Heavy Oil Range Hydrocarbons	ND		0.381		mg/l		06/17/13 09:08	06/17/13 16:10	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*93.3*		*50 - 150*	*06/17/13 09:08*	*06/17/13 16:10*	*1.00*
n-Triacontane-d62	*85.9*		*50 - 150*	*06/17/13 09:08*	*06/17/13 16:10*	*1.00*

Client Sample ID: Duplicate-1-060313

Lab Sample ID: SWF0013-06

Date Collected: 06/03/13 12:34

Matrix: Water

Date Received: 06/04/13 13:00

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		9000		ug/l		06/05/13 07:11	06/05/13 16:12	100
Benzene	**289**		20.0		ug/l		06/05/13 07:11	06/05/13 16:12	100
Toluene	**185**		50.0		ug/l		06/05/13 07:11	06/05/13 16:12	100
Ethylbenzene	**292**		50.0		ug/l		06/05/13 07:11	06/05/13 16:12	100
m,p-Xylene	**971**		50.0		ug/l		06/05/13 07:11	06/05/13 16:12	100
o-Xylene	**189**		50.0		ug/l		06/05/13 07:11	06/05/13 16:12	100
Xylenes (total)	**1160**		150		ug/l		06/05/13 07:11	06/05/13 16:12	100
Hexane	ND		100		ug/l		06/05/13 07:11	06/05/13 16:12	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*93.5*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 16:12*	*100*
1,2-dichloroethane-d4	*85.3*		*70 - 140*	*06/05/13 07:11*	*06/05/13 16:12*	*100*
Toluene-d8	*94.5*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 16:12*	*100*
4-bromofluorobenzene	*106*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 16:12*	*100*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**105**		3.80		ug/l		06/06/13 11:50	06/07/13 11:13	20.0
2-Methylnaphthalene	**26.6**		3.80		ug/l		06/06/13 11:50	06/07/13 11:13	20.0
1-Methylnaphthalene	**26.2**		3.80		ug/l		06/06/13 11:50	06/07/13 11:13	20.0

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

Client Sample ID: Duplicate-1-060313

Lab Sample ID: SWF0013-06

Date Collected: 06/03/13 12:34

Matrix: Water

Date Received: 06/04/13 13:00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*67.1*		*31.6 - 137*	*06/06/13 11:50*	*06/06/13 20:01*	*1.00*
2-FBP	*68.7*		*35.1 - 129*	*06/06/13 11:50*	*06/06/13 20:01*	*1.00*
p-Terphenyl-d14	*86.9*		*0 - 149*	*06/06/13 11:50*	*06/06/13 20:01*	*1.00*

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	**2.01**		0.238		mg/l		06/17/13 09:08	06/17/13 16:31	1.00
Heavy Oil Range Hydrocarbons	ND		0.381		mg/l		06/17/13 09:08	06/17/13 16:31	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-FBP	*90.3*		*50 - 150*	*06/17/13 09:08*	*06/17/13 16:31*	*1.00*
n-Triacontane-d62	*84.0*		*50 - 150*	*06/17/13 09:08*	*06/17/13 16:31*	*1.00*

Client Sample ID: Trip Blank

Lab Sample ID: SWF0013-07

Date Collected: 05/29/13 00:00

Matrix: Water

Date Received: 06/04/13 13:00

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		06/05/13 07:11	06/05/13 16:31	1.00
Benzene	ND		0.200		ug/l		06/05/13 07:11	06/05/13 16:31	1.00
Toluene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 16:31	1.00
Ethylbenzene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 16:31	1.00
m,p-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 16:31	1.00
o-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 16:31	1.00
Xylenes (total)	ND		1.50		ug/l		06/05/13 07:11	06/05/13 16:31	1.00
Hexane	ND		1.00		ug/l		06/05/13 07:11	06/05/13 16:31	1.00

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94.9*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 16:31*	*1.00*
1,2-dichloroethane-d4	*85.1*		*70 - 140*	*06/05/13 07:11*	*06/05/13 16:31*	*1.00*
Toluene-d8	*95.9*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 16:31*	*1.00*
4-bromofluorobenzene	*108*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 16:31*	*1.00*

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C

Lab Sample ID: 13F0017-BLK1
Matrix: Water
Analysis Batch: 13F0017

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13F0017_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Hydrocarbons	ND		90.0		ug/l		06/05/13 07:11	06/05/13 09:16	1.00
Benzene	ND		0.200		ug/l		06/05/13 07:11	06/05/13 09:16	1.00
Toluene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 09:16	1.00
Ethylbenzene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 09:16	1.00
m,p-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 09:16	1.00
o-Xylene	ND		0.500		ug/l		06/05/13 07:11	06/05/13 09:16	1.00
Xylenes (total)	ND		1.50		ug/l		06/05/13 07:11	06/05/13 09:16	1.00
Hexane	ND		1.00		ug/l		06/05/13 07:11	06/05/13 09:16	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95.0*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 09:16*	*1.00*
Toluene-d8	*98.0*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 09:16*	*1.00*
4-bromofluorobenzene	*110*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 09:16*	*1.00*

Lab Sample ID: 13F0017-BS1
Matrix: Water
Analysis Batch: 13F0017

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13F0017_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	1000	1140		ug/l		114	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*93.3*		*71.2 - 143*
Toluene-d8	*97.8*		*74.1 - 135*
4-bromofluorobenzene	*111*		*68.7 - 141*

Lab Sample ID: 13F0017-BS2
Matrix: Water
Analysis Batch: 13F0017

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13F0017_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	10.0	10.5		ug/l		105	80.1 - 128
Benzene	10.0	10.4		ug/l		104	84.2 - 122
Toluene	10.0	9.49		ug/l		94.9	85 - 123
Ethylbenzene	10.0	9.37		ug/l		93.7	83.6 - 111
m,p-Xylene	10.0	9.69		ug/l		96.9	85 - 115
o-Xylene	10.0	9.67		ug/l		96.7	85 - 116
Naphthalene	10.0	9.91		ug/l		99.1	62.8 - 132
Xylenes (total)	20.0	19.4		ug/l		96.8	85 - 115
Hexane	10.0	10.8		ug/l		108	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*95.3*		*71.2 - 143*
Toluene-d8	*95.9*		*74.1 - 135*
4-bromofluorobenzene	*108*		*68.7 - 141*

Method: EPA 8260C - NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C (Continued)

Lab Sample ID: 13F0017-MS1 — **Client Sample ID: MW-3-060313**
Matrix: Water — **Prep Type: Total**
Analysis Batch: 13F0017 — **Prep Batch: 13F0017_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Hydrocarbons	37.6		1000	1270		ug/l		124	55.6 - 126

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*92.2*		*71.2 - 143*
Toluene-d8	*97.9*		*74.1 - 135*
4-bromofluorobenzene	*112*		*68.7 - 141*

Lab Sample ID: 13F0017-MS2 — **Client Sample ID: MW-4-060313**
Matrix: Water — **Prep Type: Total**
Analysis Batch: 13F0017 — **Prep Batch: 13F0017_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	ND		10.0	10.5		ug/l		105	44.3 - 150
Benzene	ND		10.0	10.8		ug/l		108	72.3 - 120
Toluene	ND		10.0	9.78		ug/l		97.8	62.7 - 137
Ethylbenzene	ND		10.0	9.71		ug/l		97.1	71.2 - 128
m,p-Xylene	ND		10.0	10.1		ug/l		101	70 - 134
o-Xylene	ND		10.0	9.99		ug/l		99.9	78.5 - 120
Naphthalene	ND		10.0	9.80		ug/l		98.0	45.4 - 150
Xylenes (total)	ND		20.0	20.1		ug/l		101	80 - 130
Hexane	ND		10.0	10.7		ug/l		107	70 - 130

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*96.1*		*71.2 - 143*
Toluene-d8	*95.8*		*74.1 - 135*
4-bromofluorobenzene	*105*		*68.7 - 141*

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C

Lab Sample ID: 13F0017-BLK1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total**
Analysis Batch: 13F0017 — **Prep Batch: 13F0017_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		1.00	0.200	ug/l		06/05/13 07:11	06/05/13 09:16	1.00
Tetrachloroethene	ND		1.00	0.0800	ug/l		06/05/13 07:11	06/05/13 09:16	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95.0*		*71.2 - 143*	*06/05/13 07:11*	*06/05/13 09:16*	*1.00*
1,2-dichloroethane-d4	*88.9*		*70 - 140*	*06/05/13 07:11*	*06/05/13 09:16*	*1.00*
Toluene-d8	*98.0*		*74.1 - 135*	*06/05/13 07:11*	*06/05/13 09:16*	*1.00*
4-bromofluorobenzene	*110*		*68.7 - 141*	*06/05/13 07:11*	*06/05/13 09:16*	*1.00*

Method: EPA 8260C - Volatile Organic Compounds by EPA Method 8260C (Continued)

Lab Sample ID: 13F0017-BS2
Matrix: Water
Analysis Batch: 13F0017

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13F0017_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			10.0	8.84		ug/l		88.4	74.8 - 123		
Tetrachloroethene			10.0	8.02		ug/l		80.2	60 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*95.3*		*71.2 - 143*
1,2-dichloroethane-d4	*88.7*		*70 - 140*
Toluene-d8	*95.9*		*74.1 - 135*
4-bromofluorobenzene	*108*		*68.7 - 141*

Lab Sample ID: 13F0017-MS2
Matrix: Water
Analysis Batch: 13F0017

Client Sample ID: MW-4-060313
Prep Type: Total
Prep Batch: 13F0017_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene	0.640	J	10.0	10.4		ug/l		98.0	80 - 120		

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*96.1*		*71.2 - 143*
1,2-dichloroethane-d4	*89.6*		*70 - 140*
Toluene-d8	*95.8*		*74.1 - 135*
4-bromofluorobenzene	*105*		*68.7 - 141*

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Lab Sample ID: 13F0037-BLK1
Matrix: Water
Analysis Batch: 13F0037

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13F0037_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.100		ug/l		06/06/13 11:50	06/06/13 16:54	1.00
2-Methylnaphthalene	ND		0.100		ug/l		06/06/13 11:50	06/06/13 16:54	1.00
1-Methylnaphthalene	ND		0.100		ug/l		06/06/13 11:50	06/06/13 16:54	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*92.0*		*31.6 - 137*	*06/06/13 11:50*	*06/06/13 16:54*	*1.00*
2-FBP	*89.6*		*35.1 - 129*	*06/06/13 11:50*	*06/06/13 16:54*	*1.00*
p-Terphenyl-d14	*104*		*0 - 149*	*06/06/13 11:50*	*06/06/13 16:54*	*1.00*

Lab Sample ID: 13F0037-BS1
Matrix: Water
Analysis Batch: 13F0037

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13F0037_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Naphthalene			2.00	1.70		ug/l		85.2	27.6 - 122		
Fluorene			2.00	1.84		ug/l		92.0	51.7 - 120		
Chrysene			2.00	1.96		ug/l		98.2	0 - 189		
Indeno (1,2,3-cd) pyrene			2.00	1.78		ug/l		89.2	0 - 207		

Method: EPA 8270D - Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring (Continued)

Lab Sample ID: 13F0037-BS1
Matrix: Water
Analysis Batch: 13F0037

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13F0037_P

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	85.7		31.6 - 137
2-FBP	82.1		35.1 - 129
p-Terphenyl-d14	94.8		0 - 149

Method: NWTPH-Dx - Semivolatile Petroleum Products by NWTPH-Dx

Lab Sample ID: 13F0092-BLK1
Matrix: Water
Analysis Batch: 13F0092

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13F0092_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Hydrocarbons	ND		0.250		mg/l		06/17/13 09:08	06/17/13 13:25	1.00
Heavy Oil Range Hydrocarbons	ND		0.400		mg/l		06/17/13 09:08	06/17/13 13:25	1.00

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-FBP	96.1		50 - 150	06/17/13 09:08	06/17/13 13:25	1.00
n-Triacontane-d62	92.8		50 - 150	06/17/13 09:08	06/17/13 13:25	1.00

Lab Sample ID: 13F0092-BS1
Matrix: Water
Analysis Batch: 13F0092

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13F0092_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Hydrocarbons	2.50	2.13		mg/l		85.4	54.5 - 136

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-FBP	92.8		50 - 150
n-Triacontane-d62	90.0		50 - 150

Lab Chronicle

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

Client Sample ID: MW-1-060313
Lab Sample ID: SWF0013-01

Date Collected: 06/03/13 16:14
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		100	13F0017	06/05/13 13:56	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.29	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13F0037	06/06/13 17:48	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		1.29	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		20.0	13F0037	06/07/13 10:19	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		0.947	13F0092_P	06/17/13 09:08	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13F0092	06/17/13 14:06	MRS	TAL SPK

Client Sample ID: MW-2-060313
Lab Sample ID: SWF0013-02

Date Collected: 06/03/13 15:19
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		100	13F0017	06/05/13 14:15	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.89	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13F0037	06/06/13 18:14	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		1.89	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		50.0	13F0037	06/07/13 10:46	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		0.954	13F0092_P	06/17/13 09:08	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13F0092	06/17/13 14:27	MRS	TAL SPK

Client Sample ID: MW-3-060313
Lab Sample ID: SWF0013-03

Date Collected: 06/03/13 12:25
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13F0017	06/05/13 14:34	CBW	TAL SPK
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13F0017	06/05/13 14:34	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.90	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13F0037	06/06/13 18:41	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		0.950	13F0092_P	06/17/13 09:08	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13F0092	06/17/13 14:47	MRS	TAL SPK

Client Sample ID: MW-4-060313
Lab Sample ID: SWF0013-04

Date Collected: 06/03/13 13:30
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK

Lab Chronicle

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

Client Sample ID: MW-4-060313
Lab Sample ID: SWF0013-04

Date Collected: 06/03/13 13:30
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	EPA 8260C		1.00	13F0017	06/05/13 15:13	CBW	TAL SPK
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13F0017	06/05/13 15:13	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.90	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13F0037	06/06/13 19:08	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		0.944	13F0092_P	06/17/13 09:08	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13F0092	06/17/13 15:08	MRS	TAL SPK

Client Sample ID: MW-5-060313
Lab Sample ID: SWF0013-05

Date Collected: 06/03/13 14:27
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13F0017	06/05/13 15:52	CBW	TAL SPK
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13F0017	06/05/13 15:52	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.90	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13F0037	06/06/13 19:34	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		0.953	13F0092_P	06/17/13 09:08	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13F0092	06/17/13 16:10	MRS	TAL SPK

Client Sample ID: Duplicate-1-060313
Lab Sample ID: SWF0013-06

Date Collected: 06/03/13 12:34
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		100	13F0017	06/05/13 16:12	CBW	TAL SPK
Total	Prep	EPA 3510/600 Series		1.90	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		1.00	13F0037	06/06/13 20:01	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		1.90	13F0037_P	06/06/13 11:50	MS	TAL SPK
Total	Analysis	EPA 8270D		20.0	13F0037	06/07/13 11:13	MS	TAL SPK
Total	Prep	EPA 3510/600 Series		0.953	13F0092_P	06/17/13 09:08	MS	TAL SPK
Total	Analysis	NWTPH-Dx		1.00	13F0092	06/17/13 16:31	MRS	TAL SPK

Client Sample ID: Trip Blank
Lab Sample ID: SWF0013-07

Date Collected: 05/29/13 00:00
Matrix: Water
Date Received: 06/04/13 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	GC/MS Volatiles		1.00	13F0017_P	06/05/13 07:11	CBW	TAL SPK
Total	Analysis	EPA 8260C		1.00	13F0017	06/05/13 16:31	CBW	TAL SPK

Lab Chronicle

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

Laboratory References:

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

Certification Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

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	10-31-13
Washington	State Program	10	C569	01-06-14

Method Summary

Client: Geo Engineers - Spokane
Project/Site: 0504-081-00

TestAmerica Job ID: SWF0013

Method	Method Description	Protocol	Laboratory
EPA 8260C	NWTPH-Gx and Volatile Organic Compounds by EPA Method 8260C		TAL SPK
EPA 8260C	Volatile Organic Compounds by EPA Method 8260C		TAL SPK
EPA 8270D	Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring		TAL SPK
NWTPH-Dx	Semivolatile Petroleum Products by NWTPH-Dx		TAL SPK

Protocol References:

Laboratory References:

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

5755 8th Street East, Tacoma, WA 98424-1317 253-922-2310 FAX 922-5047
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

6/18/2013

CHAIN OF CUSTODY REPORT

Work Order #: SWF0013

CLIENT: GEOENGINEERS

INVOICE TO: SCOTT LATHEN, GEOENGINEERS

REPORT TO: SCOTT LATHEN
ADDRESS: 523 E 2ND AVE, SPOKANE, WA 99202
PHONE: 509-363-3125 FAX: 509-363-3126

P.O. NUMBER:

PROJECT NAME: L+L EXXON
PROJECT NUMBER: 0504-081-00
SAMPLED BY: KATIE HALL

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.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: GRPH BY NWTPH-GX	DRPH+OHP BY NWTPH-DX	BTEX BY EPA 8260	N-HEXANE BY EPA 8260	NAPHTHALENES* BY	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	MW-1-060313	6/3/13 1614		X	X	X	X	X	W	6		
2	MW-2-060313	1519		X	X	X	X	X				
3	MW-3-060313	1225		X	X	X	X	X				
4	MW-4-060313	1330		X	X	X	X	X				
5	MW-5-060313	1427		X	X	X	X	X				
6	DUPLICATE-1-060313	1234		X	X	X	X	X				
7	TRIP BLANK	— —		X		X	X			1		
8												
9												
10												

RELEASED BY: KATIE HALL		DATE: 6/4/13	RECEIVED BY:		DATE: 6-4-13
PRINT NAME: KATIE HALL	FIRM: GE	TIME: 1300	PRINT NAME: Cat Stapleton	FIRM: TestAmerica	TIME: 13:00
RELEASED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS:
* NAPHTHALENES = NAPHTHALENE, 1-METHYLNAPHTHALENE, 2-METHYLNAPHTHALENE

TEMP: 32

PAGE 1 OF 1

TAL-1000 (0612)

TestAmerica Spokane
Sample Receipt Form

Work Order #: SWF0013	Client: GeoEngineers	Project: GL Exxon
Date/Time Received: 6/4/13 13:00	By: CS	

Samples Delivered By: ☐ Shipping Service ☒ Courier ☐ Client ☐ Other: _____

List Air Bill Number(s) or Attach a photocopy of the Air Bill:

Receipt Phase	Yes	No	NA	Comments
Were samples received in a cooler:	Y			
Custody Seals are present and intact:			—	
Are CoC documents present:	Y			
Necessary signatures:	Y			

Thermal Preservation Type: ☐ Blue Ice ☐ Gel Ice ☒ Real Ice ☐ Dry Ice ☐ None ☐ Other: _____

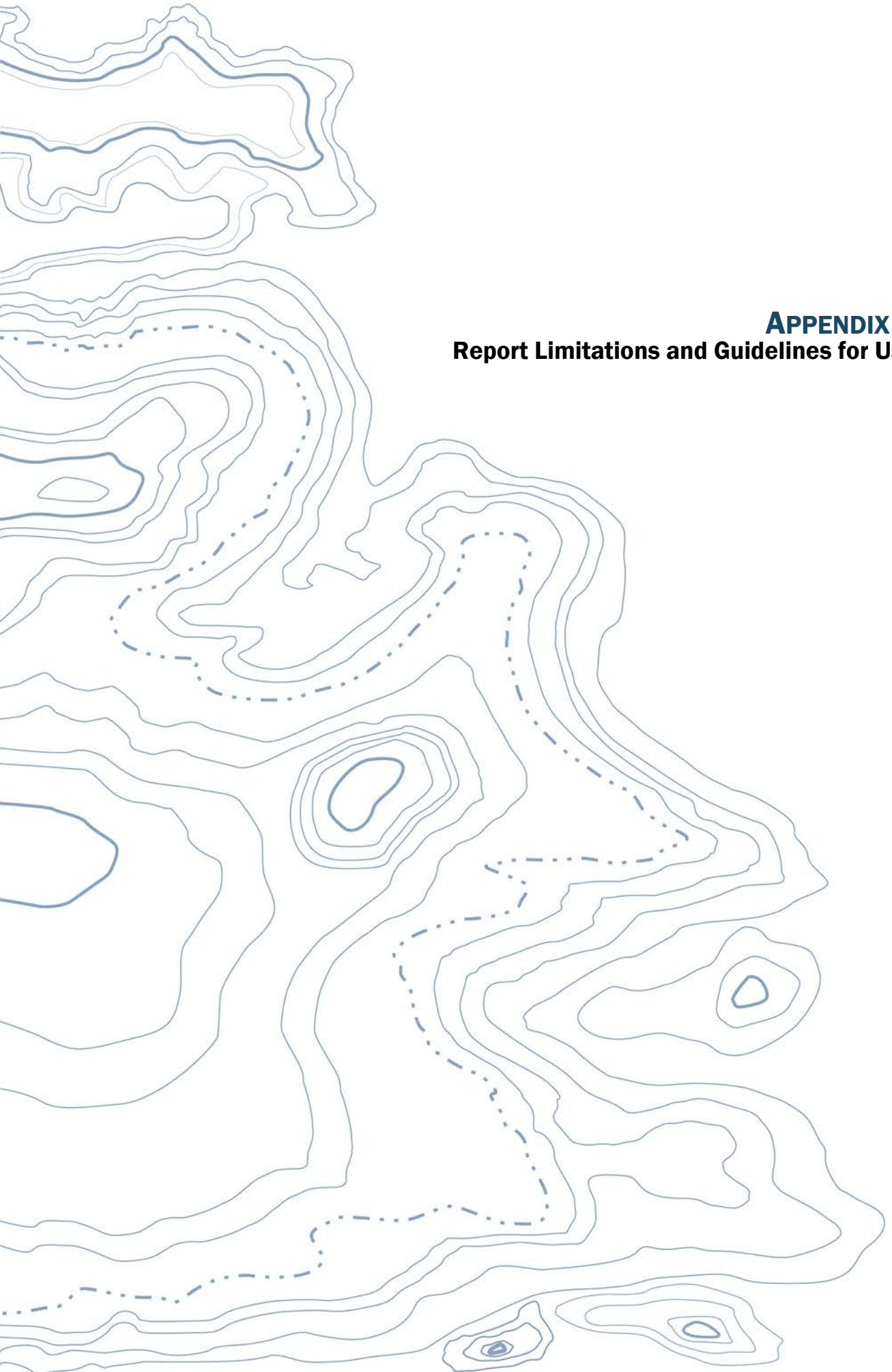
Temperature: 3.2 °C Thermometer (Circle **one** Serial #122208348 Keyring IR Serial # 111874910 IR Gun 2)(acceptance criteria 0-6

Temperature out of range: ☐ Not enough ice ☐ Ice melted ☐ w/in 4hrs of collection ☐ NA ☐ Other: _____

Log-in Phase Date/Time: 6/4/13 1430 By: CS	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	X			
Samples containers were received intact:	X			
Do sample IDs match the CoC	X			
Appropriate sample containers were received for tests requested	X			
Are sample volumes adequate for tests requested	X			
Appropriate preservatives were used for the tests requested	X			
pH of inorganic samples checked and is within method specification	X			
Are VOC samples free of bubbles >6mm (1/4" diameter)	X			
Are dissolved parameters field filtered			X	
Do any samples need to be filtered or preserved by the lab			X	
Does this project require quick turnaround analysis		X		
Are there any short hold time tests (see chart below)		X		
Are any samples within 2 days of or past expiration		X		
Was the CoC scanned	X			
Were there Non-conformance issues at login		X		
If yes, was a CAR generated # _____			X	

24 hours or less	48 hours	7 days
Coliform Bacteria	BOD, Color, MBAS	TDS, TSS, VDS, FDS
Chromium +6	Nitrate/Nitrite	Sulfide
	Orthophosphate	Aqueous Organic Prep

Form No. SP-FORM-SPL-002 12 December 2012



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 L&L Exxon site located at 1315 Lee Boulevard in Richland, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

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

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

Reliance Conditions for Third Parties

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

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

Ecology and generally accepted environmental practices in this area at the time this report was prepared.

Environmental Regulations are Always Evolving

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

Uncertainty May Remain Even After This Phase II ESA is Completed

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

Subsurface Conditions Can Change

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

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

Most Environmental Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied 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