Supplemental Phase II Site Assessment Report

Tiger Oil — East Nob Hill
1606 East Nob Hill Boulevard
Yakima, Washington

for
Washington State Department of Ecology

June 29, 2015

GeoEngineers
Earth Science + Technology

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523 East Second Avenue
Spokane, Washington 99202
509.363.3125

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File No. 0504-101-02

June 29, 2015

Prepared for:

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

Attention: Mary Monahan

Prepared by:

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

Jedidiah R. Sugalski, PE
Environmental Engineer

Bruce D. Williams
Principal

JRS:BDW:tlm:tjh

GeoEngineers

Table of Contents

1.0 INTRODUCTION 1

2.0 SITE DESCRIPTION AND BACKGROUND 1

3.0 SCOPE OF SERVICES 2

4.0 FIELD ACTIVITIES 2

4.1. Monitoring Well Installation 2
4.2. Subsurface Conditions 4
4.3. Groundwater Monitoring 4
4.3.1. Monitoring Well Headspace Vapor Monitoring 4
4.3.2. Groundwater Elevation Monitoring 4
4.3.3. Groundwater Sampling 4

5.0 CHEMICAL ANALYTICAL RESULTS 5

5.1. Soil Chemical Analytical Results 5
5.2. Groundwater Chemical Analytical Results 5

6.0 SUMMARY, INTERPRETATIONS AND RECOMMENDATIONS 6

6.1. Soil Assessment 6
6.2. Groundwater Assessment 6
6.3. Chemical Analytical Results and Interpretations 6
6.3.1. Soil 6
6.3.2. Groundwater 6
6.4. Recommendations 7

7.0 REFERENCES 7

LIST OF TABLES

Table 1. Summary of Groundwater Field Parameters
Table 2. Summary of Groundwater Level Measurements
Table 3. Summary of Chemical Analytical Results – Soil, PAHs
Table 4. Summary of Chemical Analytical Results – Groundwater
Table 5. Summary of Chemical Analytical Results – Groundwater, PAHs

LIST OF FIGURES

Figure 1. Vicinity Map
Figure 2. Site Plan and Sample Locations
Figure 3. Groundwater Elevation and Interpreted Flow Direction, May 20, 2015

APPENDICES

Appendix A. Field Methods and Boring Logs
Figure A-1 – Key to Exploration Logs
Figures A-2 and A-3 – Logs of Monitoring Wells
Appendix B. Laboratory Reports
Appendix C. Well Survey Report
Appendix D. Report Limitations and Guidelines for Use

ACRONYMS AND ABBREVIATIONS

bgs – below ground surface

BTEX – benzene, toluene, ethylbenzene and xylene

Cascade Drilling – Cascade Drilling, L.P.

CLARC – Cleanup Level and Risk Calculation

COC – chain-of-custody

cPAH – carcinogenic polycyclic aromatic hydrocarbon

DO – dissolved oxygen

DOT – Department of Transportation

DRPH – diesel-range petroleum hydrocarbons

Ecology – Washington State Department of Ecology

EDB – ethylene dibromide

Environmental West – Environmental West Exploration, Inc.

EPA – Environmental Protection Agency

ESA – environmental site assessment

ev – electron volt

GeoEngineers – GeoEngineers, Inc.

GPS – global positioning system

GRPH – gasoline-range petroleum hydrocarbons

IDW – Investigation-derived waste

LCS – laboratory control sample

LCSD – laboratory control sample duplicate

mm - millimeter

MRL – Method Reporting Limit

MS – matrix spike

MSD – matrix spike duplicate

MTBE – methyl tertiary butyl ether

MTCA – Model Toxics Control Act

NAD83 – North American Datum of 1983

NAVD88 – North American Vertical Datum of 1988

ntu – nephelometric turbidity units

ORP – oxidation reduction potential

ACRONYMS AND ABBREVIATIONS (CONTINUED)

PAH – polycyclic aromatic hydrocarbons

PID – photoionization detector

PLS – PLS, Inc.

POTW – Publicly Owned Treatment Works

ppm – parts per million

PVC – polyvinyl chloride

QA/QC – Quality Assurance/Quality Control

RPD – relative percent difference

SDG – sample delivery group

SG – silica gel

TestAmerica – TestAmerica Laboratories, Inc.

TOC – total organic carbon

µg/L – micrograms per liter

UST – underground storage tank

VOCs – volatile organic compounds

WAC – Washington Administrative Code

1.0 INTRODUCTION

This report describes soil assessment activities conducted in April 2015 at the Tiger Oil – East Nob Hill site at 1606 East Nob Hill Boulevard in Yakima, Washington (herein designated "site"). Activities conducted as part of the assessment included installing two groundwater monitoring wells, collecting soil samples from the monitoring well borings and conducting the second quarter 2015 groundwater monitoring event at the new and existing wells. The site is located as shown in the attached Vicinity Map, Figure 1.

This report includes a brief site description, our scope of services, a description of field activities, a summary of chemical and analytical results, and our interpretations and recommendations. Assessment activities were conducted in general accordance with the approved work plan (GeoEngineers, 2014) and the supplemental work plan memo (GeoEngineers, 2015b). Our services were performed under Washington State Department of Ecology (Ecology) Contract No. C1100145, GeoEngineers Proposal No. 0504-101-02, dated February 24, 2015, and Work Assignment No. C11145RR.

2.0 SITE DESCRIPTION AND BACKGROUND

The Tiger Oil East Nob Hill property is located at 1606 East Nob Hill Boulevard in Yakima, Washington, as shown on Figure 1. The site operated as a retail gasoline station and bulk fuel storage area until closure in 2001. In 1980, a release of approximately 11,335 gallons of gasoline from product delivery lines was reported to Ecology. An Ecology estimate at the time indicated the release might have been as large as 23,000 gallons. As a response to the release, recovery wells were installed and approximately 10,000 gallons of product reportedly were recovered. The release reportedly contaminated at least nine drinking water wells to the east and southeast of the site, up to three blocks away. Gasoline also flowed into the public sanitary sewer system, resulting in a temporary closure of the Yakima Publicly Owned Treatment Works (POTW) until the flow of gasoline into the sewer system was stopped.

In 2005, 12 underground storage tanks (USTs) were removed from the property and underground fuel lines were drained and capped with quick setting cement (Tetra Tech, 2005). UST removal activities in 2005 found concentrations of gasoline-range petroleum hydrocarbons (GRPH), and diesel-range petroleum hydrocarbons (DRPH) in soil exceeding Model Toxics Control Act (MTCA) Method A cleanup criteria for unrestricted land use (Ecology, 2007). Benzene, toluene, ethylbenzene and total xylenes (BTEX) concentrations in soil were less than MTCA Method A cleanup criteria. Ecology records indicated the presence of a 4,000 gallon waste oil UST that was not located during the 2005 tank removal; this UST has not been located to date. A 3,500- to 4,000-gallon underground oil water separator also reportedly remains on-site.

GeoEngineers, Inc. (GeoEngineers) conducted additional assessment activities in 2014 to confirm the presence and extents of petroleum hydrocarbon contamination identified during the 2005 UST removal (GeoEngineers, 2015a). Additional assessment activities included advancing six direct-push borings, collecting groundwater samples from temporary wells installed in five of the direct-push borings where groundwater was encountered, excavating six test pits, confirming the presence of the subsurface oil water separator with NHTP-4, installing five groundwater monitoring wells with flush mount monuments, and conducting quarterly groundwater monitoring starting in September 2014. Exploration locations are shown on Site Plan and Sample Locations, Figure 2.

The results of the 2014 assessment activities did not indicate the presence of petroleum contamination in soil exceeding MTCA Method A cleanup criteria at the site. Laboratory analysis of groundwater collected from NHDP-4 using the Northwest Total Petroleum Hydrocarbon – Hydrocarbon Identification (NWTPH-HCID) method indicated a DRPH concentration of 1,500 micrograms per liter (µg/L); however the HCID method is not used to establish compliance with cleanup criteria, and is generally considered a qualitative test, to identify the presence of petroleum hydrocarbons. Petroleum hydrocarbons were not detected in grab groundwater samples from other borings using the NWTPH-HCID method. Groundwater sampling conducted at the site in September 2014, December 2014 and March 2015 has generally indicated that petroleum hydrocarbon concentrations in site monitoring wells is less than MTCA Method A cleanup criteria (GeoEngineers, 2015a, 2015c, 2015d).

3.0 SCOPE OF SERVICES

GeoEngineers prepared a Supplemental Work Plan, dated March 10, 2015, to guide assessment activities (GeoEngineers, 2015b). Site assessment activities included:

- Installing two groundwater monitoring wells (NHMW-6 and NHMW-7);
- Observing and documenting subsurface soil conditions for each boring;
- Conducting field screening activities and collecting soil samples from the explorations;
- Developing the new groundwater monitoring wells using surge and purge techniques;
- Submitting selected soil samples for laboratory chemical analysis;
- Surveying the new groundwater monitoring wells for horizontal and vertical references;
- Collecting groundwater samples from the NHMW-6 and NHMW-7 during the second quarter 2015 groundwater monitoring event; and
- Preparing investigation-derived waste (IDW) for disposal.

4.0 FIELD ACTIVITIES

NHMW-6 and NHMW-7 were installed and developed on April 8, 2015. Environmental West Exploration, Inc. (Environmental West) installed the monitoring wells and GeoEngineers provided oversight and documentation for the installation. PLS, Inc. (PLS) surveyed the wells on April 30, 2015 to establish horizontal and vertical coordinates. The five existing wells (NHMW-1 through NHMW-5) and two new wells (NHMW-6 and NHMW-7) were sampled on May 20, 2015. Detailed descriptions of the well installations and second quarter 2015 groundwater monitoring event are provided below.

4.1. Monitoring Well Installation

Two groundwater monitoring wells (NHMW-6 and NHMW-7) were installed at the site on April 8, 2015 using a Schramm sonic drill rig operated by Environmental West. Wells were installed by advancing a 4-inch-diameter core barrel inside a 6-inch-diameter casing. Approximate well locations are provided on Figure 2 and detailed well installation logs are provided in Appendix A (Key to Exploration Log, Figure A-1 and Logs of Monitoring Wells, Figures A-2 and A-3). In general, GeoEngineers followed the process below:

- Notified the Call-Before-You-Dig utility notification service before beginning drilling activities.
- Subcontracted Utilities Plus, LLC to locate potential utilities near each explorations before drilling.
- Subcontracted Environmental West to drill and construct the groundwater monitoring wells.
- Observed and documented subsurface soil conditions for each monitoring well.
- Collected continuous soil samples during drilling. Select 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 the groundwater monitoring wells using surging and pumping techniques.
- Submitted two soil samples (one from each well location) to TestAmerica Laboratories, Inc. (TestAmerica) for chemical analysis.
- Contracted with PLS to complete a horizontal and vertical survey of the wells.

NHMW-6 was advanced to a depth of approximately 26.5 feet below ground surface (bgs). During drilling, water was encountered at approximately 18.6 feet bgs. The well was installed using 2-inch-diameter, schedule 40 polyvinyl chloride (PVC) pipe and screened from 11 to 26 feet bgs.

NHMW-7 was advanced to a depth of approximately 25 feet bgs. During drilling water was encountered at approximately 18 feet bgs. The well was installed using 2-inch-diameter, schedule 40 PVC pipe and screened from 10 to 25 feet bgs.

Wells were packed with silica-sand up to 1 foot above the screen, sealed with bentonite chips to 2 feet bgs and then capped with a cement well monument for the remaining 2 feet. Wells were developed by Environmental West on April 8, 2015 using surge and purge methods. Soil cuttings and development water from the investigation were drummed, labeled and stored on the subject property pending profiling and disposal.

Discrete soil samples were collected for each monitoring well. Soil samples were field-screened to evaluate for petroleum hydrocarbons, using a PID and sheen pan. One soil sample from each well location was selected for chemical analysis by TestAmerica, based on the results of the field screening. If no obvious signs of contamination were present, the sample collected just above the observed water level was submitted for analysis. Soil samples were placed into coolers containing ice and then delivered to TestAmerica under chain-of-custody (COC) for chemical analysis.

The two new groundwater monitoring wells installed at the site were surveyed on April 30, 2015 by PLS. The north edge of the top of the PVC casing, and north side of the top of the well monument were surveyed for horizontal and vertical coordinates relative to North American Datum of 1983 (NAD83) Washington South Zone and North American Vertical Datum of 1988 (NAVD88), respectively. PLS also marked the north side of each well casing for future depth to groundwater measurements. Well survey information is provided in Appendix C.

4.2. Subsurface Conditions

In general, the site is paved with exposed soil areas located where the former USTs were removed. Varying amounts of base gravels, silts, sands and gravels are present beneath the pavement, with the predominant soil type consisting of rounded gravel with sand.

4.3. Groundwater Monitoring

Groundwater monitoring wells NHMW-1 through NHMW-7 were sampled in general accordance with the supplemental work plan (GeoEngineers, 2015b) on May 20, 2015. This was the fourth event for wells NHMW-1 through NHMW-5 and the first event for NHMW-6 and NHMW-7.

4.3.1. Monitoring Well Headspace Vapor Monitoring

Monitoring well headspace vapors were measured using a PID. Headspace measurements were collected by inserting the PID probe into the well casing immediately after removing the well cap and recording the maximum observed concentration. Headspace vapor concentrations in NHMW-1 through NHMW-7 ranged from 8.0 to 40.1 parts per million (ppm), as shown in Summary of Groundwater Field Parameters, Table 1. PID measurements in the upgradient well (NHMW-1) were 29.9 ppm. The consistently elevated PID readings for each of the site groundwater monitoring wells indicates a possible faulty PID or calibration error when compared to previous events.

4.3.2. Groundwater Elevation Monitoring

Static depth to groundwater was measured in groundwater monitoring wells NHMW-1 through NHMW-7 using an electronic water level indicator. Depth to groundwater ranged from 14.65 feet (MW-5) to 17.05 feet (MW-3) below the top of well casing, as shown in Summary of Groundwater level Measurements, Table 2. Groundwater elevations ranged from about 1,004.78 feet in NHMW-5 to 1,006.14 feet in NHMW-1 and NHMW-2 relative to the NAVD88. Groundwater increased an average of approximately 2 feet in elevation when compared to the March 2015 monitoring event.

Based on groundwater elevations measured on May 20, 2015 groundwater flow in the shallow unconfined aquifer beneath the property generally was toward the southeast, as shown in Groundwater Elevation and Interpreted Flow Direction May 20, 2015, Figure 3. The estimated hydraulic groundwater gradient of the shallow aquifer beneath the site was about 0.002 feet per foot (about 11 feet per mile).

4.3.3. Groundwater Sampling

Groundwater monitoring wells were purged and sampled using dedicated tubing, a peristaltic pump and in general accordance with standard low-flow sampling methodology (Environmental Protection Agency [EPA], 1996). Groundwater quality parameters were usually measured at 3-minute intervals during well purging and samples were generally collected when water quality parameter stabilized in conformance with the criteria presented in Appendix A or 30 minutes of purging had elapsed.

Laboratory prepared sample containers were filled, placed into a cooler on ice and submitted to the analytical laboratory for chemical analysis. One sample from each well was measured for soluble ferrous iron (Fe^{2+}) in the field using a Hach IR-18C color disc test kit and the 1,10 phenanthroline testing method. A duplicate sample was collected from NHMW-2. Groundwater chemical analytical results are discussed in "Section 5.2". Groundwater field parameters are provided in Table 1. Purge water generated during

groundwater sampling was drummed, labeled and stored on the subject property pending profiling and disposal.

5.0 CHEMICAL ANALYTICAL RESULTS

5.1. Soil Chemical Analytical Results

Two soil samples (one sample from each well installation) were submitted to TestAmerica for chemical analysis. Soil samples from the monitoring well installations were submitted or the following chemical analyses:

- GRPH (NWTPH-Gx);
- DRPH (NWTPH-Dx);
- BTEX (EPA 8260C);
- Naphthalene and methyl tertiary butyl ether (MTBE) (EPA 8260C);
- Polycyclic aromatic hydrocarbons (PAHs) (EPA 8270D); and
- Total lead (EPA 6010/7000).

Soil samples from NHMW-6 and NHMW-7 were collected on April 8, 2015 and received by TestAmerica on April 9, 2015. Soil samples were kept in ice filled coolers between sampling and delivery to the analytical laboratory. The temperature of the cooler was approximately 3.7 degrees Celsius (°C) when it was received by the laboratory.

Soil analytical results are summarized and compared to MTCA Method A cleanup criteria in Summary of Chemical Analytical Results – Soil, PAHs, Table 3. Carcinogenic PAH (cPAH) results are provided in Table 3. Chemical constituents analyzed for each of the two monitoring well borings were not detected. Laboratory analytical reports are included in Appendix B.

5.2. Groundwater Chemical Analytical Results

Groundwater samples were collected from NHMW-1 through NHMW-7 on May 20, 2015 and received by TestAmerica for chemical analysis on May 21, 2015. The temperature of the cooler was approximately 0.9°C when it was received by the laboratory. Groundwater samples were kept in iced coolers between sampling and delivery to the analytical laboratory. Groundwater samples were submitted for the following chemical analyses:

- GRPH (NWTPH-GX);
- DRPH (NWTPH-DX, with and without silica gel);
- Volatile organic compounds (VOCs) (EPA 8260c);
- PAHs (EPA 8270D);
- Total Lead (EPA 200.7);
- Ethylene dibromide (EDB) (EPA 8011);
- Total organic carbon (TOC) (SM5310B); and

- Nitrate and sulfate (EPA 300).

Chemical analytical results are summarized and compared to MTCA Method A cleanup levels in Table 4. PAH analytical results are summarized and compared to MTCA Method A cleanup levels in Summary of Chemical Analytical Results – Groundwater, PAHs, Table 5. Groundwater samples and chemical constituents analyzed for each of the monitoring wells and duplicate were either not detected or detected at concentrations below MTCA Method A cleanup criteria for the May 20, 2015 event.

DRPH was detected in the duplicate for NHMW-2 but was less than MTCA Method A cleanup levels. DRPH was not detected in the primary sample for NHMW-2. Chloroform was detected in groundwater monitoring wells NHMW-1 through NHMW-7. Chloroform concentrations ranged from 1.4 µg/L (NHMW-2) to 2.0 µg/L (NHMW-3 and NHMW-7). These concentrations are equal to or greater than the chloroform groundwater MTCA Method B cleanup criteria for cancer of 1.41 µg/L for all wells (Cleanup Levels and Risk Calculation [CLARC], 2014). Laboratory analytical reports are included in Appendix B.

6.0 SUMMARY, INTERPRETATIONS AND RECOMMENDATIONS

6.1. Soil Assessment

Observed subsurface conditions below surface treatments generally indicate the site is underlain by gravels and cobbles with variable (but generally low) percentages of sand and silt to the extents of the explorations (26 feet).

6.2. Groundwater Assessment

Depth to groundwater was measured at the seven groundwater monitoring wells in May 2015. Based on groundwater elevations measured on May 2015, groundwater flow in the shallow unconfined aquifer beneath the property generally was toward the southeast (Figure 3). Estimated hydraulic gradient of the project area was about 0.002 feet per foot (about 11 feet per mile).

6.3. Chemical Analytical Results and Interpretations

6.3.1. Soil

Soil analytical results from NHMW-6 and NHMW-7 do not indicate the presence of petroleum hydrocarbons at concentrations exceeding MTCA Method A unrestricted land use cleanup criteria.

6.3.2. Groundwater

Groundwater sampling conducted in September 2014, December 2014, March 2015 and May 2015 has indicated that concentrations of contaminants of concern are less than MTCA Method A cleanup criteria in groundwater with the following exceptions:

- DRPH exceeded MTCA Method A cleanup criteria in NHMW-2 for the December 2014 event; and
- Chloroform exceeded MTCA Method B cleanup criteria for cancer risks in groundwater monitoring wells NHMW-1, NHMW-3 and NHMW-5 in December 2014, NHMW-1 through NHMW-5 in March 2015 and NHMW-1 through NHMW-7 in May 2015.

It should be noted that the DRPH concentration observed in NHMW-2 during the December 2014 groundwater monitoring event was qualified by the analytical laboratory as "detected hydrocarbons in the diesel-range do not have a distinct diesel pattern and may be due to heavily weathered diesel or possibly biogenic interference". The December 2014 groundwater sample from NHMW-2 was also analyzed for DRPH using the silica gel cleanup method. The results of the silica gel cleanup analysis were less than MTCA Method A cleanup criteria. The silica gel cleanup results were also qualified by the lab as "Hydrocarbon pattern most closely resembles heavily weathered diesel". Subsequent sampling in March and May of 2015 did not show DRPH concentrations exceeding MTCA Method A cleanup criteria.

Chloroform concentrations in groundwater samples collected from NHMW-1 though NHMW-7 have generally demonstrated the presence of chloroform in groundwater during the four groundwater monitoring events with the exception of NHMW-2 in September 2014 and NHMW-4 in December 2014. Groundwater samples collected and analyzed from each of the seven groundwater monitoring wells have exceeded MTCA Method B criteria (CLARC, 2014) at least once in each well. The persistence presence of chloroform in groundwater in both upgradient and downgradient wells indicates a potential off-site source.

Chloroform is typically a disinfection by-product commonly produced during the chlorination of water and is also present in wastewater (Ivahnenko, et al., 2006). The presence of chloroform in groundwater samples collected from site monitoring wells might be the result of leaking subsurface sewers, leaking water distribution lines or possible contamination at the laboratory, although the latter is less likely given the persistence of chloroform throughout each groundwater monitoring event and the absence of chloroform from the laboratory quality control samples.

6.4. Recommendations

Soil contamination was not observed at concentrations greater than MTCA Method A cleanup criteria collected from the site. Groundwater monitoring at the site has generally indicated that concentrations of contaminants of concern are less than MTCA Method A cleanup criteria. DRPH exceeded Method A cleanup criteria during one groundwater monitoring event. Chloroform has exceeded MTCA Method B cleanup criteria multiple times during the four quarters of groundwater monitoring. Therefore, we recommend the following:

- Continued groundwater monitoring for three additional quarters in order to collect four quarters of groundwater monitoring from new monitoring wells NHMW-6 and NHMW-7.
- Issuance of a No Further Action notice and site closure if additional groundwater monitoring does not indicate the presence of petroleum contamination.
- Notify the City of Yakima Utilities Department that chloroform detected in groundwater may be the result of leaking pipes and the sewer and water distribution lines in the area should be evaluated.

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TABLES

GeoEngineers

Table 1

Summary of Groundwater Field Parameters[1]

Tiger Oil East Nob Hill
Yakima, Washington

Well Number	Date Collected	pH	Temperature (°C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	ORP - Field[2] (mV)	ORP Normalized[3] (mV)	Turbidity (NTU)	Soluble Ferrous Iron (mg/L)	Monitoring Well Headspace[4] (ppm)
NHMW-1	09/15/14	6.58	17.70	0.19	7.10	301	502	0.54	0.0	0.3
	12/08/14	6.77	15.33	0.16	6.80	271	474	0.10	0.0	0.0
	03/31/15	6.54	15.70	0.19	5.58	82	285	0.53	0.0	0.3
	05/20/15	6.52	15.38	0.14	NR	157	360	0.00	0.0	29.9[6]
NHMW-2	09/15/14	6.48	17.36	0.19	3.64	476	678	0.95	0.0	0.2
	12/08/14	6.40	16.05	0.18	2.40	172	375	0.10	0.0	0.1
	03/31/15	6.47	15.51	0.30	3.85	147	350	3.65	0.0	0.1
	05/20/15	6.50	17.14	0.17	NR	148	350	4.20	0.0	34.8[6]
NHMW-3	09/15/14	6.52	16.62	0.20	6.30	508	710	0.16	0.0	0.3
	12/08/14	6.51	15.81	0.17	5.60	193	396	1.02	0.0	0.0
	03/31/15	6.50	14.88	0.22	4.26	134	338	0.02	0.0	0.5
	05/20/15	6.53	15.50	0.19	NR	159	362	4.70	0.0	8.0[6]
NHMW-4	09/15/14	6.52	16.71	0.19	6.95	196	398	0.12	0.0	0.2
	12/08/14	6.57	15.10	0.16	6.45	217	421	1.00	0.0	0.0
	03/31/15	6.52	15.23	0.19	5.43	131	334	1.06	0.0	0.0
	05/20/15	6.56	16.23	0.14	NR	147	350	69.50	0.0	16.4[6]
NHMW-5	09/15/14	6.82	16.21	0.19	5.91	516	719	2.50	0.0	0.1
	12/08/14	6.56	15.45	0.17	5.48	248	451	2.72	0.0	0.0
	03/31/15	6.50	14.80	0.22	4.88	114	318	0.36	0.0	0.0
	05/20/15	6.38	15.62	0.21	NR	175	378	7.40	0.2	26.2[6]
NHMW-6	05/20/15	6.44	15.95	0.18	NR	170	373	12.40	0.0	40.1[6]
NHMW-7	05/20/15	6.51	17.21	0.15	NR	160	362	20.10	0.0	15.7[6]

Notes:

[1]Reported water quality parameters reflect stabilized conditions at the conclusion of well purging during low-flow sampling.

[2]Field ORP values are relative to the reference electrode associated with the multi-parameter meter.

[3]Normalized ORP values have been normalized, using algorithms provided by the instrument manufacturer, to the standard hydrogen electrode (SHE).

[4]Well headspace measurements were obtained using a photoionization detector immediately upon removal of the well's compression cap.

[5]Field DO readings not reported (NR) because of a possible equipment malfunction

[6]Field PID readings indicate a possible equipment malfunction or calibration error

ORP = Oxidation reduction potential; °C = degrees Celsius; mS/cm = millisiemens per centimeter; mg/L = milligrams per liter; mV = millivolts; NTU = nephelometric turbidity units; ppm = parts per million

Table 2

Summary of Groundwater Level Measurements

Tiger Oil East Nob Hill

Yakima, Washington

Well Number	Grid Northing[1] (feet)	Grid Easting[1] (feet)	Top of Casing Elevation[2] (feet)	Screen Elevation[2] (feet)	Date Measured	Depth to Groundwater[3] (feet)	Groundwater Elevation[2] (feet)	Change in Groundwater Elevation[4] (feet)
NHMW-1	456506.7	1645362.3	1,021.92	1009.9 to 999.9	09/15/14	13.40	1,008.52	NA
					12/08/14	15.89	1,006.03	-2.49
					03/31/15	17.89	1,004.03	-2.00
					05/20/15	15.78	1,006.14	2.11
NHMW-2	456313.2	1645453.8	1,022.14	1010.1 to 1000.1	09/15/14	13.67	1,008.47	NA
					12/08/14	16.12	1,006.02	-2.45
					03/31/15	18.17	1,003.97	-2.05
					05/20/15	16.00	1,006.14	2.17
NHMW-3	456202.2	1645683.2	1,022.18	1010.2 to 1000.2	09/15/14	14.98	1,007.20	NA
					12/08/14	17.13	1,005.05	-2.15
					03/31/15	18.94	1,003.24	-1.81
					05/20/15	17.05	1,005.13	1.89
NHMW-4	456197.6	1645482.7	1,021.31	1009.3 to 999.3	09/15/14	13.56	1,007.75	NA
					12/08/14	15.85	1,005.46	-2.29
					03/31/15	17.84	1,003.47	-1.99
					05/20/15	15.79	1,005.52	2.05
NHMW-5	455792.4	1645698.2	1,019.43	1009.4 to 999.4	09/15/14	12.49	1,006.94	NA
					12/08/14	14.65	1,004.78	-2.16
					03/31/15	16.45	1,002.98	-1.80
					05/20/15	14.65	1,004.78	1.80
NHMW-6	456309.0	1645657.3	1,021.80	1010.3 to 995.3	05/20/15	16.49	1,005.31	NA
NHMW-7	456418.2	1645440.3	1,021.55	1011.6 to 996.6	05/20/15	15.42	1,006.13	NA

Notes:

[1]Grid northing and easting are referenced to NAD83, Washington State Plane Coordinate System, South Zone.

[2]Elevations are referenced to the North American Vertical Datum of 1988 (NAVD88). Well screen elevations are referenced to the nearest 0.1 foot; other elevations are referenced to the nearest 0.01 foot.

[3]Depth to water measurements obtained from the north side of the top of PVC well casing.

[4]Represents change in groundwater elevation from previous monitoring event, as measured in monitoring wells.

NA = Not Applicable

Table 3

Summary of Chemical Analytical Results - Soil, PAHs[1]

Tiger Oil East Nob Hill
Yakima, Washington

Boring Sample Depth (feet) Date Sampled	MCTA Method A Unrestricted Land Use CUL[2]	Toxicity Equivalent Factor	NHMW-6 18-18.5 04/08/15	NHMW-7 17.5-18 04/08/15
Method EPA 8260C - NWTPH-Gx and Volatile Organic Compounds (mg/kg)				
Gasoline-range hydrocarbons	30/100[3]	-	<4.6	<3.2
Benzene	0.03	-	<0.014	<0.0095
Ethylbenzene	6	-	<0.091	<0.063
Methyl tert-butyl ether	0.1	-	<0.046	<0.032
Naphthalene	5[4]	-	<0.18	<0.13
Toluene	7	-	<0.091	<0.063
o-Xylene	9[5]	-	<0.18	<0.13
m,p-Xylene		-	<0.37	<0.25
Xylenes (total)		-	<0.55	<0.38
Method NWTPH-Dx - Semivolatile Petroleum Products (mg/kg)				
Diesel-range hydrocarbons	2,000	-	<9.9	<11
Heavy oil-range hydrocarbons	2,000	-	<25	<26
Method EPA 6010C - Metals Content (mg/kg)				
Lead	250	-	<8.8	<10
Carcinogenic PAHs (µg/kg)				
Benzo(a)anthracene	NE	0.1	<10	<11
Benzo(a)pyrene	100	1	<10	<11
Benzo(b)fluoranthene	NE	0.1	<10	<11
Benzo(k)fluoranthene	NE	0.1	<10	<11
Chrysene	NE	0.01	<10	<11
Dibenzo(a,h)anthracene	NE	0.1	<10	<11
Indeno(1,2,3-cd)pyrene	NE	0.1	<10	<11
cPAH TEQ[6]	100	-	<8	<8
Naphthalene	5,000[4]	-	<10	<11
2-Methylnaphthalene	NE	-	<10	<11
1-Methylnaphthalene	NE	-	<10	<11
Acenaphthylene	NE	-	<10	<11
Acenaphthene	NE	-	<10	<11
Fluorene	NE	-	<10	<11
Phenanthrene	NE	-	<10	<11
Anthracene	NE	-	<10	<11
Fluoranthene	NE	-	<10	<11
Pyrene	NE	-	<10	<11
Benzo(ghi)perylene	NE	-	<10	<11

Notes:

[1] Chemical analyses conducted by TestAmerica of Spokane, Washington. Polycyclic aromatic hydrocarbons (PAHs) analyzed using Environmental Protection Agency (EPA) Method 8270D by TestAmerica Laboratories, Inc., in Spokane, Washington.

[2] Regulatory level refers to Washington State Model Toxics Control Act (MTCA) Method A cleanup level for unrestricted land use unless otherwise footnoted.

[3] Gasoline-range petroleum hydrocarbon cleanup levels in soil are 30 mg/kg when benzene is detected at the site and 100 mg/kg when benzene is not detected at the site.

[4] Cleanup level refers to sum of 1-methylnaphthalene, 2-methylnaphthalene and naphthalene.

[5] Cleanup level for total xylenes.

[6] Carcinogenic PAH (cPAH) toxic equivalency (TEQ) calculated using toxicity equivalency factors (TEF) from MTCA Table 708-2, based on methodology described in MTCA Cleanup Regulation WAC 173-340-708. One half the reporting limit was used to calculate the TEQ.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram

Table 4

Summary of Chemical Analytical Results - Groundwater[1]

Tiger Oil East Nob Hill
Yakima, Washington

Boring or Well ID	Regulatory	NHMW-1				NHMW-2				Duplicate (MW-2)	NHMW-3				NHMW-4	
Date Sampled	Levels[2]	09/15/14	12/08/14	03/31/15	05/20/15	09/15/14	12/08/14	03/31/15	05/20/15	05/20/15	09/15/14	12/08/14	03/31/15	05/20/15	09/15/14	12/08/14
Method NWTPH-Gx - Gasoline Range (µg/L)																
Gasoline-range hydrocarbons	800/1,000[3]	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Method NWTPH-Dx - Diesel Range (mg/L)																
Diesel-range hydrocarbons	0.5	<0.229	<0.231	<0.24	<0.23	**0.388**	**1.64 J**	**0.33**	<0.24	**0.27**	<0.229	<0.230	<0.24	<0.25	<0.229	<0.230
Diesel-range hydrocarbons w/silica gel	0.5	NT	NT	NT	NT	<0.229	**0.358 J**	<0.25	NT	<0.25	NT	NT	NT	NT	NT	NT
Heavy oil-range hydrocarbons	0.5	<0.382	<0.386	<0.39	<0.39	<0.382	<0.386	<0.41	<0.40	<0.41	<0.382	<0.383	<0.39	<0.42	<0.381	<0.384
Heavy oil-range hydrocarbons w/silica gel	0.5	NT	NT	NT	NT	<0.382	<0.386	<0.41	NT	<0.41	NT	NT	NT	NT	NT	NT
Method EPA 8011 - EDB (µg/L)																
1,2-Dibromoethane (EDB)	0.01	NT	<0.0100	<0.010	<0.010	NT	<0.0100	<0.010	<0.010	<0.010	NT	<0.0100	<0.010	<0.010	NT	<0.0100
Method EPA 8260 - VOCs (µg/L)[4]																
1,2-Dichloroethane (EDC)	5	<1.00	<1.00	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.00	<1.00
Benzene	5	<0.200	<0.200	<0.20	<0.20	<0.200	<0.200	<0.20	<0.20	<0.20	<0.200	<0.200	<0.20	<0.20	<0.200	<0.200
Ethylbenzene	700	<1.00	<1.00	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.00	<1.00
Methyl t-butyl ether (MTBE)	20	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	160	<2.00	<2.00	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	1,000	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, m-,p-	1,000[5]	<2.00	<2.00	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Xylene, o-		<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	1.41[6]	**1.34**	**1.94**	**2.2**	**1.6**	<1.00	**1.02**	**1.6**	**1.4**	**1.4**	**1.13**	**1.60**	**2.1**	**2.0**	**1.32**	<1.00
Metals Method EPA 200.7 - Total Lead (mg/L)																
Lead	0.015	NT	<0.0140	<0.014	<0.014	NT	<0.0140	<0.014	<0.014	<0.014	NT	<0.0140	<0.014	<0.014	NT	<0.0140
Conventionals (mg/L)																
Nitrate-nitrogen	10[7]	**2.49**	**2.36**	**3.1**	**2.4**	**1.82**	**1.23**	**3.7**	**2.7**	**2.7**	**2.92**	**2.35**	**2.6**	**2.8**	**2.51**	**2.26**
Sulfate	250[8]	**9.48**	**9.13**	**10**	**9.1**	**14.4**	**13.2**	**15**	**15**	**15**	**13.1**	**11.0**	**12**	**16**	**10.5**	**9.31**
Total organic carbon	NE	**1.30**	<1.00	**1.0**	<1.0	**2.47**	**5.24 J**	**1.7**	**1.5**	**1.5**	**1.30**	<1.00	**1.1**	<1.0	**1.31**	<1.00

Boring or Well ID / Date Sampled	Regulatory Levels[2]	NHMW-4		NHMW-5				NHMW-6	NHMW-7
		03/31/15	05/20/15	09/15/14	12/08/14	03/31/15	05/20/15	05/20/15	05/20/15
Method NWTPH-Gx - Gasoline Range (µg/L)									
Gasoline-range hydrocarbons	800/1,000[3]	<100	<100	<100	<100	<100	<100	<100	<100
Method NWTPH-Dx - Diesel Range (mg/L)									
Diesel-range hydrocarbons	0.5	<0.23	<0.24	<0.230	<0.232	<0.23	<0.24	<0.24	<0.23
Diesel-range hydrocarbons w/silica gel	0.5	NT	NT	NT	NT	<0.23	NT	NT	NT
Heavy oil-range hydrocarbons	0.5	<0.39	<0.40	<0.383	<0.387	<0.39	<0.40	<0.40	<0.39
Heavy oil-range hydrocarbons w/silica gel	0.5	NT	NT	NT	NT	<0.39	NT	NT	NT
Method EPA 8011 - EDB (µg/L)									
1,2-Dibromoethane (EDB)	0.01	<0.010	<0.010	NT	<0.0100	<0.010	<0.010	<0.010	<0.010
Method EPA 8260 - VOCs (µg/L)[4]									
1,2-Dichloroethane (EDC)	5	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0
Benzene	5	<0.20	<0.20	<0.200	<0.200	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	700	<1.0	<1.0	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0
Methyl t-butyl ether (MTBE)	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	160	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene, m-,p-	1,000[5]	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Xylene, o-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	1.41[6]	**2.2**	**1.7**	**1.16**	**1.48**	**2.2**	**1.8**	**1.9**	**2.0**
Metals Method EPA 200.7 - Total Lead (mg/L)									
Lead	0.015	<0.014	<0.014	NT	<0.0140	<0.014	<0.014	<0.014	<0.014
Conventionals (mg/L)									
Nitrate-nitrogen	10[7]	**2.7**	**2.5**	**2.78**	**2.42**	**2.8**	**3.2**	**3.2**	**2.5**
Sulfate	250[8]	**10**	**10**	**12.1**	**11.4**	**12**	**16**	**19**	**10**
Total organic carbon	NE	<1.0	<1.0	**1.32**	**5.43**	<1.0	<1.0	<1.0	<1.0

Notes:

[1]Chemical analyses conducted by TestAmerica of Spokane, Washington.

[2]Regulatory level refers to Washington State Model Toxics Control Act (MTCA) Method A cleanup level unless otherwise footnoted.

[3]Cleanup level for GRPH is 800 µg/L when benzene is present, 1,000 µg/L when benzene is not present.

[4]Only VOCs detected at concentrations greater than their reporting limits or of interest are listed in the table. For a complete list of VOCs analyzed see the laboratory analytical report, Appendix B.

[5]Cleanup level for total xylenes.

[6]MTCA Method B cancer cleanup level.

[7]Maximum contaminant level established by Title 40, Volume 19 of the Code of Federal Regulations.

[8]Secondary maximum contaminant level recommeded by the Environmental Protection Agency.

J/UJ flag indicates results are qualified as estimated. See data validation report from applicable quarterly report for additional information.

Bold indicates analyte concentration exceeds laboratory reporting limit. µg/L = micrograms per liter; NE = Not established; mg/L = milligrams per liter; NT = not tested

Red Bold and outline indicates analyte concentration exceeds referenced regulatory level.

Table 5

Summary of Chemical Analytical Results - Groundwater, PAHs[1]

Tiger Oil East Nob Hill
Yakima, Washington

		Carcinogenic PAHs																		
		Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	cPAH TEQ[2]	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(ghi)perylene
TEF[2]		**0.1**	**1**	**0.1**	**0.1**	**0.01**	**0.1**	**0.1**												
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
NHMW-1	09/15/14	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.07	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938	<0.0938
	03/31/15	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.07	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087
	05/20/15	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.07	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095
NHMW-2	09/15/14	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.07	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952
	03/31/15	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.07	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089
	05/20/15	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091	<0.07	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091	<0.091
Duplicate (NHMW-2)	09/15/14	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.07	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949	<0.0949
	03/31/15	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.07	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088
	05/20/15	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.07	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088	<0.088
NHMW-3	09/15/14	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.07	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962
	03/31/15	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.006	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085	<0.085
	05/20/15	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093	<0.07	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093	<0.093
NHMW-4	09/15/14	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.07	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956	<0.0956
	03/31/15	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086	<0.006	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086	<0.086
	05/20/15	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.07	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
NHMW-5	09/15/14	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.07	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952
	03/31/15	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.07	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087
	05/20/15	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.07	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087	<0.087
NHMW-6	05/20/15	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.07	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089	<0.089
NHMW-7	05/20/15	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.07	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092	<0.092
MTCA Method A Unrestricted Land Use CUL[3]		NE	0.1	NE	NE	NE	NE	NE	0.1	160[4]			NE	NE	NE	NE	NE	NE	NE	NE

Notes:

[1]Polycyclic aromatic hydrocarbons (PAHs) analyzed using EPA Method 8270D by TestAmerica Laboratories, Inc., in Spokane, Washington.

[2]Carcinogenic PAH (cPAH) toxic equivalency (TEQ) calculated using toxicity equivalency factors (TEF) from MTCA Table 708-2, based on methodology described in MTCA Cleanup Regulation WAC 173-340-708. One half the reporting limit was used to calculate the TEQ.

[3]Model Toxics Control Act (MTCA) Method A unrestricted land use cleanup levels.

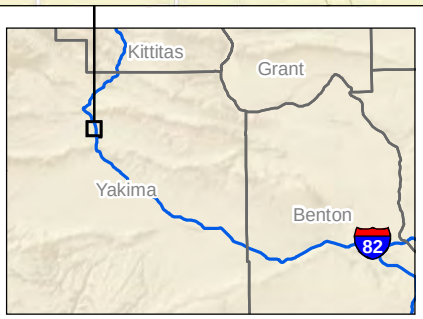
[4]Total value for naphthalene, 1-methylnaphthalene and 2-methylnaphthalene.

µg/L = micrograms per liter; NE = Not Established.

Bold indicates analyte concentration exceeds laboratory reporting limit.

FIGURES

GeoEngineers



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.
Base map from ESRI Data Online.
Projection: NAD 1983, UTM Zone 10 North.

Vicinity Map

Tiger Oil East Nob Hill
Yakima, Washington

GeoEngineers

Figure 1

Office: PORT Path: P:\0\0504101_GIS\MXD\050410100_F1_VM_ENH.mxd Map Revised: 11 September 2014 ccabrera

Legend

- NHMW-1 — Monitoring Well Number and Approximate Location
- NHDP-1 — Boring Number and Approximate Location
- NHTP-1 — Test Pit Number and Approximate Location
- Approximate Former Tank Pit Locations
- Approximate Site Feature Locations
- Approximate Property Boundary
- Sewer Pipes Approximate Location
- Water Pipes Approximate Location

N
W E
S

100 0 100
Feet

Data Source: Aerial base from ArcGIS Online.
Sewer and water pipes from City of Yakima GIS,
https://yakima.maps.arcgis.com/home/

Projection: NAD 1983 StatePlane Washington South FIPS 4602 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.

Site Plan and Sample Locations

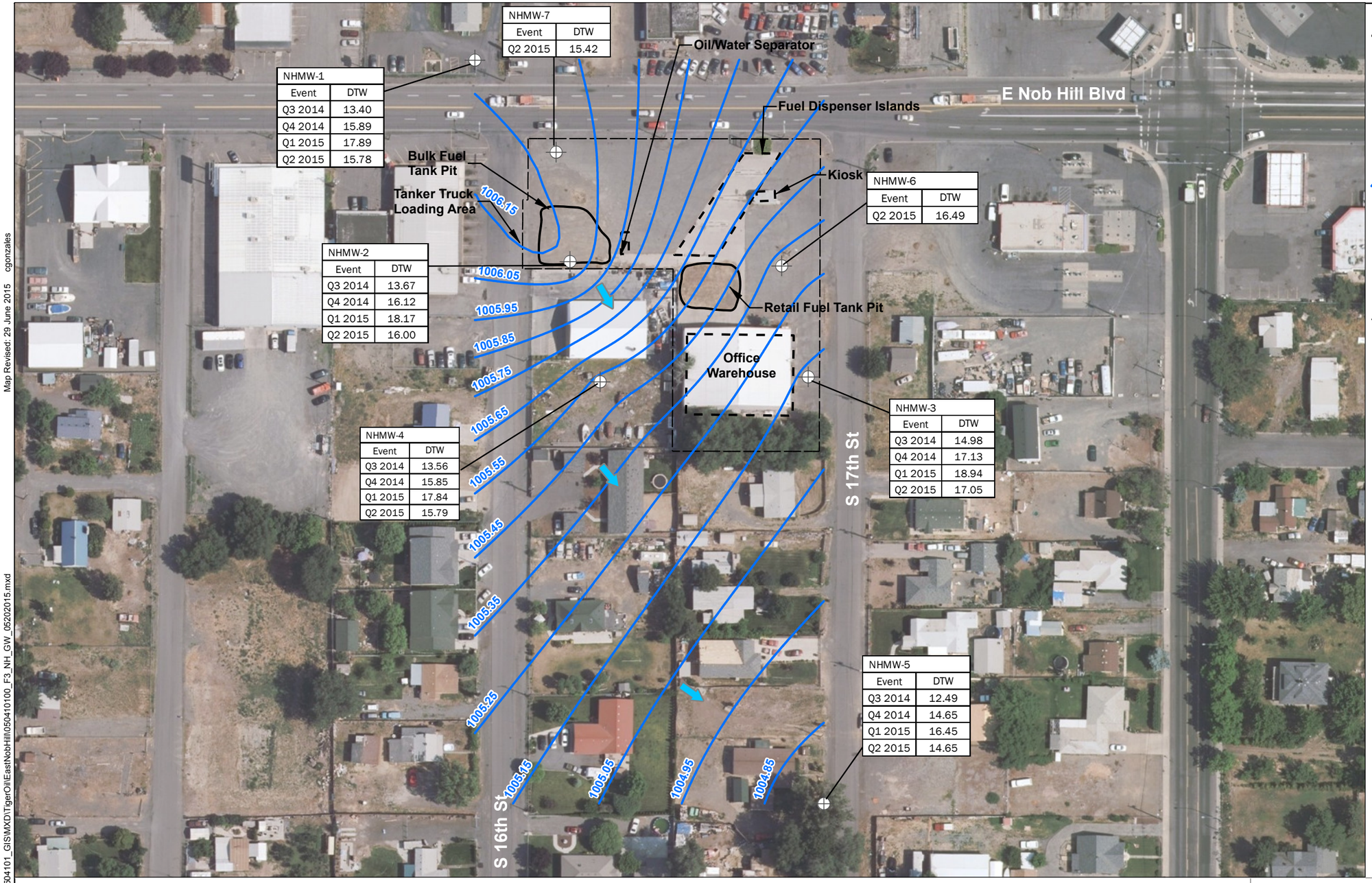
Tiger Oil East Nob Hill
Yakima, Washington

GeoEngineers

Figure 2

Map Revised: 23 June 2015 ccabrera

Office: PORT Path: P:\0\00504101_GIS\MXD\TigerOilEastNobHill\00504101100_F2_NH_Utilities.mxd



Map Revised: 29 June 2015 cgonzales

Office: PORT Path: \\pdx\projects\0\0504101_GIS\MXD\TigerOilEastNobHill\0504101_F3_NH_GW_05202015.mxd

Data Source: Aerial base from ArcGIS Online.

Projection: NAD 1983 StatePlane Washington South FIPS 4602 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. Groundwater elevations are referred to the North American Vertical Datum of 1988 (NAVD 88).
4. Groundwater elevations contours interpreted by Surfer Version 12.

Groundwater Elevation and Interpreted Flow Direction, May 20, 2015

Tiger Oil East Nob Hill
Yakima, Washington

GeoEngineers

Figure 3

APPENDICES

GeoEngineers

APPENDIX A
Field Methods and Boring Logs

APPENDIX A
FIELD METHODS AND BORING LOGS

General Soil Sampling Procedures

Soil samples were obtained using disposable nitrile gloves which were discarded after each use. Samples were placed in 4- or 8-ounce laboratory-supplied sample containers. Sample containers were filled to minimize headspace and labeled with a unique identification. Samples analyzed for VOCs were obtained using EPA Method 5035 sampling procedures. Samples were temporarily stored in an iced cooler before transfer to TestAmerica's Spokane Valley, Washington laboratory for analysis. COC protocols were followed.

Field Screening of Soil Samples

A GeoEngineers representative performed field screening of soil samples obtained during drilling activities. Field screening results are used as a general guideline to delineate depths with possible petroleum-related contamination. The screening methods used include: (1) visual screening; (2) water sheen screening; and (3) headspace vapor screening using a MiniRae PID calibrated to isobutylene.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons such as motor oil, or when hydrocarbon concentrations are high. Water sheen screening is a more sensitive method that has been effective in evaluating whether contaminant concentrations are less than regulatory cleanup guidelines.

Water sheen screening involves placing soil in water and observing the water surface for signs of sheen. Sheen screening might detect both volatile and nonvolatile petroleum hydrocarbons. Sheen classifications are as follows:

No Sheen	No visible sheen on water surface.
Slight Sheen	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil might produce a slight sheen.
Moderate Sheen	Light to heavy sheen; might have some color/iridescence; spread is irregular to flowing, might be rapid; few remaining areas of no sheen on water surface.
Heavy Sheen	Heavy sheen with color/iridescence; spread is rapid; entire water surface might 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. The probe of the PID was then inserted into the bag to measure VOCs in the air within the bag. 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 ppm, with a resolution of +/- 2 ppm.

Field screening results are site-specific. The effectiveness of field screening results will 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 petroleum hydrocarbons.

Monitoring Well Construction, Development and Surveying

The groundwater monitoring wells were constructed in general accordance with Chapter 173-160, Section 400 of the *Washington Administrative Code* (WAC), titled "Washington State Resource Protection Well Construction Standards." Monitoring well records were submitted in accordance with Washington State monitoring well construction standards. Monitoring well installations were observed and documented by a GeoEngineers' field representative.

The groundwater monitoring wells were installed using sonic drilling equipment and were constructed of 2-inch-diameter, Schedule 40 PVC casing and 0.01-inch slot width well screens. Well screen depths were based on groundwater conditions observed in the field such that the top of the shallow water table intercepted the well screen.

Each well was constructed with a bentonite seal and a flush-mount surface monument. A lockable cap was installed in the top of the PVC well casing. A concrete surface seal was placed around the monument at the ground surface to divert surface water away from the well location. Each well was developed using surging and pumping; wells were surged and then pumped until the development water was clear. This process was repeated until at least approximately five well volumes were removed from the well.

The monitoring well was developed to remove water introduced into the well during drilling (if any), stabilize the filter pack and formation materials surrounding the well screen, and restore the hydraulic connection between the well screen and the surrounding soil. The depth to water in the monitoring well was measured prior to development. The total depth of the well was measured and recorded. The groundwater monitoring wells were developed by pumping, surging, bailing or a combination of these methods after construction. Development of the well continued until the water was as free of sediment as practicable, with respect to the composition of the subsurface materials within the screened interval. The removal rate and amount of groundwater removed was recorded during the well development procedures. Development purge water was collected and stored on site.

The locations of the groundwater monitoring wells were established in the field using a hand-held iPad with global positioning system (GPS) software, and subsequently surveyed by a licensed surveyor after installation.

Depth to Groundwater

Depth to groundwater measurements from the new wells were collected and recorded in the field notebook after the water level stabilized. Depth to groundwater relative to the marked north side of the monitoring well casing rims was measured to the nearest 0.01 foot using an electronic water level indicator and recorded in the field notebook. Groundwater elevation was calculated by subtracting the depth-to-water measurement from the surveyed casing rim elevation. The electronic water level indicator was decontaminated with Liquinox® solution wash and a distilled water rinse prior to use in each well.

Low-Flow Sampling Procedures

Groundwater sampling was performed consistent with the EPA's low-flow groundwater sampling procedure, as described by EPA (EPA, 1996) and Puls and Barcelona (Puls, 1996). Monitoring well purging and sampling activities were accomplished using a Cole-Parmer Masterflex or GeoTech Environmental peristaltic pump and dedicated tubing. During purging activities, water quality parameters, including pH,

conductivity, temperature, oxidation reduction potential (ORP) and dissolved oxygen (DO), were measured using a Horiba U-22 multi-parameter meter equipped with a flow-through cell. Water quality measurements were recorded approximately every 3 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 generally were collected after (1) water quality parameters had stabilized; or (2) a maximum purge time of 30 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 for values greater than 5 nephelometric turbidity units (ntu);
- DO: ±10 percent for values greater than 0.5 milligrams per liter;
- Conductivity: ±3 percent;
- Temperature: ±3 percent; and
- ORP: ±10 millivolts.

After the groundwater quality stabilization criteria or maximum purge time 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. All groundwater samples collected for chemical analysis were kept cool during on-site storage and transport to the laboratory. COC procedures were observed during transport of the groundwater samples.

Location Control

The locations of the borings and groundwater monitoring wells were established in the field using a hand-held iPad with GPS software. The horizontal accuracy of the hand-held unit is within about 10 feet. After installation, horizontal and vertical locations of the groundwater monitoring wells were surveyed by a licensed professional surveyor and referenced to NAD83 and NAVD88, respectively. The horizontal coordinates of the groundwater monitoring wells and the elevation of the benchmark established at the site were determined using a Topcon GR-3 GPS receiver with a nominal accuracy of 10 millimeter (mm) + 1mm horizontal and 15mm + 1mm vertical. The elevation of the monitoring wells relative to the benchmark established at each site and were individually determined using a Leica DNA03 digital level with a vertical accuracy of +/- 0.01 feet.

Decontamination Procedures

The objective of the decontamination procedure was to minimize the potential for cross contamination between exploration locations and between individual samples within a specific exploration. A designated decontamination area was established for decontamination of drilling equipment and reusable sampling equipment. Drilling equipment was cleaned using pressure washing equipment.

Sampling or measurement equipment was decontaminated in accordance with the following procedures before each sampling attempt or measurement:

- Brush equipment with a wire brush, if necessary, to remove large particulate matter.
- Rinse with potable tap water.

- Wash with non-phosphate detergent solution (Liquinox® and potable tap water).
- Rinse with potable tap water.
- Rinse with distilled water.

Handling of Investigation-Derived Waste

IDW (drill cuttings and development and purge water), was placed in U.S. Department of Transportation (DOT) approved 55-gallon drums. The drums were labeled with the exploration number, general contents, and date. IDW generated on site was placed in drums and is pending pickup for disposal at an appropriate facility.

Disposable items, such as sample tubing, direct-push sampler acrylic sleeves, gloves and paper towels, etc., were placed in plastic bags after use and deposited in trash receptacles for disposal.

Laboratory Analytical Plan

Method Reporting Limit (MRL) goals were based on Ecology MTCA soil or groundwater cleanup criteria. The following methods were used for the soil and groundwater samples:

Soil

- GRPH (NWTPH-Gx);
- DRPH (NWTPH-Dx);
- BTEX (EPA 8260C);
- PAHs (EPA 8270D);
- Total Lead (EPA 6010C).

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

Sampler Symbol Descriptions

- **2.4-inch I.D. split barrel**
- **Standard Penetration Test (SPT)**
- **Shelby tube**
- **Piston**
- **Direct-Push**
- **Bulk or grab**
- **Continuous Coring**

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

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

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

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
	4/8/2015	4/8/2015	26.5	JML	JRS	Environmental West Explorations, Inc.	Sonic

Hammer Data		Drilling Equipment	S1 Schramm
Surface Elevation (ft)	1022.24	Top of Casing Elevation (ft)	1021.80
Vertical Datum	NAVD88		
Easting (X)	1645657.3	Horizontal Datum	NAD83/91; WA South Zone
Northing (Y)	456309		

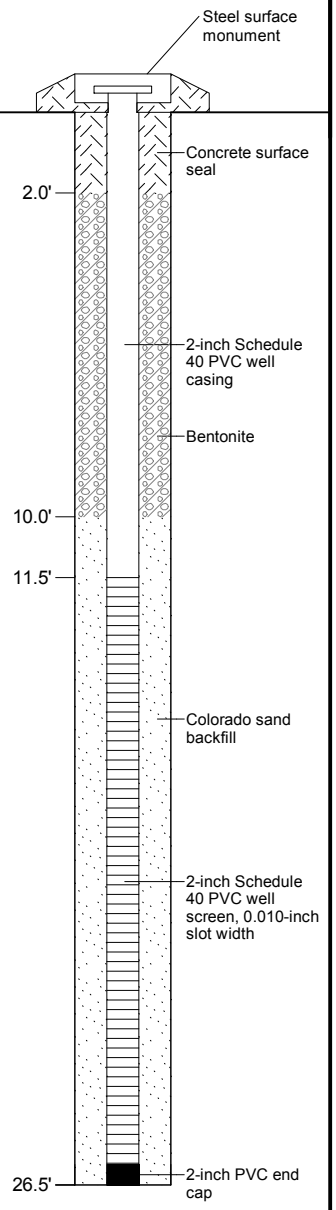
DOE Well I.D.: BHW-549
A 2 (in) well was installed on 4/8/2015 to a depth of 26.5 (ft).

Groundwater		
Date Measured	Depth to Water (ft)	Elevation (ft)
4/8/2015	18.6	1003.3

Notes: 6-inch-diameter borehole

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
1020	0		76						AC	Approximately 3 inches asphalt concrete pavement	NS	<1
									GP-GM	Brown fine to coarse gravel with silt and trace sand (medium dense, wet) (cobbles present)	NS	<1
									GP	Brown fine to coarse gravel with sand and trace silt (medium dense, moist) (cobbles present)	NS	<1
	5										NS	<1
1015											NS	<1
			84						GP	Brown fine to coarse gravel with trace silt and sand (medium dense, moist) (cobbles present)	NS	<1
	10										NS	<1
1010											NS	5.4
											NS	5.5
	15										NS	3.3
1005			48			NHMW-6 (18-18.5) CA	▼			Becomes wet		
	20										NS	<1
1000											NS	1.3
	25											

WELL LOG



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

Log of Monitoring Well NHMW-6

GeoEngineers

Project:	Tiger Oil - East Nob Hill
Project Location:	Yakima, Washington
Project Number:	0504-101-02

Figure A-2
Sheet 1 of 1

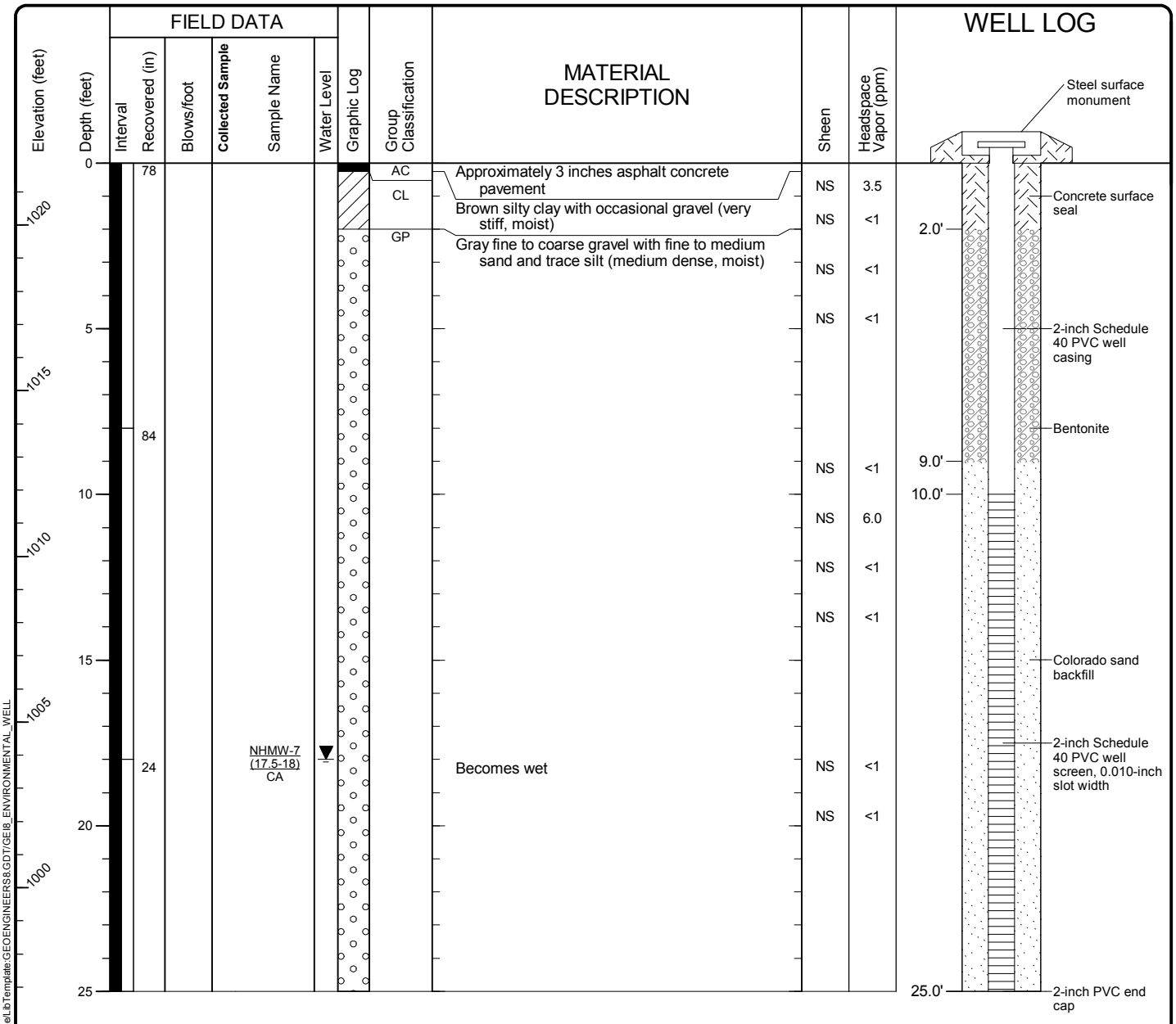
Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	4/8/2015	4/8/2015	25	JML	JRS	Environmental West Explorations, Inc.	Sonic

Hammer Data		Drilling Equipment	S1 Schramm
Surface Elevation (ft)	1021.87	Top of Casing Elevation (ft)	1021.55
Vertical Datum	NAVD88		
Easting (X)	1645440.3	Horizontal Datum	NAD83/91; WA South Zone
Northing (Y)	456418.2		

DOE Well I.D.: BHW-550
A 2 (in) well was installed on 4/8/2015 to a depth of 25 (ft).

Groundwater		
Date Measured	Depth to Water (ft)	Elevation (ft)
4/8/2015	18.0	1003.6

Notes: 6-inch-diameter borehole



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

Log of Monitoring Well NHMW-7

GeoEngineers

Project:	Tiger Oil - East Nob Hill
Project Location:	Yakima, Washington
Project Number:	0504-101-02

Figure A-3
Sheet 1 of 1

APPENDIX B
Laboratory Reports

GeoEngineers

523 East Second Avenue, Spokane, Washington 99202, Telephone: 509.363.3125, Fax: 509.363.3126 www.geoengineers.com

Data Validation Report

Project: Tiger Oil – East Nob Hill, Data Gap Assessment
April 2015 Soil Samples

GEI File No: 00504-101-02

Date: May 19, 2015

This report documents the results of a United States Environmental Protection Agency (EPA)-defined Stage 2A data validation (EPA Document 540-R-08-005; EPA, 2009) of analytical data from the analyses of soil samples collected as part of the April 2015 sampling event, and the associated laboratory quality control (QC) samples. The samples were obtained from the Tiger Oil, East Nob Hill Site located at 1606 East Nob Hill Boulevard in Yakima, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (EPA, 2008) and Inorganic Superfund Data Review (EPA 2010) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

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

In accordance with Quality Assurance Project Plan (Appendix A of the Sampling and Analysis Plan, Soil and Groundwater Assessment; GeoEngineers, 2014), the data validation included review of the following QC elements:

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

VALIDATED SAMPLE DELIVERY GROUPS

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

TABLE 1: SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
590-627-1	NHMW-6 (18-18.5), NHMW-7 (17.5-18)

CHEMICAL ANALYSIS PERFORMED

TestAmerica Laboratories, Inc. (TestAmerica), located in Spokane, Washington, performed laboratory analyses on the soil samples using the following methods:

- Petroleum Hydrocarbons (NWTPH-Dx) by Method NWTPH-Dx;
- Gas-Range Hydrocarbons (NWTPH-Gx) by Method NWTPH-Gx;
- Volatile Organic Compounds (VOCs) by Method SW8260C;
- Polycyclic Aromatic Hydrocarbons (PAHs) by Method SW8270D-SIM; and
- Total Lead by Method EPA6010C

DATA VALIDATION SUMMARY

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

Data Package Completeness

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

Chain-of-Custody (COC) Documentation

COC forms were provided with the laboratory analytical report. The COCs were accurate and complete when submitted to the laboratory.

Holding Times and Sample Preservation

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

Surrogate Recoveries

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

surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. Surrogate percent recoveries for field samples were within the laboratory control limits.

Method Blanks

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

Matrix Spikes/Matrix Spike Duplicates

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

For inorganic methods, the matrix spike is followed by a post-digestion spike sample if any element percent recoveries were outside the control limits in the matrix spike. The percent recovery control limits for matrix spikes are 75 percent to 125 percent.

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

Laboratory Control Samples/Laboratory Control Sample Duplicates

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

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

Laboratory Duplicates

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the

samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. For organic analyses, the RPD control limits are specified in the laboratory documents. For inorganic analyses, the RPD control limit 35 percent. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

OVERALL ASSESSMENT

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

No analytical results were qualified. In our opinion, the data are acceptable for the intended use.

GeoEngineers

523 East Second Avenue, Spokane, Washington 99202, Telephone: 509.363.3125, Fax: 509.363.3126 www.geoengineers.com

Data Validation Report

Project:	Tiger Oil – East Nob Hill Second Quarter 2015 Groundwater Samples
GEI File No:	00504-101-00
Date:	June 11, 2015

This report documents the results of a United States Environmental Protection Agency (EPA)-defined Stage 2A data validation (EPA Document 540-R-08-005; EPA, 2009) of analytical data from the analyses of groundwater samples collected as part of the May 2015 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Tiger Oil, East Nob Hill Site located at 1606 East Nob Hill Boulevard in Yakima, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (EPA, 2008) and Inorganic Superfund Data Review (EPA 2010) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

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

In accordance with Quality Assurance Project Plan (Appendix A of the Sampling and Analysis Plan, Soil and Groundwater Assessment; GeoEngineers, 2014), the data validation included review of the following QC elements:

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

VALIDATED SAMPLE DELIVERY GROUPS

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

TABLE 1: SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
590-884-1	NHMW-1, NHMW-2, Duplicate, NHMW-3, NHMW-4, NHMW-5, NHMW-6, NHMW-7, Trip Blank

CHEMICAL ANALYSIS PERFORMED

TestAmerica Laboratories, Inc. (TestAmerica), located in Spokane, Washington, performed laboratory analyses on the groundwater samples using the following methods:

- Petroleum Hydrocarbons (NWTPH-Dx) by Method NWTPH-Dx;
- Petroleum Hydrocarbons with Silica Gel (SG) Cleanup (NWTPH-Dx/SG) by Method NWTPH-Dx/SG;
- Gas-Range Hydrocarbons (NWTPH-Gx) by Method NWTPH-Gx;
- Volatile Organic Compounds (VOCs) by Method SW8260C;
- 1,2-Dibromoethane (EDB) by Method SW8011;
- Polycyclic Aromatic Hydrocarbons (PAHs) by Method SW8270D-SIM;
- Total Metals by Method EPA200.7;
- Anions by Method EPA300.0; and
- Total Organic Carbon (TOC) by Method SM5310C

DATA VALIDATION SUMMARY

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

Data Package Completeness

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

Chain-of-Custody Documentation

COC forms were provided with the laboratory analytical report. The COCs were accurate and complete when submitted to the laboratory.

Holding Times and Sample Preservation

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

outside the appropriate temperatures of between 2°C and 6°C. The out-of-compliance temperature is detailed below.

SDG 590-884-1: The sample cooler temperature recorded at the laboratory was 0.9°C. It was determined through professional judgment that since the samples were not frozen, this temperature should not affect the sample analytical results.

Surrogate Recoveries

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

Method and Trip Blanks

Method Blanks

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

Trip Blanks

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

Matrix Spikes/Matrix Spike Duplicates

Because the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a MS analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. MSD analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the RPD is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

For inorganic methods, the matrix spike is followed by a post-digestion spike sample if any element percent recoveries were outside the control limits in the matrix spike. The percent recovery control limits for matrix spikes are 75 percent to 125 percent.

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

Laboratory Control Samples

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

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

Laboratory Duplicates

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. For organic analyses, the RPD control limits are specified in the laboratory documents. For inorganic analyses, the RPD control limit 20 percent. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

Field Duplicates

In order to assess precision, field duplicate samples are collected and analyzed along with the reviewed sample batches. The duplicate samples are analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit is 20 percent.

SDG 590-884-1: One field duplicate sample pair, NHMW-2 and Duplicate, was submitted with this SDG. The precision criteria for target analytes were met for this sample.

OVERALL ASSESSMENT

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

No analytical results were qualified. In our opinion, data are acceptable for the intended use.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 590-627-1
Client Project/Site: Tiger Oil E Nob Hill

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

Attn: JR Sugalski

Authorized for release by:
4/23/2015 10:35:40 AM

Michelle Johnston, Project Manager II
(303)736-0110
michelle.johnston@testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Sample Summary 4
Definitions 5
Client Sample Results 6
QC Sample Results 9
Chronicle 14
Certification Summary 15
Method Summary 16
Chain of Custody 17
Receipt Checklists 18

Job ID: 590-627-1

Laboratory: TestAmerica Spokane

Narrative

Job Narrative
590-627-1

Receipt
The samples were received on 4/9/2015 at 9:54 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7º C.

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

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

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

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

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

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

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

Sample Summary

Client: GeoEngineers Inc
Project/Site: Tiger Oil E Nob Hill

TestAmerica Job ID: 590-627-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-627-1	NHMW-6 (18-18.5)	Solid	04/08/15 11:30	04/09/15 09:54
590-627-2	NHMW-7 (17.5-18)	Solid	04/08/15 14:30	04/09/15 09:54

Client: GeoEngineers Inc
Project/Site: Tiger Oil E Nob Hill

TestAmerica Job ID: 590-627-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

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

Client Sample ID: NHMW-6 (18-18.5)
Date Collected: 04/08/15 11:30
Date Received: 04/09/15 09:54

Lab Sample ID: 590-627-1
Matrix: Solid
Percent Solids: 95.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.014		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1
Ethylbenzene	ND		0.091		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1
m,p-Xylene	ND		0.37		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1
Methyl tert-butyl ether	ND		0.046		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1
o-Xylene	ND		0.18		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1
Toluene	ND		0.091		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1
Naphthalene	ND		0.18		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1
Xylenes, Total	ND		0.55		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*74.7 - 120*	*04/10/15 09:34*	*04/10/15 10:16*	*1*
4-Bromofluorobenzene (Surr)	*102*		*69.8 - 140*	*04/10/15 09:34*	*04/10/15 10:16*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*	*04/10/15 09:34*	*04/10/15 10:16*	*1*
Toluene-d8 (Surr)	*99*		*78.5 - 125*	*04/10/15 09:34*	*04/10/15 10:16*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		4.6		mg/Kg	☼	04/10/15 09:34	04/10/15 10:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*41.5 - 162*	*04/10/15 09:34*	*04/10/15 10:16*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
2-Methylnaphthalene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
1-Methylnaphthalene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Acenaphthylene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Acenaphthene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Fluorene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Phenanthrene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Anthracene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Fluoranthene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Pyrene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Benzo[a]anthracene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Chrysene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Benzo[b]fluoranthene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Benzo[k]fluoranthene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Benzo[a]pyrene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Indeno[1,2,3-cd]pyrene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Dibenz(a,h)anthracene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1
Benzo[g,h,i]perylene	ND		10		ug/Kg	☼	04/17/15 11:36	04/17/15 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*55*		*35.1 - 144*	*04/17/15 11:36*	*04/17/15 14:39*	*1*
2-Fluorobiphenyl (Surr)	*60*		*48.8 - 134*	*04/17/15 11:36*	*04/17/15 14:39*	*1*
p-Terphenyl-d14	*74*		*48 - 166*	*04/17/15 11:36*	*04/17/15 14:39*	*1*

Client Sample ID: NHMW-6 (18-18.5)

Lab Sample ID: 590-627-1
Date Collected: 04/08/15 11:30
Matrix: Solid
Date Received: 04/09/15 09:54
Percent Solids: 95.2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		9.9		mg/Kg	☼	04/15/15 10:41	04/15/15 12:34	1
Residual Range Organics (RRO) (C25-C36)	ND		25		mg/Kg	☼	04/15/15 10:41	04/15/15 12:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*104*		*50 - 150*	*04/15/15 10:41*	*04/15/15 12:34*	*1*
n-Triacontane-d62	*91*		*50 - 150*	*04/15/15 10:41*	*04/15/15 12:34*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		8.8		mg/Kg	☼	04/17/15 09:34	04/21/15 12:21	10

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**4.8**		0.010		%			04/10/15 15:26	1
Percent Solids	**95**		0.010		%			04/10/15 15:26	1

Client Sample ID: NHMW-7 (17.5-18)

Lab Sample ID: 590-627-2
Date Collected: 04/08/15 14:30
Matrix: Solid
Date Received: 04/09/15 09:54
Percent Solids: 92.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0095		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1
Ethylbenzene	ND		0.063		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1
m,p-Xylene	ND		0.25		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1
Methyl tert-butyl ether	ND		0.032		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1
o-Xylene	ND		0.13		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1
Toluene	ND		0.063		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1
Naphthalene	ND		0.13		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1
Xylenes, Total	ND		0.38		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*74.7 - 120*	*04/10/15 09:34*	*04/10/15 10:38*	*1*
4-Bromofluorobenzene (Surr)	*101*		*69.8 - 140*	*04/10/15 09:34*	*04/10/15 10:38*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*	*04/10/15 09:34*	*04/10/15 10:38*	*1*
Toluene-d8 (Surr)	*98*		*78.5 - 125*	*04/10/15 09:34*	*04/10/15 10:38*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		3.2		mg/Kg	☼	04/10/15 09:34	04/10/15 10:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*41.5 - 162*	*04/10/15 09:34*	*04/10/15 10:38*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
2-Methylnaphthalene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
1-Methylnaphthalene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Acenaphthylene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil E Nob Hill

TestAmerica Job ID: 590-627-1

Client Sample ID: NHMW-7 (17.5-18)
Date Collected: 04/08/15 14:30
Date Received: 04/09/15 09:54

Lab Sample ID: 590-627-2
Matrix: Solid
Percent Solids: 92.7

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Fluorene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Phenanthrene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Anthracene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Fluoranthene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Pyrene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Benzo[a]anthracene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Chrysene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Benzo[b]fluoranthene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Benzo[k]fluoranthene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Benzo[a]pyrene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Indeno[1,2,3-cd]pyrene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Dibenz(a,h)anthracene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1
Benzo[g,h,i]perylene	ND		11		ug/Kg	☼	04/17/15 11:36	04/17/15 15:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*58*		*35.1 - 144*	*04/17/15 11:36*	*04/17/15 15:01*	*1*
2-Fluorobiphenyl (Surr)	*69*		*48.8 - 134*	*04/17/15 11:36*	*04/17/15 15:01*	*1*
p-Terphenyl-d14	*72*		*48 - 166*	*04/17/15 11:36*	*04/17/15 15:01*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		11		mg/Kg	☼	04/15/15 10:41	04/15/15 12:57	1
Residual Range Organics (RRO) (C25-C36)	ND		26		mg/Kg	☼	04/15/15 10:41	04/15/15 12:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*102*		*50 - 150*	*04/15/15 10:41*	*04/15/15 12:57*	*1*
n-Triacontane-d62	*98*		*50 - 150*	*04/15/15 10:41*	*04/15/15 12:57*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		10		mg/Kg	☼	04/17/15 09:34	04/21/15 12:45	10

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.3**		0.010		%			04/10/15 15:26	1
Percent Solids	**93**		0.010		%			04/10/15 15:26	1

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

Lab Sample ID: MB 590-1077/1-A
Matrix: Solid
Analysis Batch: 1073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.015		mg/Kg		04/10/15 09:34	04/10/15 09:05	1
Ethylbenzene	ND		0.10		mg/Kg		04/10/15 09:34	04/10/15 09:05	1
m,p-Xylene	ND		0.40		mg/Kg		04/10/15 09:34	04/10/15 09:05	1
Methyl tert-butyl ether	ND		0.050		mg/Kg		04/10/15 09:34	04/10/15 09:05	1
o-Xylene	ND		0.20		mg/Kg		04/10/15 09:34	04/10/15 09:05	1
Toluene	ND		0.10		mg/Kg		04/10/15 09:34	04/10/15 09:05	1
Naphthalene	ND		0.20		mg/Kg		04/10/15 09:34	04/10/15 09:05	1
Xylenes, Total	ND		0.60		mg/Kg		04/10/15 09:34	04/10/15 09:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*74.7 - 120*	*04/10/15 09:34*	*04/10/15 09:05*	*1*
4-Bromofluorobenzene (Surr)	*101*		*69.8 - 140*	*04/10/15 09:34*	*04/10/15 09:05*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*	*04/10/15 09:34*	*04/10/15 09:05*	*1*
Toluene-d8 (Surr)	*100*		*78.5 - 125*	*04/10/15 09:34*	*04/10/15 09:05*	*1*

Lab Sample ID: LCS 590-1077/2-A
Matrix: Solid
Analysis Batch: 1073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.500	0.479		mg/Kg		96	75.8 - 123
Ethylbenzene	0.500	0.477		mg/Kg		95	77.3 - 121
m,p-Xylene	0.500	0.481		mg/Kg		96	77.7 - 124
Methyl tert-butyl ether	0.500	0.473		mg/Kg		95	60 - 140
o-Xylene	0.500	0.478		mg/Kg		96	76.7 - 129
Toluene	0.500	0.490		mg/Kg		98	76.6 - 125
Naphthalene	0.500	0.440		mg/Kg		88	55.1 - 142

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*74.7 - 120*
4-Bromofluorobenzene (Surr)	*100*		*69.8 - 140*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*99*		*78.5 - 125*

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

Lab Sample ID: MB 590-1077/1-A
Matrix: Solid
Analysis Batch: 1074

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		5.0		mg/Kg		04/10/15 09:34	04/10/15 09:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*41.5 - 162*	*04/10/15 09:34*	*04/10/15 09:05*	*1*

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

Lab Sample ID: LCS 590-1077/3-A
Matrix: Solid
Analysis Batch: 1074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	50.0	51.3		mg/Kg		103	74.4 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*41.5 - 162*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 590-1155/1-A
Matrix: Solid
Analysis Batch: 1154

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1155

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
2-Methylnaphthalene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
1-Methylnaphthalene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Acenaphthylene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Acenaphthene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Fluorene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Phenanthrene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Anthracene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Fluoranthene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Pyrene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Benzo[a]anthracene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Chrysene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Benzo[b]fluoranthene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Benzo[k]fluoranthene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Benzo[a]pyrene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Indeno[1,2,3-cd]pyrene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Dibenz(a,h)anthracene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1
Benzo[g,h,i]perylene	ND		10		ug/Kg		04/17/15 11:36	04/17/15 12:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*45*		*35.1 - 144*	*04/17/15 11:36*	*04/17/15 12:37*	*1*
2-Fluorobiphenyl (Surr)	*53*		*48.8 - 134*	*04/17/15 11:36*	*04/17/15 12:37*	*1*
p-Terphenyl-d14	*80*		*48 - 166*	*04/17/15 11:36*	*04/17/15 12:37*	*1*

Lab Sample ID: LCS 590-1155/2-A
Matrix: Solid
Analysis Batch: 1154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1155

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	267	194		ug/Kg		73	51.4 - 133
Fluorene	267	286		ug/Kg		107	65.7 - 123
Chrysene	267	273		ug/Kg		102	57.3 - 133
Indeno[1,2,3-cd]pyrene	267	247		ug/Kg		92	54.6 - 142

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 590-1155/2-A
Matrix: Solid
Analysis Batch: 1154

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1155

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*59*		*35.1 - 144*
2-Fluorobiphenyl (Surr)	*73*		*48.8 - 134*
p-Terphenyl-d14	*70*		*48 - 166*

Lab Sample ID: LCSD 590-1155/3-A
Matrix: Solid
Analysis Batch: 1154

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 1155

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			267	201		ug/Kg		75	51.4 - 133	3	35
Fluorene			267	310		ug/Kg		116	65.7 - 123	8	35
Chrysene			267	264		ug/Kg		99	57.3 - 133	3	35
Indeno[1,2,3-cd]pyrene			267	275		ug/Kg		103	54.6 - 142	11	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*61*		*35.1 - 144*
2-Fluorobiphenyl (Surr)	*90*		*48.8 - 134*
p-Terphenyl-d14	*76*		*48 - 166*

Lab Sample ID: 590-627-1 MS
Matrix: Solid
Analysis Batch: 1154

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA
Prep Batch: 1155

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Naphthalene	ND		277	172		ug/Kg	☼	62	30 - 120		
Fluorene	ND		277	261		ug/Kg	☼	94	30 - 140		
Chrysene	ND		277	245		ug/Kg	☼	89	30 - 133		
Indeno[1,2,3-cd]pyrene	ND		277	217		ug/Kg	☼	78	30 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5	*52*		*35.1 - 144*
2-Fluorobiphenyl (Surr)	*67*		*48.8 - 134*
p-Terphenyl-d14	*71*		*48 - 166*

Lab Sample ID: 590-627-1 MSD
Matrix: Solid
Analysis Batch: 1154

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA
Prep Batch: 1155

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	ND		264	180		ug/Kg	☼	68	30 - 120	4	35
Fluorene	ND		264	257		ug/Kg	☼	97	30 - 140	2	35
Chrysene	ND		264	257		ug/Kg	☼	97	30 - 133	5	35
Indeno[1,2,3-cd]pyrene	ND		264	231		ug/Kg	☼	88	30 - 140	6	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5	*61*		*35.1 - 144*
2-Fluorobiphenyl (Surr)	*66*		*48.8 - 134*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: 590-627-1 MSD
Matrix: Solid
Analysis Batch: 1154

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA
Prep Batch: 1155

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
p-Terphenyl-d14	*69*		*48 - 166*

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

Lab Sample ID: MB 590-1125/1-A
Matrix: Solid
Analysis Batch: 1124

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		10		mg/Kg		04/15/15 10:41	04/15/15 11:25	1
Residual Range Organics (RRO) (C25-C36)	ND		25		mg/Kg		04/15/15 10:41	04/15/15 11:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*101*		*50 - 150*	*04/15/15 10:41*	*04/15/15 11:25*	*1*
n-Triacontane-d62	*94*		*50 - 150*	*04/15/15 10:41*	*04/15/15 11:25*	*1*

Lab Sample ID: LCS 590-1125/2-A
Matrix: Solid
Analysis Batch: 1124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1125

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	66.7	63.1		mg/Kg		95	50 - 150
Residual Range Organics (RRO) (C25-C36)	66.7	61.1		mg/Kg		92	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*104*		*50 - 150*
n-Triacontane-d62	*101*		*50 - 150*

Lab Sample ID: 590-627-1 DU
Matrix: Solid
Analysis Batch: 1124

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA
Prep Batch: 1125

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	ND		ND		mg/Kg	☼	9	40
Residual Range Organics (RRO) (C25-C36)	ND		ND		mg/Kg	☼	NC	40

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
o-Terphenyl	*108*		*50 - 150*
n-Triacontane-d62	*98*		*50 - 150*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 590-1151/2-A
Matrix: Solid
Analysis Batch: 1189

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1151

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.025		mg/Kg		04/17/15 09:34	04/21/15 10:52	1

Lab Sample ID: LCS 590-1151/1-A
Matrix: Solid
Analysis Batch: 1189

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1151

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			1.00	0.955		mg/Kg		95	80 - 120		

Lab Sample ID: 590-627-1 MS
Matrix: Solid
Analysis Batch: 1189

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA
Prep Batch: 1151

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead	ND		45.7	41.1		mg/Kg	☼	84	75 - 125		

Lab Sample ID: 590-627-1 MSD
Matrix: Solid
Analysis Batch: 1189

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA
Prep Batch: 1151

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		47.7	46.8		mg/Kg	☼	92	75 - 125	13	20

Lab Sample ID: 590-627-1 DU
Matrix: Solid
Analysis Batch: 1189

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA
Prep Batch: 1151

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Lead	ND			ND		mg/Kg	☼			NC	20

Method: Moisture - Percent Moisture

Lab Sample ID: 590-627-1 DU
Matrix: Solid
Analysis Batch: 1086

Client Sample ID: NHMW-6 (18-18.5)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	4.8			3.8	F3	%				23	20
Percent Solids	95			96		%				1	20

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Tiger Oil E Nob Hill

TestAmerica Job ID: 590-627-1

Client Sample ID: NHMW-6 (18-18.5)

Lab Sample ID: 590-627-1

Date Collected: 04/08/15 11:30
Matrix: Solid
Date Received: 04/09/15 09:54
Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.081 g	5 mL	1077	04/10/15 09:34	MRS	TAL SPK
Total/NA	Analysis	8260C		1	6.081 g	5 mL	1073	04/10/15 10:16	MRS	TAL SPK
Total/NA	Prep	5035			6.081 g	5 mL	1077	04/10/15 09:34	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	6.081 g	5 mL	1074	04/10/15 10:16	MRS	TAL SPK
Total/NA	Prep	3550C			15.24 g	2 mL	1155	04/17/15 11:36	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	15.24 g	2 mL	1154	04/17/15 14:39	NMI	TAL SPK
Total/NA	Prep	3550C			15.86 g	5 mL	1125	04/15/15 10:41	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	15.86 g	5 mL	1124	04/15/15 12:34	MRS	TAL SPK
Total/NA	Prep	3050B			1.49 g	50 mL	1151	04/17/15 09:34	JSP	TAL SPK
Total/NA	Analysis	6010C		10	1.49 g	50 mL	1189	04/21/15 12:21	JSP	TAL SPK
Total/NA	Analysis	Moisture		1			1086	04/10/15 15:26	NMI	TAL SPK

Client Sample ID: NHMW-7 (17.5-18)

Lab Sample ID: 590-627-2

Date Collected: 04/08/15 14:30
Matrix: Solid
Date Received: 04/09/15 09:54
Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9.755 g	5 mL	1077	04/10/15 09:34	MRS	TAL SPK
Total/NA	Analysis	8260C		1	9.755 g	5 mL	1073	04/10/15 10:38	MRS	TAL SPK
Total/NA	Prep	5035			9.755 g	5 mL	1077	04/10/15 09:34	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	9.755 g	5 mL	1074	04/10/15 10:38	MRS	TAL SPK
Total/NA	Prep	3550C			15.26 g	2 mL	1155	04/17/15 11:36	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	15.26 g	2 mL	1154	04/17/15 15:01	NMI	TAL SPK
Total/NA	Prep	3550C			15.36 g	5 mL	1125	04/15/15 10:41	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	15.36 g	5 mL	1124	04/15/15 12:57	MRS	TAL SPK
Total/NA	Prep	3050B			1.35 g	50 mL	1151	04/17/15 09:34	JSP	TAL SPK
Total/NA	Analysis	6010C		10	1.35 g	50 mL	1189	04/21/15 12:45	JSP	TAL SPK
Total/NA	Analysis	Moisture		1			1086	04/10/15 15:26	NMI	TAL SPK

Laboratory References:

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

Certification Summary

Client: GeoEngineers Inc
Project/Site: Tiger Oil E Nob Hill

TestAmerica Job ID: 590-627-1

Laboratory: TestAmerica Spokane

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-071	10-31-15
Washington	State Program	10	C569	01-06-16

Method Summary

Client: GeoEngineers Inc
Project/Site: Tiger Oil E Nob Hill

TestAmerica Job ID: 590-627-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SPK
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC/MS)	NWTPH	TAL SPK
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL SPK
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL SPK
6010C	Metals (ICP)	SW846	TAL SPK
Moisture	Percent Moisture	EPA	TAL SPK

Protocol References:

EPA = US Environmental Protection Agency

NWTPH = Northwest Total Petroleum Hydrocarbon

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

Laboratory References:

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

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Josh Lee (JML)	Lab PM: Johnston, Michelle A	Carrier Tracking No(s):	COC No: 590-254-90.1
Client Contact: JR Sugalski	Phone: 406-239-7810	E-Mail: michelle.johnston@testamericainc.com		Page: Page 1 of 1
Company: GeoEngineers Inc				Job #:
Address: 523 East Second Ave	Due Date Requested:			
City: Spokane	TAT Requested (days): Std.			
State, Zip: WA, 99202				
Phone: 509-209-2830(Tel)	PO #: Purchase Order not required			
Email: jsugalski@geoengineers.com	WO #:			
Project Name: Tiger Oil - E Nob Hill - Soil	Project #: 59000440			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C, NWTPH_Gx_MS	6010C, 8270D_SIM, NWTPH_Dx	Total Number of containers	Special Instructions/Note:
			Preservation Code:				F	N		
NHMW-6 (18-18.5)	4-8-2015	1130	G	S			X	X	3	
NHMW-7 (17.5-18)	4-8-2015	1430	G	S			X	X	3	

590-627 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by	Date/Time	Company
			Sheila Kratz	4/9/15 9:54	TestAmerica
Relinquished by:	Date/Time:	Company	Received by	Date/Time:	Company
Relinquished by	Date/Time	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.8 °C IR001

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-627-1

Login Number: 627

List Source: TestAmerica Spokane

List Number: 1

Creator: Kratz, Sheila J

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	3.7
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 590-884-1
Client Project/Site: Tiger Oil - E Nob Hill

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

Attn: JR Sugalski

Authorized for release by:
5/29/2015 5:32:06 PM

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

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Sample Summary 4
Definitions 5
Client Sample Results 6
QC Sample Results 31
Chronicle 41
Certification Summary 45
Method Summary 46
Chain of Custody 47
Receipt Checklists 48

Case Narrative

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Job ID: 590-884-1

Laboratory: TestAmerica Spokane

Narrative

Receipt
The samples were received on 5/21/2015 11:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

GC/MS VOA Method 8260C:
The continuing calibration verification (CCV) associated with batch 590-1618 recovered outside acceptance criteria, low biased, for 2-Methyl-2-propanol, Acetone and Bromoform. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

The continuing calibration verification (CCV) associated with batch 590-1618 recovered above the upper control limit for Dichlorodifluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: NHMW-1 (590-884-1), NHMW-2 (590-884-2), NHMW-3 (590-884-3), NHMW-4 (590-884-4), NHMW-5 (590-884-5), NHMW-6 (590-884-6), NHMW-7 (590-884-7), Duplicate (590-884-8), Trip blank (590-884-9) and (CCVIS 590-1618/2).

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

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

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

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

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

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

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

Sample Summary

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-884-1	NHMW-1	Water	05/20/15 10:12	05/21/15 11:00
590-884-2	NHMW-2	Water	05/20/15 13:02	05/21/15 11:00
590-884-3	NHMW-3	Water	05/20/15 08:51	05/21/15 11:00
590-884-4	NHMW-4	Water	05/20/15 11:12	05/21/15 11:00
590-884-5	NHMW-5	Water	05/20/15 08:00	05/21/15 11:00
590-884-6	NHMW-6	Water	05/20/15 09:30	05/21/15 11:00
590-884-7	NHMW-7	Water	05/20/15 12:08	05/21/15 11:00
590-884-8	Duplicate	Water	05/20/15 15:00	05/21/15 11:00
590-884-9	Trip blank	Water	05/20/15 00:00	05/21/15 11:00

Glossary

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

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-1
Date Collected: 05/20/15 10:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 00:16	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 00:16	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 00:16	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 00:16	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 00:16	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 00:16	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 00:16	1
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 00:16	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 00:16	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 00:16	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 00:16	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 00:16	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 00:16	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 00:16	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 00:16	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 00:16	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 00:16	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 00:16	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 00:16	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 00:16	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 00:16	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 00:16	1
2-Hexanone	ND		10		ug/L			05/29/15 00:16	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 00:16	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 00:16	1
Acetone	ND		25		ug/L			05/29/15 00:16	1
Benzene	ND		0.20		ug/L			05/29/15 00:16	1
Bromobenzene	ND		1.0		ug/L			05/29/15 00:16	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 00:16	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 00:16	1
Bromoform	ND		1.0		ug/L			05/29/15 00:16	1
Bromomethane	ND		5.0		ug/L			05/29/15 00:16	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 00:16	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 00:16	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 00:16	1
Chloroethane	ND		1.0		ug/L			05/29/15 00:16	1
Chloroform	**1.6**		1.0		ug/L			05/29/15 00:16	1
Chloromethane	ND		3.0		ug/L			05/29/15 00:16	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 00:16	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 00:16	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 00:16	1
Dibromomethane	ND		1.0		ug/L			05/29/15 00:16	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 00:16	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 00:16	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 00:16	1
Hexane	ND		1.0		ug/L			05/29/15 00:16	1

Client Sample ID: NHMW-1
Date Collected: 05/20/15 10:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 00:16	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 00:16	1
Methylene Chloride	ND		10		ug/L			05/29/15 00:16	1
Naphthalene	ND		2.0		ug/L			05/29/15 00:16	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
o-Xylene	ND		1.0		ug/L			05/29/15 00:16	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 00:16	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
Styrene	ND		1.0		ug/L			05/29/15 00:16	1
tert-Butanol	ND		5.0		ug/L			05/29/15 00:16	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 00:16	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 00:16	1
Toluene	ND		1.0		ug/L			05/29/15 00:16	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 00:16	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 00:16	1
Trichloroethene	ND		1.0		ug/L			05/29/15 00:16	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 00:16	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 00:16	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 140*		*05/29/15 00:16*	*1*
4-Bromofluorobenzene (Surr)	*102*		*68.7 - 141*		*05/29/15 00:16*	*1*
Dibromofluoromethane (Surr)	*101*		*71.2 - 143*		*05/29/15 00:16*	*1*
Toluene-d8 (Surr)	*100*		*74.1 - 135*		*05/29/15 00:16*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*68.7 - 141*		*05/29/15 00:16*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
2-Methylnaphthalene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
1-Methylnaphthalene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Acenaphthylene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Acenaphthene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Fluorene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Phenanthrene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Anthracene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Fluoranthene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Pyrene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Benzo[a]anthracene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Chrysene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Benzo[b]fluoranthene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-1

Date Collected: 05/20/15 10:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-1
Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Benzo[a]pyrene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Indeno[1,2,3-cd]pyrene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Dibenz(a,h)anthracene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1
Benzo[g,h,i]perylene	ND		0.095		ug/L		05/27/15 14:32	05/27/15 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*93*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 16:49*	*1*
2-Fluorobiphenyl (Surr)	*71*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 16:49*	*1*
p-Terphenyl-d14	*93*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 16:49*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 13:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.23		mg/L		05/26/15 13:14	05/26/15 19:19	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39		mg/L		05/26/15 13:14	05/26/15 19:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*90*		*50 - 150*	*05/26/15 13:14*	*05/26/15 19:19*	*1*
n-Triacontane-d62	*99*		*50 - 150*	*05/26/15 13:14*	*05/26/15 19:19*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**2.4**		0.20		mg/L			05/21/15 13:54	1
Sulfate	**9.1**		0.50		mg/L			05/21/15 13:54	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/28/15 19:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			05/26/15 11:39	1

Client Sample ID: NHMW-2

Date Collected: 05/20/15 13:02
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 00:38	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 00:38	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 00:38	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 00:38	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 00:38	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 00:38	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 00:38	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-2
Date Collected: 05/20/15 13:02
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 00:38	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 00:38	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 00:38	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 00:38	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 00:38	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 00:38	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 00:38	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 00:38	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 00:38	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 00:38	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 00:38	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 00:38	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 00:38	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 00:38	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 00:38	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 00:38	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 00:38	1
2-Hexanone	ND		10		ug/L			05/29/15 00:38	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 00:38	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 00:38	1
Acetone	ND		25		ug/L			05/29/15 00:38	1
Benzene	ND		0.20		ug/L			05/29/15 00:38	1
Bromobenzene	ND		1.0		ug/L			05/29/15 00:38	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 00:38	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 00:38	1
Bromoform	ND		1.0		ug/L			05/29/15 00:38	1
Bromomethane	ND		5.0		ug/L			05/29/15 00:38	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 00:38	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 00:38	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 00:38	1
Chloroethane	ND		1.0		ug/L			05/29/15 00:38	1
Chloroform	**1.4**		1.0		ug/L			05/29/15 00:38	1
Chloromethane	ND		3.0		ug/L			05/29/15 00:38	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 00:38	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 00:38	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 00:38	1
Dibromomethane	ND		1.0		ug/L			05/29/15 00:38	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 00:38	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 00:38	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 00:38	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 00:38	1
Hexane	ND		1.0		ug/L			05/29/15 00:38	1
Isopropylbenzene	ND		1.0		ug/L			05/29/15 00:38	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 00:38	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 00:38	1
Methylene Chloride	ND		10		ug/L			05/29/15 00:38	1
Naphthalene	ND		2.0		ug/L			05/29/15 00:38	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 00:38	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 00:38	1

Client Sample ID: NHMW-2
Date Collected: 05/20/15 13:02
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		1.0		ug/L			05/29/15 00:38	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 00:38	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 00:38	1
Styrene	ND		1.0		ug/L			05/29/15 00:38	1
tert-Butanol	ND		5.0		ug/L			05/29/15 00:38	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 00:38	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 00:38	1
Toluene	ND		1.0		ug/L			05/29/15 00:38	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 00:38	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 00:38	1
Trichloroethene	ND		1.0		ug/L			05/29/15 00:38	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 00:38	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 00:38	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 140*		*05/29/15 00:38*	*1*
4-Bromofluorobenzene (Surr)	*99*		*68.7 - 141*		*05/29/15 00:38*	*1*
Dibromofluoromethane (Surr)	*98*		*71.2 - 143*		*05/29/15 00:38*	*1*
Toluene-d8 (Surr)	*103*		*74.1 - 135*		*05/29/15 00:38*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*68.7 - 141*		*05/29/15 00:38*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
2-Methylnaphthalene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
1-Methylnaphthalene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Acenaphthylene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Acenaphthene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Fluorene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Phenanthrene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Anthracene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Fluoranthene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Pyrene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Benzo[a]anthracene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Chrysene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Benzo[b]fluoranthene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Benzo[k]fluoranthene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Benzo[a]pyrene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Indeno[1,2,3-cd]pyrene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Dibenz(a,h)anthracene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1
Benzo[g,h,i]perylene	ND		0.091		ug/L		05/27/15 14:32	05/27/15 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*87*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 17:17*	*1*

Client Sample ID: NHMW-2

Date Collected: 05/20/15 13:02
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-2

Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 17:17*	*1*
p-Terphenyl-d14	*85*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 17:17*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 13:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24		mg/L		05/26/15 13:14	05/26/15 19:39	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		05/26/15 13:14	05/26/15 19:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*05/26/15 13:14*	*05/26/15 19:39*	*1*
n-Triacontane-d62	*104*		*50 - 150*	*05/26/15 13:14*	*05/26/15 19:39*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**2.7**		0.20		mg/L			05/21/15 14:07	1
Sulfate	**15**		0.50		mg/L			05/21/15 14:07	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/28/15 19:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**1.5**		1.0		mg/L			05/26/15 11:39	1

Client Sample ID: NHMW-3

Date Collected: 05/20/15 08:51
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 01:00	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 01:00	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 01:00	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 01:00	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 01:00	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 01:00	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 01:00	1
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 01:00	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 01:00	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 01:00	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 01:00	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 01:00	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 01:00	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-3
Date Collected: 05/20/15 08:51
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:00	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 01:00	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 01:00	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:00	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 01:00	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:00	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 01:00	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 01:00	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 01:00	1
2-Hexanone	ND		10		ug/L			05/29/15 01:00	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 01:00	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 01:00	1
Acetone	ND		25		ug/L			05/29/15 01:00	1
Benzene	ND		0.20		ug/L			05/29/15 01:00	1
Bromobenzene	ND		1.0		ug/L			05/29/15 01:00	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 01:00	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 01:00	1
Bromoform	ND		1.0		ug/L			05/29/15 01:00	1
Bromomethane	ND		5.0		ug/L			05/29/15 01:00	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 01:00	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 01:00	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 01:00	1
Chloroethane	ND		1.0		ug/L			05/29/15 01:00	1
Chloroform	**2.0**		1.0		ug/L			05/29/15 01:00	1
Chloromethane	ND		3.0		ug/L			05/29/15 01:00	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 01:00	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 01:00	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 01:00	1
Dibromomethane	ND		1.0		ug/L			05/29/15 01:00	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 01:00	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 01:00	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 01:00	1
Hexane	ND		1.0		ug/L			05/29/15 01:00	1
Isopropylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 01:00	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 01:00	1
Methylene Chloride	ND		10		ug/L			05/29/15 01:00	1
Naphthalene	ND		2.0		ug/L			05/29/15 01:00	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
o-Xylene	ND		1.0		ug/L			05/29/15 01:00	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 01:00	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
Styrene	ND		1.0		ug/L			05/29/15 01:00	1
tert-Butanol	ND		5.0		ug/L			05/29/15 01:00	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 01:00	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 01:00	1

Client Sample ID: NHMW-3
Date Collected: 05/20/15 08:51
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0		ug/L			05/29/15 01:00	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 01:00	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 01:00	1
Trichloroethene	ND		1.0		ug/L			05/29/15 01:00	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 01:00	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 01:00	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 01:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 140*		*05/29/15 01:00*	*1*
4-Bromofluorobenzene (Surr)	*100*		*68.7 - 141*		*05/29/15 01:00*	*1*
Dibromofluoromethane (Surr)	*99*		*71.2 - 143*		*05/29/15 01:00*	*1*
Toluene-d8 (Surr)	*101*		*74.1 - 135*		*05/29/15 01:00*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 01:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*68.7 - 141*		*05/29/15 01:00*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
2-Methylnaphthalene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
1-Methylnaphthalene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Acenaphthylene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Acenaphthene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Fluorene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Phenanthrene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Anthracene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Fluoranthene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Pyrene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Benzo[a]anthracene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Chrysene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Benzo[b]fluoranthene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Benzo[k]fluoranthene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Benzo[a]pyrene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Indeno[1,2,3-cd]pyrene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Dibenz(a,h)anthracene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1
Benzo[g,h,i]perylene	ND		0.093		ug/L		05/27/15 14:32	05/27/15 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*90*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 17:44*	*1*
2-Fluorobiphenyl (Surr)	*68*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 17:44*	*1*
p-Terphenyl-d14	*85*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 17:44*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 13:58	1

Client Sample ID: NHMW-3

Date Collected: 05/20/15 08:51
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.25		mg/L		05/26/15 13:14	05/26/15 19:59	1
Residual Range Organics (RRO) (C25-C36)	ND		0.42		mg/L		05/26/15 13:14	05/26/15 19:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*50 - 150*	*05/26/15 13:14*	*05/26/15 19:59*	*1*
n-Triacontane-d62	*102*		*50 - 150*	*05/26/15 13:14*	*05/26/15 19:59*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**2.8**		0.20		mg/L			05/21/15 14:20	1
Sulfate	**16**		0.50		mg/L			05/21/15 14:20	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/29/15 10:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			05/26/15 11:39	1

Client Sample ID: NHMW-4

Date Collected: 05/20/15 11:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 01:22	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 01:22	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 01:22	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 01:22	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 01:22	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 01:22	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 01:22	1
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 01:22	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 01:22	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 01:22	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 01:22	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 01:22	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 01:22	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:22	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 01:22	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 01:22	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:22	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 01:22	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:22	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 01:22	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 01:22	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-4
Date Collected: 05/20/15 11:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 01:22	1
2-Hexanone	ND		10		ug/L			05/29/15 01:22	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 01:22	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 01:22	1
Acetone	ND		25		ug/L			05/29/15 01:22	1
Benzene	ND		0.20		ug/L			05/29/15 01:22	1
Bromobenzene	ND		1.0		ug/L			05/29/15 01:22	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 01:22	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 01:22	1
Bromoform	ND		1.0		ug/L			05/29/15 01:22	1
Bromomethane	ND		5.0		ug/L			05/29/15 01:22	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 01:22	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 01:22	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 01:22	1
Chloroethane	ND		1.0		ug/L			05/29/15 01:22	1
Chloroform	**1.7**		1.0		ug/L			05/29/15 01:22	1
Chloromethane	ND		3.0		ug/L			05/29/15 01:22	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 01:22	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 01:22	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 01:22	1
Dibromomethane	ND		1.0		ug/L			05/29/15 01:22	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 01:22	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 01:22	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 01:22	1
Hexane	ND		1.0		ug/L			05/29/15 01:22	1
Isopropylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 01:22	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 01:22	1
Methylene Chloride	ND		10		ug/L			05/29/15 01:22	1
Naphthalene	ND		2.0		ug/L			05/29/15 01:22	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
o-Xylene	ND		1.0		ug/L			05/29/15 01:22	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 01:22	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
Styrene	ND		1.0		ug/L			05/29/15 01:22	1
tert-Butanol	ND		5.0		ug/L			05/29/15 01:22	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 01:22	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 01:22	1
Toluene	ND		1.0		ug/L			05/29/15 01:22	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 01:22	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 01:22	1
Trichloroethene	ND		1.0		ug/L			05/29/15 01:22	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 01:22	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 01:22	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 01:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 140*		*05/29/15 01:22*	*1*

Client Sample ID: NHMW-4
Date Collected: 05/20/15 11:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-4
Matrix: Water

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*99*		*68.7 - 141*		*05/29/15 01:22*	*1*
Dibromofluoromethane (Surr)	*98*		*71.2 - 143*		*05/29/15 01:22*	*1*
Toluene-d8 (Surr)	*100*		*74.1 - 135*		*05/29/15 01:22*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 01:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*99*		*68.7 - 141*		*05/29/15 01:22*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
2-Methylnaphthalene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
1-Methylnaphthalene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Acenaphthylene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Acenaphthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Fluorene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Phenanthrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Anthracene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Fluoranthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Pyrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Benzo[a]anthracene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Chrysene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Benzo[b]fluoranthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Benzo[k]fluoranthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Benzo[a]pyrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Indeno[1,2,3-cd]pyrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Dibenz(a,h)anthracene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1
Benzo[g,h,i]perylene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 18:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	*99*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 18:12*	*1*
2-Fluorobiphenyl (Surr)	*74*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 18:12*	*1*
p-Terphenyl-d14	*92*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 18:12*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 14:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24		mg/L		05/26/15 13:14	05/26/15 20:39	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		05/26/15 13:14	05/26/15 20:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	*94*		*50 - 150*	*05/26/15 13:14*	*05/26/15 20:39*	*1*
n-Triacontane-d62	*103*		*50 - 150*	*05/26/15 13:14*	*05/26/15 20:39*	*1*

Client Sample ID: NHMW-4

Lab Sample ID: 590-884-4

Date Collected: 05/20/15 11:12

Matrix: Water

Date Received: 05/21/15 11:00

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	2.5		0.20		mg/L			05/21/15 14:33	1
Sulfate	10		0.50		mg/L			05/21/15 14:33	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/29/15 10:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			05/26/15 11:39	1

Client Sample ID: NHMW-5

Lab Sample ID: 590-884-5

Date Collected: 05/20/15 08:00

Matrix: Water

Date Received: 05/21/15 11:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 01:44	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 01:44	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 01:44	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 01:44	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 01:44	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 01:44	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 01:44	1
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 01:44	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 01:44	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 01:44	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 01:44	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 01:44	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 01:44	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:44	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 01:44	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 01:44	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:44	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 01:44	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 01:44	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 01:44	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 01:44	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 01:44	1
2-Hexanone	ND		10		ug/L			05/29/15 01:44	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 01:44	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 01:44	1
Acetone	ND		25		ug/L			05/29/15 01:44	1
Benzene	ND		0.20		ug/L			05/29/15 01:44	1
Bromobenzene	ND		1.0		ug/L			05/29/15 01:44	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 01:44	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 01:44	1
Bromoform	ND		1.0		ug/L			05/29/15 01:44	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-5
Date Collected: 05/20/15 08:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-5
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		5.0		ug/L			05/29/15 01:44	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 01:44	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 01:44	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 01:44	1
Chloroethane	ND		1.0		ug/L			05/29/15 01:44	1
Chloroform	**1.8**		1.0		ug/L			05/29/15 01:44	1
Chloromethane	ND		3.0		ug/L			05/29/15 01:44	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 01:44	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 01:44	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 01:44	1
Dibromomethane	ND		1.0		ug/L			05/29/15 01:44	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 01:44	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 01:44	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 01:44	1
Hexane	ND		1.0		ug/L			05/29/15 01:44	1
Isopropylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 01:44	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 01:44	1
Methylene Chloride	ND		10		ug/L			05/29/15 01:44	1
Naphthalene	ND		2.0		ug/L			05/29/15 01:44	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
o-Xylene	ND		1.0		ug/L			05/29/15 01:44	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 01:44	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
Styrene	ND		1.0		ug/L			05/29/15 01:44	1
tert-Butanol	ND		5.0		ug/L			05/29/15 01:44	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 01:44	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 01:44	1
Toluene	ND		1.0		ug/L			05/29/15 01:44	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 01:44	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 01:44	1
Trichloroethene	ND		1.0		ug/L			05/29/15 01:44	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 01:44	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 01:44	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 01:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 140*		*05/29/15 01:44*	*1*
4-Bromofluorobenzene (Surr)	*104*		*68.7 - 141*		*05/29/15 01:44*	*1*
Dibromofluoromethane (Surr)	*102*		*71.2 - 143*		*05/29/15 01:44*	*1*
Toluene-d8 (Surr)	*100*		*74.1 - 135*		*05/29/15 01:44*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 01:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*68.7 - 141*		*05/29/15 01:44*	*1*

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-5
Date Collected: 05/20/15 08:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-5
Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
2-Methylnaphthalene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
1-Methylnaphthalene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Acenaphthylene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Acenaphthene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Fluorene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Phenanthrene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Anthracene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Fluoranthene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Pyrene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Benzo[a]anthracene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Chrysene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Benzo[b]fluoranthene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Benzo[k]fluoranthene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Benzo[a]pyrene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Indeno[1,2,3-cd]pyrene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Dibenz(a,h)anthracene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1
Benzo[g,h,i]perylene	ND		0.087		ug/L		05/27/15 14:32	05/27/15 18:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*89*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 18:40*	*1*
2-Fluorobiphenyl (Surr)	*76*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 18:40*	*1*
p-Terphenyl-d14	*88*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 18:40*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 14:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24		mg/L		05/26/15 13:14	05/26/15 20:59	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		05/26/15 13:14	05/26/15 20:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*05/26/15 13:14*	*05/26/15 20:59*	*1*
n-Triacontane-d62	*103*		*50 - 150*	*05/26/15 13:14*	*05/26/15 20:59*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**3.2**		0.20		mg/L			05/21/15 14:46	1
Sulfate	**16**		0.50		mg/L			05/21/15 14:46	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/29/15 10:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			05/26/15 11:39	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-6
Date Collected: 05/20/15 09:30
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 02:06	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 02:06	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 02:06	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 02:06	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 02:06	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 02:06	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 02:06	1
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 02:06	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 02:06	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 02:06	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 02:06	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 02:06	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 02:06	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:06	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 02:06	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 02:06	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:06	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 02:06	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:06	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 02:06	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 02:06	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 02:06	1
2-Hexanone	ND		10		ug/L			05/29/15 02:06	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 02:06	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 02:06	1
Acetone	ND		25		ug/L			05/29/15 02:06	1
Benzene	ND		0.20		ug/L			05/29/15 02:06	1
Bromobenzene	ND		1.0		ug/L			05/29/15 02:06	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 02:06	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 02:06	1
Bromoform	ND		1.0		ug/L			05/29/15 02:06	1
Bromomethane	ND		5.0		ug/L			05/29/15 02:06	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 02:06	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 02:06	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 02:06	1
Chloroethane	ND		1.0		ug/L			05/29/15 02:06	1
Chloroform	**1.9**		1.0		ug/L			05/29/15 02:06	1
Chloromethane	ND		3.0		ug/L			05/29/15 02:06	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 02:06	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 02:06	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 02:06	1
Dibromomethane	ND		1.0		ug/L			05/29/15 02:06	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 02:06	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 02:06	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 02:06	1
Hexane	ND		1.0		ug/L			05/29/15 02:06	1

Client Sample ID: NHMW-6
Date Collected: 05/20/15 09:30
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 02:06	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 02:06	1
Methylene Chloride	ND		10		ug/L			05/29/15 02:06	1
Naphthalene	ND		2.0		ug/L			05/29/15 02:06	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
o-Xylene	ND		1.0		ug/L			05/29/15 02:06	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 02:06	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
Styrene	ND		1.0		ug/L			05/29/15 02:06	1
tert-Butanol	ND		5.0		ug/L			05/29/15 02:06	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 02:06	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 02:06	1
Toluene	ND		1.0		ug/L			05/29/15 02:06	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 02:06	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 02:06	1
Trichloroethene	ND		1.0		ug/L			05/29/15 02:06	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 02:06	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 02:06	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 02:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 140*		*05/29/15 02:06*	*1*
4-Bromofluorobenzene (Surr)	*100*		*68.7 - 141*		*05/29/15 02:06*	*1*
Dibromofluoromethane (Surr)	*99*		*71.2 - 143*		*05/29/15 02:06*	*1*
Toluene-d8 (Surr)	*99*		*74.1 - 135*		*05/29/15 02:06*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 02:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*68.7 - 141*		*05/29/15 02:06*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
2-Methylnaphthalene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
1-Methylnaphthalene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Acenaphthylene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Acenaphthene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Fluorene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Phenanthrene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Anthracene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Fluoranthene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Pyrene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Benzo[a]anthracene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Chrysene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Benzo[b]fluoranthene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1

Client Sample ID: NHMW-6

Date Collected: 05/20/15 09:30
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-6
Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Benzo[a]pyrene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Indeno[1,2,3-cd]pyrene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Dibenz(a,h)anthracene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1
Benzo[g,h,i]perylene	ND		0.089		ug/L		05/27/15 14:32	05/27/15 19:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*94*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 19:07*	*1*
2-Fluorobiphenyl (Surr)	*73*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 19:07*	*1*
p-Terphenyl-d14	*89*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 19:07*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 14:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24		mg/L		05/26/15 13:14	05/26/15 21:18	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		05/26/15 13:14	05/26/15 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*05/26/15 13:14*	*05/26/15 21:18*	*1*
n-Triacontane-d62	*101*		*50 - 150*	*05/26/15 13:14*	*05/26/15 21:18*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**3.2**		0.20		mg/L			05/21/15 14:59	1
Sulfate	**19**		0.50		mg/L			05/21/15 14:59	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/29/15 10:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			05/26/15 11:39	1

Client Sample ID: NHMW-7

Date Collected: 05/20/15 12:08
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 02:28	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 02:28	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 02:28	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 02:28	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 02:28	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 02:28	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 02:28	1

Client Sample ID: NHMW-7
Date Collected: 05/20/15 12:08
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 02:28	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 02:28	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 02:28	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 02:28	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 02:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 02:28	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 02:28	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:28	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 02:28	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 02:28	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 02:28	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:28	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 02:28	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:28	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 02:28	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 02:28	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 02:28	1
2-Hexanone	ND		10		ug/L			05/29/15 02:28	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 02:28	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 02:28	1
Acetone	ND		25		ug/L			05/29/15 02:28	1
Benzene	ND		0.20		ug/L			05/29/15 02:28	1
Bromobenzene	ND		1.0		ug/L			05/29/15 02:28	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 02:28	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 02:28	1
Bromoform	ND		1.0		ug/L			05/29/15 02:28	1
Bromomethane	ND		5.0		ug/L			05/29/15 02:28	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 02:28	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 02:28	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 02:28	1
Chloroethane	ND		1.0		ug/L			05/29/15 02:28	1
Chloroform	**2.0**		1.0		ug/L			05/29/15 02:28	1
Chloromethane	ND		3.0		ug/L			05/29/15 02:28	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 02:28	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 02:28	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 02:28	1
Dibromomethane	ND		1.0		ug/L			05/29/15 02:28	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 02:28	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 02:28	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 02:28	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 02:28	1
Hexane	ND		1.0		ug/L			05/29/15 02:28	1
Isopropylbenzene	ND		1.0		ug/L			05/29/15 02:28	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 02:28	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 02:28	1
Methylene Chloride	ND		10		ug/L			05/29/15 02:28	1
Naphthalene	ND		2.0		ug/L			05/29/15 02:28	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 02:28	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 02:28	1

Client Sample ID: NHMW-7
Date Collected: 05/20/15 12:08
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		1.0		ug/L			05/29/15 02:28	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 02:28	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 02:28	1
Styrene	ND		1.0		ug/L			05/29/15 02:28	1
tert-Butanol	ND		5.0		ug/L			05/29/15 02:28	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 02:28	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 02:28	1
Toluene	ND		1.0		ug/L			05/29/15 02:28	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 02:28	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 02:28	1
Trichloroethene	ND		1.0		ug/L			05/29/15 02:28	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 02:28	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 02:28	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 02:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 140*		*05/29/15 02:28*	*1*
4-Bromofluorobenzene (Surr)	*103*		*68.7 - 141*		*05/29/15 02:28*	*1*
Dibromofluoromethane (Surr)	*103*		*71.2 - 143*		*05/29/15 02:28*	*1*
Toluene-d8 (Surr)	*95*		*74.1 - 135*		*05/29/15 02:28*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 02:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*68.7 - 141*		*05/29/15 02:28*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
2-Methylnaphthalene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
1-Methylnaphthalene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Acenaphthylene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Acenaphthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Fluorene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Phenanthrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Anthracene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Fluoranthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Pyrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Benzo[a]anthracene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Chrysene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Benzo[b]fluoranthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Benzo[k]fluoranthene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Benzo[a]pyrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Indeno[1,2,3-cd]pyrene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Dibenz(a,h)anthracene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1
Benzo[g,h,i]perylene	ND		0.092		ug/L		05/27/15 14:32	05/27/15 19:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*91*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 19:35*	*1*

Client Sample ID: NHMW-7

Date Collected: 05/20/15 12:08
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-7

Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 19:35*	*1*
p-Terphenyl-d14	*86*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 19:35*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 15:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.23		mg/L		05/26/15 13:14	05/26/15 21:38	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39		mg/L		05/26/15 13:14	05/26/15 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*94*		*50 - 150*	*05/26/15 13:14*	*05/26/15 21:38*	*1*
n-Triacontane-d62	*101*		*50 - 150*	*05/26/15 13:14*	*05/26/15 21:38*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**2.5**		0.20		mg/L			05/21/15 15:12	1
Sulfate	**10**		0.50		mg/L			05/21/15 15:12	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/29/15 10:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			05/26/15 11:39	1

Client Sample ID: Duplicate

Date Collected: 05/20/15 15:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-8

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 02:51	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 02:51	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 02:51	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 02:51	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 02:51	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 02:51	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 02:51	1
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 02:51	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 02:51	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 02:51	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 02:51	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 02:51	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 02:51	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: Duplicate
Date Collected: 05/20/15 15:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-8
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:51	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 02:51	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 02:51	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:51	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 02:51	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 02:51	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 02:51	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 02:51	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 02:51	1
2-Hexanone	ND		10		ug/L			05/29/15 02:51	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 02:51	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 02:51	1
Acetone	ND		25		ug/L			05/29/15 02:51	1
Benzene	ND		0.20		ug/L			05/29/15 02:51	1
Bromobenzene	ND		1.0		ug/L			05/29/15 02:51	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 02:51	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 02:51	1
Bromoform	ND		1.0		ug/L			05/29/15 02:51	1
Bromomethane	ND		5.0		ug/L			05/29/15 02:51	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 02:51	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 02:51	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 02:51	1
Chloroethane	ND		1.0		ug/L			05/29/15 02:51	1
Chloroform	**1.4**		1.0		ug/L			05/29/15 02:51	1
Chloromethane	ND		3.0		ug/L			05/29/15 02:51	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 02:51	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 02:51	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 02:51	1
Dibromomethane	ND		1.0		ug/L			05/29/15 02:51	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 02:51	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 02:51	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 02:51	1
Hexane	ND		1.0		ug/L			05/29/15 02:51	1
Isopropylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 02:51	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 02:51	1
Methylene Chloride	ND		10		ug/L			05/29/15 02:51	1
Naphthalene	ND		2.0		ug/L			05/29/15 02:51	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
o-Xylene	ND		1.0		ug/L			05/29/15 02:51	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 02:51	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
Styrene	ND		1.0		ug/L			05/29/15 02:51	1
tert-Butanol	ND		5.0		ug/L			05/29/15 02:51	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 02:51	1
Tetrachloroethene	ND		1.0		ug/L			05/29/15 02:51	1

Client Sample ID: Duplicate
Date Collected: 05/20/15 15:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-8
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		1.0		ug/L			05/29/15 02:51	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 02:51	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 02:51	1
Trichloroethene	ND		1.0		ug/L			05/29/15 02:51	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 02:51	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 02:51	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 02:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 140*		*05/29/15 02:51*	*1*
4-Bromofluorobenzene (Surr)	*101*		*68.7 - 141*		*05/29/15 02:51*	*1*
Dibromofluoromethane (Surr)	*99*		*71.2 - 143*		*05/29/15 02:51*	*1*
Toluene-d8 (Surr)	*99*		*74.1 - 135*		*05/29/15 02:51*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/29/15 02:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*68.7 - 141*		*05/29/15 02:51*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
2-Methylnaphthalene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
1-Methylnaphthalene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Acenaphthylene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Acenaphthene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Fluorene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Phenanthrene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Anthracene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Fluoranthene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Pyrene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Benzo[a]anthracene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Chrysene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Benzo[b]fluoranthene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Benzo[k]fluoranthene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Benzo[a]pyrene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Indeno[1,2,3-cd]pyrene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Dibenz(a,h)anthracene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1
Benzo[g,h,i]perylene	ND		0.088		ug/L		05/27/15 14:32	05/27/15 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*83*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 20:03*	*1*
2-Fluorobiphenyl (Surr)	*68*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 20:03*	*1*
p-Terphenyl-d14	*79*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 20:03*	*1*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 15:21	1

Client Sample ID: Duplicate

Lab Sample ID: 590-884-8
Matrix: Water
Date Collected: 05/20/15 15:00
Date Received: 05/21/15 11:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	**0.27**		0.25		mg/L		05/26/15 13:14	05/26/15 21:58	1
Residual Range Organics (RRO) (C25-C36)	ND		0.41		mg/L		05/26/15 13:14	05/26/15 21:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*05/26/15 13:14*	*05/26/15 21:58*	*1*
n-Triacontane-d62	*106*		*50 - 150*	*05/26/15 13:14*	*05/26/15 21:58*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.25		mg/L		05/26/15 13:14	05/27/15 10:54	1
Residual Range Organics (RRO) (C25-C36)	ND		0.41		mg/L		05/26/15 13:14	05/27/15 10:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*98*		*50 - 150*	*05/26/15 13:14*	*05/27/15 10:54*	*1*
n-Triacontane-d62	*106*		*50 - 150*	*05/26/15 13:14*	*05/27/15 10:54*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**2.7**		0.20		mg/L			05/21/15 15:25	1
Sulfate	**15**		0.50		mg/L			05/21/15 15:25	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/29/15 10:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	**1.5**		1.0		mg/L			05/26/15 11:39	1

Client Sample ID: Trip blank

Lab Sample ID: 590-884-9
Matrix: Water
Date Collected: 05/20/15 00:00
Date Received: 05/21/15 11:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 03:13	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/29/15 03:13	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/29/15 03:13	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/29/15 03:13	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/29/15 03:13	1
1,1-Dichloroethane	ND		1.0		ug/L			05/29/15 03:13	1
1,1-Dichloroethene	ND		1.0		ug/L			05/29/15 03:13	1
1,1-Dichloropropene	ND		1.0		ug/L			05/29/15 03:13	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/29/15 03:13	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/29/15 03:13	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/29/15 03:13	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/29/15 03:13	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/29/15 03:13	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: Trip blank
Date Collected: 05/20/15 00:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-9
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/29/15 03:13	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/29/15 03:13	1
1,2-Dichloroethane	ND		1.0		ug/L			05/29/15 03:13	1
1,2-Dichloropropane	ND		1.0		ug/L			05/29/15 03:13	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/29/15 03:13	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/29/15 03:13	1
1,3-Dichloropropane	ND		1.0		ug/L			05/29/15 03:13	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/29/15 03:13	1
2,2-Dichloropropane	ND		1.0		ug/L			05/29/15 03:13	1
2-Butanone (MEK)	ND		10		ug/L			05/29/15 03:13	1
2-Chlorotoluene	ND		1.0		ug/L			05/29/15 03:13	1
2-Hexanone	ND		10		ug/L			05/29/15 03:13	1
4-Chlorotoluene	ND		1.0		ug/L			05/29/15 03:13	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/29/15 03:13	1
Acetone	ND		25		ug/L			05/29/15 03:13	1
Benzene	ND		0.20		ug/L			05/29/15 03:13	1
Bromobenzene	ND		1.0		ug/L			05/29/15 03:13	1
Bromochloromethane	ND		1.0		ug/L			05/29/15 03:13	1
Bromodichloromethane	ND		1.0		ug/L			05/29/15 03:13	1
Bromoform	ND		1.0		ug/L			05/29/15 03:13	1
Bromomethane	ND		5.0		ug/L			05/29/15 03:13	1
Carbon disulfide	ND		1.0		ug/L			05/29/15 03:13	1
Carbon tetrachloride	ND		1.0		ug/L			05/29/15 03:13	1
Chlorobenzene	ND		1.0		ug/L			05/29/15 03:13	1
Chloroethane	ND		1.0		ug/L			05/29/15 03:13	1
Chloroform	ND		1.0		ug/L			05/29/15 03:13	1
Chloromethane	ND		3.0		ug/L			05/29/15 03:13	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 03:13	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 03:13	1
Dibromochloromethane	ND		1.0		ug/L			05/29/15 03:13	1
Dibromomethane	ND		1.0		ug/L			05/29/15 03:13	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/29/15 03:13	1
Dichlorofluoromethane	ND		0.20		ug/L			05/29/15 03:13	1
Ethylbenzene	ND		1.0		ug/L			05/29/15 03:13	1
Hexachlorobutadiene	ND		2.0		ug/L			05/29/15 03:13	1
Hexane	ND		1.0		ug/L			05/29/15 03:13	1
Isopropylbenzene	ND		1.0		ug/L			05/29/15 03:13	1
m,p-Xylene	ND		2.0		ug/L			05/29/15 03:13	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/29/15 03:13	1
Methylene Chloride	ND		10		ug/L			05/29/15 03:13	1
Naphthalene	ND		2.0		ug/L			05/29/15 03:13	1
n-Butylbenzene	ND		1.0		ug/L			05/29/15 03:13	1
N-Propylbenzene	ND		1.0		ug/L			05/29/15 03:13	1
o-Xylene	ND		1.0		ug/L			05/29/15 03:13	1
p-Isopropyltoluene	ND		1.0		ug/L			05/29/15 03:13	1
sec-Butylbenzene	ND		1.0		ug/L			05/29/15 03:13	1
Styrene	ND		1.0		ug/L			05/29/15 03:13	1
tert-Butanol	ND		5.0		ug/L			05/29/15 03:13	1
tert-Butylbenzene	ND		1.0		ug/L			05/29/15 03:13	1

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: Trip blank
Date Collected: 05/20/15 00:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-9
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		1.0		ug/L			05/29/15 03:13	1
Toluene	ND		1.0		ug/L			05/29/15 03:13	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/29/15 03:13	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/29/15 03:13	1
Trichloroethene	ND		1.0		ug/L			05/29/15 03:13	1
Trichlorofluoromethane	ND		1.0		ug/L			05/29/15 03:13	1
Vinyl chloride	ND		0.20		ug/L			05/29/15 03:13	1
Xylenes, Total	ND		3.0		ug/L			05/29/15 03:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 140*		*05/29/15 03:13*	*1*
4-Bromofluorobenzene (Surr)	*102*		*68.7 - 141*		*05/29/15 03:13*	*1*
Dibromofluoromethane (Surr)	*100*		*71.2 - 143*		*05/29/15 03:13*	*1*
Toluene-d8 (Surr)	*100*		*74.1 - 135*		*05/29/15 03:13*	*1*

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

Lab Sample ID: MB 590-1618/4
Matrix: Water
Analysis Batch: 1618

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			05/28/15 22:48	1
1,1,1-Trichloroethane	ND		1.0		ug/L			05/28/15 22:48	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/28/15 22:48	1
1,1,2-Trichloroethane	ND		1.0		ug/L			05/28/15 22:48	1
1,1,2-Trichlorotrifluoroethane	ND		1.0		ug/L			05/28/15 22:48	1
1,1-Dichloroethane	ND		1.0		ug/L			05/28/15 22:48	1
1,1-Dichloroethene	ND		1.0		ug/L			05/28/15 22:48	1
1,1-Dichloropropene	ND		1.0		ug/L			05/28/15 22:48	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			05/28/15 22:48	1
1,2,3-Trichloropropane	ND		1.0		ug/L			05/28/15 22:48	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			05/28/15 22:48	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			05/28/15 22:48	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			05/28/15 22:48	1
1,2-Dichlorobenzene	ND		1.0		ug/L			05/28/15 22:48	1
1,2-Dichloroethane	ND		1.0		ug/L			05/28/15 22:48	1
1,2-Dichloropropane	ND		1.0		ug/L			05/28/15 22:48	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
1,3-Dichlorobenzene	ND		1.0		ug/L			05/28/15 22:48	1
1,3-Dichloropropane	ND		1.0		ug/L			05/28/15 22:48	1
1,4-Dichlorobenzene	ND		1.0		ug/L			05/28/15 22:48	1
2,2-Dichloropropane	ND		1.0		ug/L			05/28/15 22:48	1
2-Butanone (MEK)	ND		10		ug/L			05/28/15 22:48	1
2-Chlorotoluene	ND		1.0		ug/L			05/28/15 22:48	1
2-Hexanone	ND		10		ug/L			05/28/15 22:48	1
4-Chlorotoluene	ND		1.0		ug/L			05/28/15 22:48	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			05/28/15 22:48	1
Acetone	ND		25		ug/L			05/28/15 22:48	1
Benzene	ND		0.20		ug/L			05/28/15 22:48	1
Bromobenzene	ND		1.0		ug/L			05/28/15 22:48	1
Bromochloromethane	ND		1.0		ug/L			05/28/15 22:48	1
Bromodichloromethane	ND		1.0		ug/L			05/28/15 22:48	1
Bromoform	ND		1.0		ug/L			05/28/15 22:48	1
Bromomethane	ND		5.0		ug/L			05/28/15 22:48	1
Carbon disulfide	ND		1.0		ug/L			05/28/15 22:48	1
Carbon tetrachloride	ND		1.0		ug/L			05/28/15 22:48	1
Chlorobenzene	ND		1.0		ug/L			05/28/15 22:48	1
Chloroethane	ND		1.0		ug/L			05/28/15 22:48	1
Chloroform	ND		1.0		ug/L			05/28/15 22:48	1
Chloromethane	ND		3.0		ug/L			05/28/15 22:48	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			05/28/15 22:48	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			05/28/15 22:48	1
Dibromochloromethane	ND		1.0		ug/L			05/28/15 22:48	1
Dibromomethane	ND		1.0		ug/L			05/28/15 22:48	1
Dichlorodifluoromethane	ND		1.0		ug/L			05/28/15 22:48	1
Dichlorofluoromethane	ND		0.20		ug/L			05/28/15 22:48	1
Ethylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
Hexachlorobutadiene	ND		2.0		ug/L			05/28/15 22:48	1

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

Lab Sample ID: MB 590-1618/4
Matrix: Water
Analysis Batch: 1618

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexane	ND		1.0		ug/L			05/28/15 22:48	1
Isopropylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
m,p-Xylene	ND		2.0		ug/L			05/28/15 22:48	1
Methyl tert-butyl ether	ND		1.0		ug/L			05/28/15 22:48	1
Methylene Chloride	ND		10		ug/L			05/28/15 22:48	1
Naphthalene	ND		2.0		ug/L			05/28/15 22:48	1
n-Butylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
N-Propylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
o-Xylene	ND		1.0		ug/L			05/28/15 22:48	1
p-Isopropyltoluene	ND		1.0		ug/L			05/28/15 22:48	1
sec-Butylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
Styrene	ND		1.0		ug/L			05/28/15 22:48	1
tert-Butanol	ND		5.0		ug/L			05/28/15 22:48	1
tert-Butylbenzene	ND		1.0		ug/L			05/28/15 22:48	1
Tetrachloroethene	ND		1.0		ug/L			05/28/15 22:48	1
Toluene	ND		1.0		ug/L			05/28/15 22:48	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			05/28/15 22:48	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			05/28/15 22:48	1
Trichloroethene	ND		1.0		ug/L			05/28/15 22:48	1
Trichlorofluoromethane	ND		1.0		ug/L			05/28/15 22:48	1
Vinyl chloride	ND		0.20		ug/L			05/28/15 22:48	1
Xylenes, Total	ND		3.0		ug/L			05/28/15 22:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 140*		*05/28/15 22:48*	*1*
4-Bromofluorobenzene (Surr)	*101*		*68.7 - 141*		*05/28/15 22:48*	*1*
Dibromofluoromethane (Surr)	*99*		*71.2 - 143*		*05/28/15 22:48*	*1*
Toluene-d8 (Surr)	*104*		*74.1 - 135*		*05/28/15 22:48*	*1*

Lab Sample ID: LCS 590-1618/5
Matrix: Water
Analysis Batch: 1618

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	10.0	9.58		ug/L		96	60 - 140
1,1,1-Trichloroethane	10.0	10.2		ug/L		102	60 - 140
1,1,2,2-Tetrachloroethane	10.0	9.94		ug/L		99	60 - 140
1,1,2-Trichloroethane	10.0	9.83		ug/L		98	60 - 140
1,1,2-Trichlorotrifluoroethane	10.0	9.87		ug/L		99	60 - 140
1,1-Dichloroethane	10.0	10.6		ug/L		106	60 - 140
1,1-Dichloroethene	10.0	10.2		ug/L		102	78.1 - 155
1,1-Dichloropropene	10.0	10.7		ug/L		107	60 - 140
1,2,3-Trichlorobenzene	10.0	10.0		ug/L		100	60 - 140
1,2,3-Trichloropropane	10.0	9.58		ug/L		96	60 - 140
1,2,4-Trichlorobenzene	10.0	10.1		ug/L		101	60 - 140
1,2,4-Trimethylbenzene	10.0	9.82		ug/L		98	60 - 140
1,2-Dibromo-3-Chloropropane	10.0	9.92		ug/L		99	60 - 140
1,2-Dichlorobenzene	10.0	9.80		ug/L		98	60 - 140

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

Lab Sample ID: LCS 590-1618/5
Matrix: Water
Analysis Batch: 1618

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	10.0	10.3		ug/L		103	63.9 - 144
1,2-Dichloropropane	10.0	9.92		ug/L		99	60 - 140
1,3,5-Trimethylbenzene	10.0	9.60		ug/L		96	60 - 140
1,3-Dichlorobenzene	10.0	9.64		ug/L		96	60 - 140
1,3-Dichloropropane	10.0	9.55		ug/L		95	60 - 140
1,4-Dichlorobenzene	10.0	9.63		ug/L		96	60 - 140
2,2-Dichloropropane	10.0	9.24		ug/L		92	60 - 140
2-Butanone (MEK)	50.0	56.3		ug/L		113	60 - 140
2-Chlorotoluene	10.0	10.1		ug/L		101	60 - 140
2-Hexanone	50.0	49.9		ug/L		100	60 - 140
4-Chlorotoluene	10.0	10.0		ug/L		100	60 - 140
4-Methyl-2-pentanone (MIBK)	50.0	47.7		ug/L		95	60 - 140
Acetone	50.0	53.3		ug/L		107	60 - 140
Benzene	10.0	9.95		ug/L		99	80 - 140
Bromobenzene	10.0	10.1		ug/L		101	60 - 140
Bromochloromethane	10.0	10.0		ug/L		100	60 - 140
Bromodichloromethane	10.0	10.1		ug/L		101	60 - 140
Bromoform	10.0	8.65		ug/L		87	60 - 140
Bromomethane	10.0	10.9		ug/L		109	60 - 140
Carbon disulfide	10.0	10.5		ug/L		105	60 - 140
Carbon tetrachloride	10.0	10.4		ug/L		104	60 - 140
Chlorobenzene	10.0	9.49		ug/L		95	79.2 - 125
Chloroethane	10.0	11.2		ug/L		112	60 - 140
Chloroform	10.0	10.3		ug/L		103	60 - 140
Chloromethane	10.0	11.3		ug/L		113	60 - 140
cis-1,2-Dichloroethene	10.0	10.4		ug/L		104	60 - 140
cis-1,3-Dichloropropene	10.0	9.91		ug/L		99	60 - 140
Dibromochloromethane	10.0	9.00		ug/L		90	60 - 140
Dibromomethane	10.0	9.82		ug/L		98	60 - 140
Dichlorodifluoromethane	10.0	12.5		ug/L		125	60 - 140
Dichlorofluoromethane	10.0	10.3		ug/L		103	60 - 140
Ethylbenzene	10.0	9.48		ug/L		95	80 - 120
Hexachlorobutadiene	10.0	9.80		ug/L		98	80 - 120
Hexane	10.0	9.74		ug/L		97	60 - 140
Isopropylbenzene	10.0	9.36		ug/L		94	60 - 140
m,p-Xylene	10.0	9.60		ug/L		96	80 - 120
Methyl tert-butyl ether	10.0	10.2		ug/L		102	80.1 - 128
Methylene Chloride	10.0	10.4		ug/L		104	60 - 140
Naphthalene	10.0	10.5		ug/L		105	62.8 - 132
n-Butylbenzene	10.0	9.53		ug/L		95	60 - 140
N-Propylbenzene	10.0	9.92		ug/L		99	60 - 140
o-Xylene	10.0	9.33		ug/L		93	80 - 120
p-Isopropyltoluene	10.0	9.79		ug/L		98	60 - 140
sec-Butylbenzene	10.0	9.47		ug/L		95	60 - 140
Styrene	10.0	9.04		ug/L		90	60 - 140
tert-Butanol	100	107		ug/L		107	60 - 140
tert-Butylbenzene	10.0	9.64		ug/L		96	60 - 140
Tetrachloroethene	10.0	9.44		ug/L		94	60 - 140

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

Lab Sample ID: LCS 590-1618/5
Matrix: Water
Analysis Batch: 1618

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	10.0	9.41		ug/L		94	80 - 123
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	60 - 140
trans-1,3-Dichloropropene	10.0	10.2		ug/L		102	60 - 140
Trichloroethene	10.0	10.6		ug/L		106	74.8 - 123
Trichlorofluoromethane	10.0	10.3		ug/L		103	60 - 140
Vinyl chloride	10.0	10.9		ug/L		109	60 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 140*
4-Bromofluorobenzene (Surr)	*96*		*68.7 - 141*
Dibromofluoromethane (Surr)	*100*		*71.2 - 143*
Toluene-d8 (Surr)	*98*		*74.1 - 135*

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

Lab Sample ID: MB 590-1619/4
Matrix: Water
Analysis Batch: 1619

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	ND		100		ug/L			05/28/15 22:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*68.7 - 141*		*05/28/15 22:48*	*1*

Lab Sample ID: LCS 590-1619/6
Matrix: Water
Analysis Batch: 1619

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline	1000	852		ug/L		85	80 - 120

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

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 590-1589/1-A
Matrix: Water
Analysis Batch: 1588

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
2-Methylnaphthalene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
1-Methylnaphthalene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Acenaphthylene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Acenaphthene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 590-1589/1-A
Matrix: Water
Analysis Batch: 1588

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1589

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Phenanthrene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Anthracene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Fluoranthene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Pyrene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Benzo[a]anthracene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Chrysene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Benzo[b]fluoranthene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Benzo[k]fluoranthene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Benzo[a]pyrene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Indeno[1,2,3-cd]pyrene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Dibenz(a,h)anthracene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1
Benzo[g,h,i]perylene	ND		0.090		ug/L		05/27/15 14:32	05/27/15 15:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*97*		*32.7 - 135*	*05/27/15 14:32*	*05/27/15 15:54*	*1*
2-Fluorobiphenyl (Surr)	*81*		*44.3 - 120*	*05/27/15 14:32*	*05/27/15 15:54*	*1*
p-Terphenyl-d14	*95*		*59.5 - 154*	*05/27/15 14:32*	*05/27/15 15:54*	*1*

Lab Sample ID: LCS 590-1589/2-A
Matrix: Water
Analysis Batch: 1588

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1589

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Naphthalene			1.60	1.47		ug/L		92	27.8 - 143		
Fluorene			1.60	1.77		ug/L		111	59.2 - 120		
Chrysene			1.60	1.89		ug/L		118	69.1 - 122		
Indeno[1,2,3-cd]pyrene			1.60	1.94		ug/L		121	56.1 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*95*		*32.7 - 135*
2-Fluorobiphenyl (Surr)	*77*		*44.3 - 120*
p-Terphenyl-d14	*87*		*59.5 - 154*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 590-1582/2-A
Matrix: Water
Analysis Batch: 1583

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1582

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.010		ug/L		05/27/15 09:58	05/27/15 11:07	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: LCS 590-1582/3-A
Matrix: Water
Analysis Batch: 1583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1582

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	0.125	0.157		ug/L		125	60 - 140

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

Lab Sample ID: MB 590-1559/1-A
Matrix: Water
Analysis Batch: 1555

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1559

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24		mg/L		05/26/15 13:14	05/26/15 17:00	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		05/26/15 13:14	05/26/15 17:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*92*		*50 - 150*	*05/26/15 13:14*	*05/26/15 17:00*	*1*
n-Triacontane-d62	*102*		*50 - 150*	*05/26/15 13:14*	*05/26/15 17:00*	*1*

Lab Sample ID: LCS 590-1559/2-A
Matrix: Water
Analysis Batch: 1555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1559

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	3.20	2.89		mg/L		90	50 - 150
Residual Range Organics (RRO) (C25-C36)	3.20	2.97		mg/L		93	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*98*		*50 - 150*
n-Triacontane-d62	*105*		*50 - 150*

Lab Sample ID: MB 590-1559/1-A
Matrix: Water
Analysis Batch: 1574

Client Sample ID: Method Blank
Prep Type: Silica Gel Cleanup
Prep Batch: 1559

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24		mg/L		05/26/15 13:14	05/27/15 09:15	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40		mg/L		05/26/15 13:14	05/27/15 09:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*93*		*50 - 150*	*05/26/15 13:14*	*05/27/15 09:15*	*1*
n-Triacontane-d62	*74*		*50 - 150*	*05/26/15 13:14*	*05/27/15 09:15*	*1*

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

Lab Sample ID: LCS 590-1559/2-A
Matrix: Water
Analysis Batch: 1574

Client Sample ID: Lab Control Sample
Prep Type: Silica Gel Cleanup
Prep Batch: 1559

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	3.20	2.84		mg/L		89	50 - 150
Residual Range Organics (RRO) (C25-C36)	3.20	2.99		mg/L		93	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*98*		*50 - 150*
n-Triacontane-d62	*64*		*50 - 150*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-1529/15
Matrix: Water
Analysis Batch: 1529

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			05/21/15 15:51	1

Lab Sample ID: LCS 590-1529/14
Matrix: Water
Analysis Batch: 1529

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	5.12		mg/L		102	90 - 110

Lab Sample ID: 590-884-8 MS
Matrix: Water
Analysis Batch: 1529

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.7		4.55	7.24		mg/L		100	80 - 120

Lab Sample ID: 590-884-8 MSD
Matrix: Water
Analysis Batch: 1529

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.7		4.55	7.26		mg/L		101	80 - 120	0	12.1

Lab Sample ID: 590-884-8 DU
Matrix: Water
Analysis Batch: 1529

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	2.7		2.66		mg/L		1	13.1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 590-1530/15
Matrix: Water
Analysis Batch: 1530

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		0.50		mg/L			05/21/15 15:51	1

Lab Sample ID: LCS 590-1530/14
Matrix: Water
Analysis Batch: 1530

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			12.5	12.9		mg/L		103	90 - 110		

Lab Sample ID: 590-884-8 MS
Matrix: Water
Analysis Batch: 1530

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	15		11.4	26.1		mg/L		93	80 - 120		

Lab Sample ID: 590-884-8 MSD
Matrix: Water
Analysis Batch: 1530

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	15		11.4	26.1		mg/L		93	80 - 120	0	10

Lab Sample ID: 590-884-8 DU
Matrix: Water
Analysis Batch: 1530

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Sulfate	15			15.4		mg/L				0.5	15.7

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 590-1587/5-A
Matrix: Water
Analysis Batch: 1622

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1587

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.014		mg/L		05/27/15 13:51	05/28/15 19:23	1

Lab Sample ID: LCS 590-1587/1-A
Matrix: Water
Analysis Batch: 1622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1587

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			1.00	1.01		mg/L		101	85 - 115		

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-1587/2-A
Matrix: Water
Analysis Batch: 1622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1587

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.00	0.986		mg/L		99	85 - 115

Lab Sample ID: LCS 590-1587/3-A
Matrix: Water
Analysis Batch: 1622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1587

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.00	1.01		mg/L		101	85 - 115

Lab Sample ID: LCS 590-1587/4-A
Matrix: Water
Analysis Batch: 1622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1587

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	1.00	1.00		mg/L		100	85 - 115

Lab Sample ID: 590-884-2 MS
Matrix: Water
Analysis Batch: 1633

Client Sample ID: NHMW-2
Prep Type: Total/NA
Prep Batch: 1587

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		1.67	1.62		mg/L		97	70 - 130

Lab Sample ID: 590-884-2 MSD
Matrix: Water
Analysis Batch: 1633

Client Sample ID: NHMW-2
Prep Type: Total/NA
Prep Batch: 1587

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		1.67	1.62		mg/L		97	70 - 130	0	20

Lab Sample ID: 590-884-1 DU
Matrix: Water
Analysis Batch: 1622

Client Sample ID: NHMW-1
Prep Type: Total/NA
Prep Batch: 1587

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lead	ND		ND		mg/L		NC	20

Method: SM 5310C - TOC

Lab Sample ID: MB 490-251385/1
Matrix: Water
Analysis Batch: 251385

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			05/26/15 11:39	1

Method: SM 5310C - TOC (Continued)

Lab Sample ID: LCS 490-251385/4
Matrix: Water
Analysis Batch: 251385

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.81		mg/L		98	90 - 110
TOC Result 1	10.0	9.89		mg/L		99	90 - 110
TOC Result 2	10.0	9.73		mg/L		97	90 - 110

Lab Sample ID: 590-884-1 MS
Matrix: Water
Analysis Batch: 251385

Client Sample ID: NHMW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	ND		20.0	21.1		mg/L		101	75 - 122
TOC Result 1	ND		20.0	21.1		mg/L		101	75 - 122
TOC Result 2	ND		20.0	21.0		mg/L		100	75 - 122

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-1
Date Collected: 05/20/15 10:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 00:16	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 00:16	MRS	TAL SPK
Total/NA	Prep	3510C			236.2 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	236.2 mL	2 mL	1588	05/27/15 16:49	NMI	TAL SPK
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 13:25	NMI	TAL SPK
Total/NA	Prep	3510C SGC			128.3 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	128.3 mL	2 mL	1555	05/26/15 19:19	NMI	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 13:54	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 13:54	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1622	05/28/15 19:26	JSP	TAL SPK
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: NHMW-2
Date Collected: 05/20/15 13:02
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 00:38	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 00:38	MRS	TAL SPK
Total/NA	Prep	3510C			246.6 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	246.6 mL	2 mL	1588	05/27/15 17:17	NMI	TAL SPK
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 13:42	NMI	TAL SPK
Total/NA	Prep	3510C SGC			124.2 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	124.2 mL	2 mL	1555	05/26/15 19:39	NMI	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 14:07	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 14:07	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1622	05/28/15 19:31	JSP	TAL SPK
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: NHMW-3
Date Collected: 05/20/15 08:51
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 01:00	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 01:00	MRS	TAL SPK
Total/NA	Prep	3510C			241 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	241 mL	2 mL	1588	05/27/15 17:44	NMI	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-3

Date Collected: 05/20/15 08:51
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 13:58	NMI	TAL SPK
Total/NA	Prep	3510C SGC			119 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	119 mL	2 mL	1555	05/26/15 19:59	NMI	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 14:20	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 14:20	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1633	05/29/15 10:36	JSP	TAL SPK
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: NHMW-4

Date Collected: 05/20/15 11:12
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 01:22	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 01:22	MRS	TAL SPK
Total/NA	Prep	3510C			244.7 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	244.7 mL	2 mL	1588	05/27/15 18:12	NMI	TAL SPK
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 14:15	NMI	TAL SPK
Total/NA	Prep	3510C SGC			124 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	124 mL	2 mL	1555	05/26/15 20:39	NMI	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 14:33	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 14:33	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1633	05/29/15 10:41	JSP	TAL SPK
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: NHMW-5

Date Collected: 05/20/15 08:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 01:44	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 01:44	MRS	TAL SPK
Total/NA	Prep	3510C			258.2 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	258.2 mL	2 mL	1588	05/27/15 18:40	NMI	TAL SPK
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 14:31	NMI	TAL SPK
Total/NA	Prep	3510C SGC			126.1 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	126.1 mL	2 mL	1555	05/26/15 20:59	NMI	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-5

Date Collected: 05/20/15 08:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 14:46	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 14:46	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1633	05/29/15 10:44	JSP	TAL SPK
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: NHMW-6

Date Collected: 05/20/15 09:30
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 02:06	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 02:06	MRS	TAL SPK
Total/NA	Prep	3510C			252.7 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	252.7 mL	2 mL	1588	05/27/15 19:07	NMI	TAL SPK
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 14:48	NMI	TAL SPK
Total/NA	Prep	3510C SGC			123.9 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	123.9 mL	2 mL	1555	05/26/15 21:18	NMI	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 14:59	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 14:59	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1633	05/29/15 10:48	JSP	TAL SPK
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: NHMW-7

Date Collected: 05/20/15 12:08
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 02:28	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 02:28	MRS	TAL SPK
Total/NA	Prep	3510C			243.6 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	243.6 mL	2 mL	1588	05/27/15 19:35	NMI	TAL SPK
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 15:04	NMI	TAL SPK
Total/NA	Prep	3510C SGC			128.7 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	128.7 mL	2 mL	1555	05/26/15 21:38	NMI	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 15:12	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 15:12	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1633	05/29/15 10:51	JSP	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Client Sample ID: NHMW-7

Date Collected: 05/20/15 12:08
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: Duplicate

Date Collected: 05/20/15 15:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 02:51	MRS	TAL SPK
Total/NA	Analysis	NWTPH-Gx		1	43 mL	43 mL	1619	05/29/15 02:51	MRS	TAL SPK
Total/NA	Prep	3510C			255.8 mL	2 mL	1589	05/27/15 14:32	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	255.8 mL	2 mL	1588	05/27/15 20:03	NMI	TAL SPK
Total/NA	Prep	8011			80 mL	2 mL	1582	05/27/15 09:58	NMI	TAL SPK
Total/NA	Analysis	8011		1	80 mL	2 mL	1583	05/27/15 15:21	NMI	TAL SPK
Silica Gel Cleanup	Prep	3510C SGC			122.3 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Silica Gel Cleanup	Analysis	NWTPH-Dx		1	122.3 mL	2 mL	1574	05/27/15 10:54	NMI	TAL SPK
Total/NA	Prep	3510C SGC			122.3 mL	2 mL	1559	05/26/15 13:14	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1	122.3 mL	2 mL	1555	05/26/15 21:58	NMI	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1529	05/21/15 15:25	MRS	TAL SPK
Total/NA	Analysis	300.0		1	5 mL		1530	05/21/15 15:25	MRS	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	1587	05/27/15 13:51	JSP	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1	50 mL	50 mL	1633	05/29/15 10:54	JSP	TAL SPK
Total/NA	Analysis	SM 5310C		1	50 mL	50 mL	251385	05/26/15 11:39	JAB	TAL NSH

Client Sample ID: Trip blank

Date Collected: 05/20/15 00:00
Date Received: 05/21/15 11:00

Lab Sample ID: 590-884-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	43 mL	43 mL	1618	05/29/15 03:13	MRS	TAL SPK

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Certification Summary

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Laboratory: TestAmerica Spokane

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-071	10-31-15
Washington	State Program	10	C569	01-06-16

Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Washington	State Program	10	C789	07-19-15

Method Summary

Client: GeoEngineers Inc
Project/Site: Tiger Oil - E Nob Hill

TestAmerica Job ID: 590-884-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SPK
NWTPH-Gx	Northwest - Volatile Petroleum Products (GC/MS)	NWTPH	TAL SPK
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL SPK
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL SPK
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL SPK
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
200.7 Rev 4.4	Metals (ICP)	EPA	TAL SPK
SM 5310C	TOC	SM	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
NWTPH = Northwest Total Petroleum Hydrocarbon
SM = "Standard Methods For The Examination Of Water And Wastewater",
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177
TAL SPK = TestAmerica Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

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

Chain of Custody Record

590-884 Chain of Custody

testAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Aaron Fredericks	Lab PM: Arrington, Randee E	COC No: 590-365-129.1
Client Contact: JR Sugalski	Phone: 216 403 6773	E-Mail: randee.arrington@testamericainc.com	Page: Page 1 of 1
Company: GeoEngineers Inc			Job #:
Address: 523 East Second Ave	Due Date Requested:		
City: Spokane	TAT Requested (days):		
State, Zip: WA, 99202			
Phone: 509-209-2830(Tel)	PO #: Purchase Order not required		
Email: jsugalski@geoengineers.com	WO #:		
Project Name: Tiger Oil - E Nob Hill	Project #: 59000517		
Site: Washington	SSOW#:		

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6310C - Total Organic Carbon (TOC)	8270D_SIM - Polycyclic Aromatic Hydrocarbons	300_ORGFM_28D, 300_ORGFMS	200.7 - Lead RL < 15 ppb	8260C; NWTPH_Gx_MS	NWTPH_Dx - NWTPH-Dx with and w/o SGT	8011 - 1,2-Dibromoethane (EDB)	8260C - 8260C - Volatiles	Total Number of containers	Special Instructions/Note:
			Preservation Code:				S	N	N	D	A	A	N	A		
NHMW-1	5/20/15	1017	GRAB	Water	N		X	X	X	X	X	X	X	X	3	
NHMW-2		1302		Water	N		X	X	X	X	X	X	X	X	3	
NHMW-3		0851		Water	N		X	X	X	X	X	X	X	X	3	
NHMW-4		1112		Water	N		X	X	X	X	X	X	X	X	3	
NHMW-5		0800		Water	N		X	X	X	X	X	X	X	X	3	
NHMW-6		0930		Water	N		X	X	X	X	X	X	X	X	3	
NHMW-7		1208		Water	N		X	X	X	X	X	X	X	X	3	
DUPLICATE		1500		Water	N		X	X	X	X	X	X	X	X	3	
TRIP BLANK				Water										X	1	
				Water												

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

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

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

Special Instructions/QC Requirements: RL < 15ppb for Lead

Empty Kit Relinquished by:	Date	Time:	Method of Shipment

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	5/20/15 1400	GEI	Sheila Kpat	5/21/15 11:00	TA Spok
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	Date/Time:	Company	Received by	Date/Time:	Company

Custody Seals Intact: △ Yes △ No
Custody Seal No.: 420702
Cooler Temperature(s) °C and Other Remarks: .9 °C IR001

5/29/2015

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-884-1

Login Number: 884
List Number: 1
Creator: Kratz, Sheila J

List Source: TestAmerica Spokane

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

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-884-1

Login Number: 884
List Number: 2
Creator: Ford, Easton

List Source: TestAmerica Nashville
List Creation: 05/22/15 11:38 AM

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

APPENDIX C
Well Survey Report

TIGER OIL MONITORING WELL ELEVATION TABLE YAKIMA, WA			SURVEY DATE 4/30/2015	PLS JOB NO. 15029
FEATURE	NORTH EDGE OF PVC	NORTH RIM OF OUTER CASE	NORTHING	EASTING
EAST NOB HILL				
NHMW-6	1021.80	1022.24	456309.0	1645657.3
NHMW-7	1021.55	1021.87	456418.2	1645440.3
BENCHMARK ELEVATION = 1021.75'	NORTH RIM OF MANHOLE AT CENTER OF S. 17TH STREET 160'+/- SOUTH OF NOB HILL BLVD. CENTERLINE		456316.1	1645712.1

VERTICAL DATUM:	NAVD 88 - REFERENCED FROM WSDOT MONUMENT DESIGNATION GP39012-9, WITH A PUBLISHED ELEVATION OF 1130.33 FEET.
HORIZONTAL DATUM:	NAD 83/91 WASHINGTON SOUTH ZONE - BASED ON GPS MEASUREMENTS USING THE WASHINGTON STATE REFERENCE NETWORK.

The horizontal coordinates of the groundwater monitoring wells and the elevation of the benchmark established at the site were determined using a Topcon GR-3 GPS receiver with a nominal accuracy of 10mm + 1ppm horizontal and 15mm + 1ppm vertical. The elevation of the monitoring wells at each site are relative to the benchmark established at each site and were individually determined using a Leica DNA03 digital level with a vertical accuracy of +/- 0.01 feet.

APPENDIX D
Report Limitations and Guidelines for Use

APPENDIX D
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

GeoEngineers has performed this assessment of the Tiger Oil – East Nob Hill site in Yakima, Washington in general accordance with the Work Plan dated April 15, 2014. This report has been prepared for the exclusive use of the Washington Department of Ecology. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment (ESA) 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 property. No one except the Washington Department of Ecology should rely on this environmental report without first conferring with GeoEngineers. Use of this report is not recommended 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 Tiger Oil – East Nob Hill site in Yakima, 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, it is important not to 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 to the project or property after the date of this report, we recommend that GeoEngineers be given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

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

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

have been executed in accordance with our Agreement with the Client 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 vicinity of the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, 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 substances, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After This Phase II ESA is Completed

Performance of a Phase II ESA is intended to reduce uncertainty regarding the potential for contamination in connection with a property, but no ESA can wholly eliminate that uncertainty. 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 man-made events such as construction on or adjacent to the subject property, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.

Soil and Groundwater End Use

The cleanup criteria referenced in this report are site- and situation-specific. The cleanup criteria may not be applicable for other properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup criteria. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject property or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. We are unable to assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location or its reuse on-site in instances that we did not know 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 subject property. 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 informed opinion about subsurface conditions throughout the property. 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 reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. Without this understanding, there may be 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 need to know more about how these "Report Limitations and Guidelines for Use" apply to your project or property.

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.

A Client that desires these specialized services is advised to obtain them 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