



ASSOCIATED
ENVIRONMENTAL
GROUP, LLC

Subsurface Investigation Report

Conducted on:

Naches Pit Stop

10121 Highway 12

Naches, Washington 98937-9785

Ecology Facility/Site ID: 505

Prepared for:

Mr. Han Chang

10121 Highway 12

Naches, Washington 98937-9785

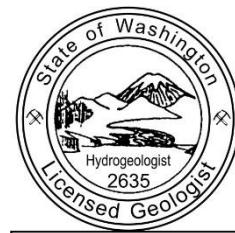
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SCOTT I ROSE

AEG Project #: 16-102
Date of Report: July 08, 2016

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1.0 INTRODUCTION

Associated Environmental Group, LLC (AEG) has completed a Subsurface Investigation at Pit Stop Naches, located at 10121 Highway 12, in Naches, Washington (Site). This Subsurface Investigation was performed in general conformance with ASTM E1903-11, *Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*. The objective of this Subsurface Investigation was to investigate subsurface conditions at the Site, and to define the lateral and vertical extents of contamination at the Site.

To detect potential contamination, AEG advanced five monitoring wells on the property. Soil and groundwater samples were collected and laboratory analyzed for the presence of gasoline- through oil-range total petroleum hydrocarbons (TPH), total lead, cadmium, chromium, arsenic, mercury, 1,2-dichloroethane (EDC), 1,2-dibromoethane (EDB), total naphthalenes, methyl tert- butyl ether (MTBE), and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

1.1 Site and Vicinity Area Background

The Site is located at the intersection of Naches Avenue and Highway 12 in Naches, Washington. A Tesoro-branded gasoline station and convenience store occupies the property, which is assigned Yakima County Tax Parcel No. 171403-32004. The 0.27-acre parcel is occupied by the 2,951-square-foot convenience store and associated fuel canopy. Three underground storage tanks (USTs) are currently operational at the Site: one 8,000-gallon unleaded gasoline UST, one 2,500-gallon gasoline UST, and one 2,500-gallon diesel UST. The western portion of the Site is underlain by a concrete stormwater trench that runs north-south. Figure 1, *Vicinity Map*, presents the general vicinity of the Site. The Site's current layout can be seen in Figure 2, *Site Map*.

1.2 Previous Environmental Activities

Exploratory Investigation for Petroleum Contaminants – White Shield, Inc. – 1991

In 1991, White Shield, Inc. performed an Exploratory Investigation for Petroleum Contaminants at the property to confirm the release of petroleum hydrocarbons from the USTs, fuel islands, and associated piping into soil and groundwater. Four test pits were excavated and samples were obtained from each pit. White Shield (1991) reported that:

“Based on our visual observations, analytical laboratory analyses, olfactory responses (smell), we found gasoline, ethylbenzene and xylene contamination in the soil which requires remedial action. We also found gasoline, diesel, benzene, toluene, ethylbenzene and xylene contamination in the groundwater which again requires remedial action. The vertical and horizontal extent of petroleum contaminants in the soil suggests that the

petroleum contamination originated from the area of the abandoned dispenser island and possibly the area of the underground storage tanks. The relative concentrations of volatile petroleum constituents near the abandoned dispenser island indicates that the petroleum is moderately degraded and appears to be an aged release. The relative concentrations of volatile petroleum constituents near the underground storage tanks suggests that the petroleum is relatively fresh...A plume of petroleum contaminated groundwater, which requires remedial action, extends to the eastern property boundary. Soil contamination, which also requires remedial action, appears to be confined to the area adjacent to the unused dispenser island and a 1 to 2 foot zone above the groundwater surface. It also extends to the eastern property boundary. Although we did not investigate outside the property boundary, it is likely that petroleum hydrocarbons have migrated off-site.”

White Shield then recommended:

“...conducting additional exploration on adjacent properties to determine the extent of the petroleum plume in the soil and groundwater and to assess the potential hazards the plume may present. Once the extents of petroleum plume are known, at least three groundwater monitoring wells should be established to ensure that petroleum contaminants do not migrate and to also allow determination of the precise direction of groundwater flow. Measures should then be taken to contain the plume and halt migration. Once the plume is characterized and contained, an appropriate remediation may be selected to lower petroleum concentrations to acceptable levels. It is likely that excavation of petroleum contamination near the source is appropriate. In this case, removal of the existing tanks is recommended to facilitate soil removal. The tank system should then be replaced with tanks meeting regulatory standards.”

Limited Site Cleanup – Northwest Envirocon, Inc. – 1998

In 1998, Northwest Envirocon, Inc. conducted a limited cleanup of impacted soil at the Site. Northwest Envirocon, Inc. reported that:

“The removal action consisted of excavating the impacted soil to the vertical and lateral extent where field screening and direct observation indicated obviously stained, or odiferous soil. The obviously contaminated material (Sample #BP-P1 4,200/ppm diesel) was temporarily stockpiled on plastic, bermed and covered with plastic, until disposal at the Anderson Rock and Demolition Pit in Yakima landfill was permitted. No petroleum hydrocarbon contamination was detected by WA-TPH-HCID in the confirmation samples (Sample #BP-3, BP-4, and BP-5) from the excavation.”

Phase II Environmental Site Assessment – Associated Environmental Group, LLC – 2016

In January 2016, AEG completed a Phase II Environmental Site Assessment at the Site to investigate possible TPH impacts at the Site. AEG advanced three soil borings to a depth of 15 feet below ground surface (bgs), completing two as monitoring wells, to evaluate the subsurface for the presence of TPH-based contaminants. Due to subsurface conditions at the Site, it was not possible to complete the third soil boring (MW-3) as a monitoring well. Conclusions from the Phase II ESA were as follows:

“Soil contamination was detected above Ecology’s MTCA Method A cleanup levels in soil samples obtained from monitoring well MW-2, from the southeast corner of the Site;

Detections of soil contamination occurred just above the water level at the time of drilling, at approximately 13 feet bgs; and

Groundwater contamination was detected above Ecology’s MTCA Method A cleanup levels in the groundwater sample obtained from monitoring well MW-2, from the southeast corner of the Site.”

1.3 Site Geology and Hydrogeology

According to the United States Department of Agriculture Natural Resources Conservation Service soil survey, the Site consists of soil unit Weirman gravelly fine sandy loam. The Weirman series consists of very deep, somewhat excessively drained soils formed in alluvium on flood plains and low terraces.

Soils encountered at the Site during this investigation consisted primarily of brown, moist, medium dense, silty sand to 4 feet bgs. From approximately 4 to 20 feet bgs, coarse gravel was encountered. Groundwater was encountered at the time of drilling at approximately 11 feet bgs in each of the wells. Groundwater flow direction at the Site is not known; however, based upon local topography, may be inferred to flow towards Naches River, located about 0.26 miles south of the Site.

2.0 OBJECTIVES AND SCOPE OF WORK

AEG was retained to perform this Subsurface Investigation to define the lateral and vertical extents of contamination at the Site. AEG advanced five soil borings to a depth of 20 feet bgs, completing five as monitoring wells, to evaluate the subsurface for the presence of TPH-based contaminants. The monitoring wells were advanced throughout the perimeter of the property (Figure 2, *Site Map*).

Specific tasks performed included:

- Conducting both public and private utility locates for the Site and vicinity. The public rights of way locates were performed by the Underground Utilities Locate Center; Utilities Plus, LLC provided private utility locates for the Site;
- Advancing five monitoring wells to 20 feet bgs at select locations on the Site, using a Sonic drilling rig, operated by Holt Services, Inc;
- Continuously logging the subsurface media during the investigation, to observe and document soil lithology, color, moisture content, and sensory evidence of impairment;
- Collecting soil samples for laboratory analyses at various depths, based on the field observations;
- Purging and collecting groundwater samples from each of the monitoring wells;
- Containing investigation-derived wastes, including soil cuttings, purge water, and decontamination wash fluids, in 55-gallon steel drums, and storing them on Site awaiting the results of laboratory analyses;
- Transporting and submitting soil and groundwater samples to Environmental Services Network NW, Inc. (ESN), a Washington State certified analytical laboratory, for analyses;
- Evaluating laboratory analytical results and comparing data to Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels for soil and groundwater; and
- Preparing this report presenting final documentation of the field activities and methodologies, and summarizing the analytical results, conclusions, and recommendations.

3.0 FIELD METHODOLOGY

3.1 *Monitoring Well Advancement and Construction*

On May 23 and 24, 2016, AEG supervised the advancement of monitoring wells MW-4, MW-5, MW-6, MW-7, and MW-8 at the Site. The monitoring wells were each advanced to a maximum depth of 20 feet bgs via a Sonic drilling rig operated by Holt Services Inc., a licensed driller in the State of Washington. Soil samples were collected during drilling for field screening and laboratory analyses. The locations of the monitoring wells and Site features are illustrated in Figure 2, *Site Map*. Photographs from the investigation are presented in Appendix A, *Site Photographs*. Boring logs and laboratory analytical results are provided in Appendix B, *Supporting Documents, Boring Logs, Laboratory Datasheets*.

Monitoring wells MW-4, MW-5, MW-6, MW-7, and MW-8 were constructed pursuant to the Ecology *Minimum Standards for Construction and Maintenance of Wells*, Chapter 173-160 WAC. Monitoring wells MW-5, MW-6, and MW-8 were constructed to a depth of 20 feet bgs with 15 feet of 2-inch diameter 0.010-inch slot polyvinyl chloride (PVC) screen. Monitoring wells MW-4 and MW-7 were each constructed to a depth of 19 feet bgs with 15 feet of 2-inch diameter 0.010-inch slot PVC screen. The annular space around the well screen was filled with 10/20 Colorado sand to approximately 1 foot above the top of the well screen. Bentonite chips were used above the sand to within 1.5 feet of the ground surface to seal the well. A traffic-rated surface monument was then placed over the well casing to protect it. Ecology tag numbers associated with the monitoring wells are as follows:

- MW-4 BJX 333
- MW-5 BJX 330
- MW-6 BJX 331
- MW-7 BJX 332
- MW-8 BJX 334

At the conclusion of well construction, the wells were developed by Holt Services, Inc. using a submersible pump to withdraw water from the monitoring well at a rate high enough to draw the water level in the well as low as possible and then allowing the well to recharge. Well development was conducted to remove fine-grained sediment from the filter pack and well bore. Development was considered complete when the wells produced water that was clear and relatively free of sediment.

3.2 Soil Sampling Procedures

Soil samples were collected and observed to document soil lithology, color, moisture content, and sensory evidence of impairment. The soil samples were collected using a core barrel and drilling rod. The soil samples were retrieved in transparent plastic sleeves from the core barrel and placed at surface for inspection. All soil samples were screened in the field for organic vapor content utilizing a photoionization detector (PID). The PID readings are presented in the soil boring logs provided in Appendix B, *Supporting Documents, Boring Logs*.

The soil sampling methods for this work followed the protocols established by Ecology and the U.S. Environmental Protection Agency (EPA). To minimize volatile organic compound (VOC) losses, soil sampling for VOCs and field preservation methods followed methods set forth by EPA's Method 5035A and Ecology's guidance, "*Collecting and Preparing Soil Samples for VOC Analysis*".

Soil samples selected for laboratory analyses were immediately transferred to laboratory-provided containers. All soil samples were placed in a portable chilled ice chest and couriered to the Environmental Services Network Northwest, Inc. (ESN) chemistry laboratory. Soil samples were handled and transported following industry standard chain-of-custody procedures. Laboratory analyses included:

- Gasoline-range TPH using Method NWTPH-Gx;
- Diesel- and oil-range TPH using Method NWTPH-Dx/Dx Extended;
- BTEX, EDC, EDB, Total Naphthalenes, and MTBE using EPA Method 8260C; and
- Total lead using EPA Method 7010 Series.

All analytical soil results were compared to the Ecology MTCA Method A soil cleanup levels.

3.3 Groundwater Sampling Procedures

On May 27, 2016, AEG returned to the Site and sampled the groundwater from monitoring wells MW-1, MW-2, and MW-4 through MW-8. Dedicated polyethylene tubing was inserted into each well, and groundwater was purged using a peristaltic pump and EPA-approved low-flow purge techniques until the field parameters (temperature, conductivity, total dissolved solids, salinity, dissolved oxygen, pH, and oxygen reduction potential) were stabilized and discharge was relatively free of sediment. A groundwater sample was then collected from the monitoring well and placed into a laboratory-provided pre-weighed 40-milliliter (ml) volatile organic analysis (VOA) glass vial. Groundwater samples were analyzed for:

- Gasoline-range TPH using Method NWTPH-Gx;
- Diesel- and oil-range TPH using Method NWTPH-Dx/Dx Extended;
- BTEX, EDC, EDB, Total Naphthalenes, and MTBE using EPA Method 8260C;
- Total lead, cadmium, chromium, and arsenic using EPA Method 7010 Series; and
- Mercury using EPA Method 7470.

3.4 *Quality Controls*

To ensure that quality information was obtained at the Site:

- All samples were collected in general accordance with industry protocols for the collection, documentation, and handling of environmental samples.
- Descriptions of soil and groundwater sampling depths were carefully logged in the field. The driller and geologist confirmed sample depths as soil samples were collected.
- Nitrile gloves were worn when handling all sampling containers and sampling devices. Clean gloves were used at each soil boring to prevent cross contamination.
- Sampling equipment was scrubbed with Alconox detergent and rinsed with water prior to each sample extracted.
- Soil samples were tightly packed into laboratory-provided dedicated sampling containers to eliminate sample headspace.
- Groundwater samples were collected using laboratory-provided dedicated sampling containers using zero headspace sampling techniques.
- Upon sampling, all soil and groundwater samples were immediately placed into chilled ice chests, and transported for analysis under a chain-of-custody protocol to the ESN analytical laboratory in Olympia, Washington.

The analytical laboratory provided project quality assurance/quality control (QA/QC), including:

- Surrogate recoveries for each sample;
- Duplicate results;
- Method blank results; and
- Laboratory control samples.

All analytical laboratory QA/QC results were within required tolerances. Analytical Laboratory results are provided in Appendix B, *Supporting Documents, Laboratory Datasheets*.

3.5 Investigation-Derived Waste

Investigation-derived waste for this project consisted of soil cuttings from the subsurface exploration activities and decontamination water from decontamination of the drilling core barrel and associated equipment. These wastes were separated and placed in U.S. Department of Transportation-approved 55-gallon drums. The drums were appropriately labelled, and stored on Site for subsequent characterization and disposal.

4.0 ANALYTICAL RESULTS

Analytical results obtained from soil and groundwater samples were compared to MTCA Method A cleanup levels. Copies of the laboratory analytical results are provided in Appendix B, *Supporting Documents, Laboratory Datasheets*.

4.1 Soil Analytical Results

Analytical results of soil samples did not detect any constituents of concern above laboratory detection limits. Table 1, *Summary of Soil Analytical Results*, presents the soil analytical results for all samples analyzed as compared to MTCA Method A soil cleanup levels.

4.2 Groundwater Analytical Results

Analytical results of the groundwater samples did not detect any constituents of concern above laboratory detection limits, with the exception of total lead in MW-4 and MW-7. These exceedances included the following:

- Total lead was detected **above** the Ecology MTCA Method A cleanup level in monitoring wells MW-4 and MW-7 at concentrations of 84 micrograms per liter ($\mu\text{g/l}$) and 102 $\mu\text{g/l}$, respectively.

Table 2, *Summary of Groundwater Analytical Results*, presents the groundwater analytical results compared to MTCA Method A groundwater cleanup levels.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions derived during the subsurface investigation activities at the Site are as follows:

5.1 *Conclusions*

- Soil contamination was not detected above MTCA Method A cleanup levels in soil samples obtained from the Site.
- Total lead was detected above Ecology's MTCA Method A cleanup levels in the groundwater samples obtained from monitoring well MW-4 and MW-7. Lead was not detected in soil samples collected during the advancement of MW-4 and MW-7.
- No other constituents of concern were detected in groundwater samples above MTCA Method A cleanup levels. This includes gasoline- and diesel-range TPH previously detected in MW-2.

5.2 *Recommendations*

Based on the conclusions from this investigation, AEG recommends the following:

- A professional survey of all existing monitoring wells at the Site be conducted to determine groundwater flow direction and gradient;
- Groundwater monitoring and sampling for at least three additional quarters be conducted to determine any seasonal variation in contaminant concentrations. Analyses should include both total and dissolved lead, in addition to gasoline-, diesel-, and oil-range TPH and BTEX; and
- Upon collection of additional data, a Remedial Investigation Report should be drafted and submitted to Ecology for review and opinion under the Voluntary Cleanup Program.

6.0 LIMITATIONS

This report summarizes the findings of the services authorized under our agreement with Mr. Han Chang. It has been prepared using generally accepted professional practices, related to the nature of the work accomplished. This report was prepared for the exclusive use of Mr. Chang and his designated representatives, for the specific application to the project purpose.

Recommendations, opinions, Site history, and proposed actions contained in this report apply to conditions and information available at the time this report was completed. Since conditions and regulations beyond our control can change at any time after completion of this report, or our proposed work, we are not responsible for any impacts of any changes in conditions, standards, practices, and/or regulations subsequent to our performance of services. We cannot warrant or validate the accuracy of information supplied by others, in whole or part.

7.0 REFERENCES

American Society for Testing and Materials (ASTM) Standard E 1903-97. *Standard Guide Environmental Site Assessments: Phase II Environmental Site Assessment Process*.

Associated Environmental Group, LLC. 2016. *Phase II Environmental Site Assessment*, dated March 4, 2016.

Northwest Envirocon, Inc. 1998. *Limited Site Cleanup at the BP-Pit Stop, Naches, Washington*, dated June 20, 1998.

US EPA Method 5035A. *Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples*.

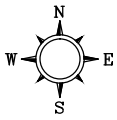
Washington State Department of Ecology, 2004, *Collecting and Preparing Soil Samples for VOC Analysis*, Implementation Memorandum #5.

Washington State Department of Ecology, 2007, *Model Toxic Control Act Statute and Regulation – Chapter 173-340 WAC*, Publication number 94-06 (Revised November 2007).

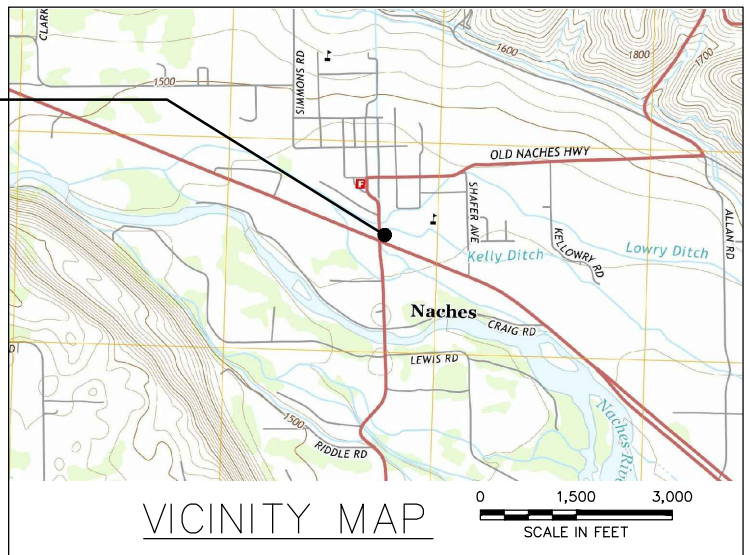
White Shield, Inc. 1991. *Exploratory Investigation for Petroleum Contaminants at the Pit Stop, Naches, WA*, dated July 3, 1991.

FIGURES

FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
16-102_1504.DWG	ICD	BD	BD	16-102
	2/1/2016	2/1/2016	2/1/2016	



PROJECT LOCATION

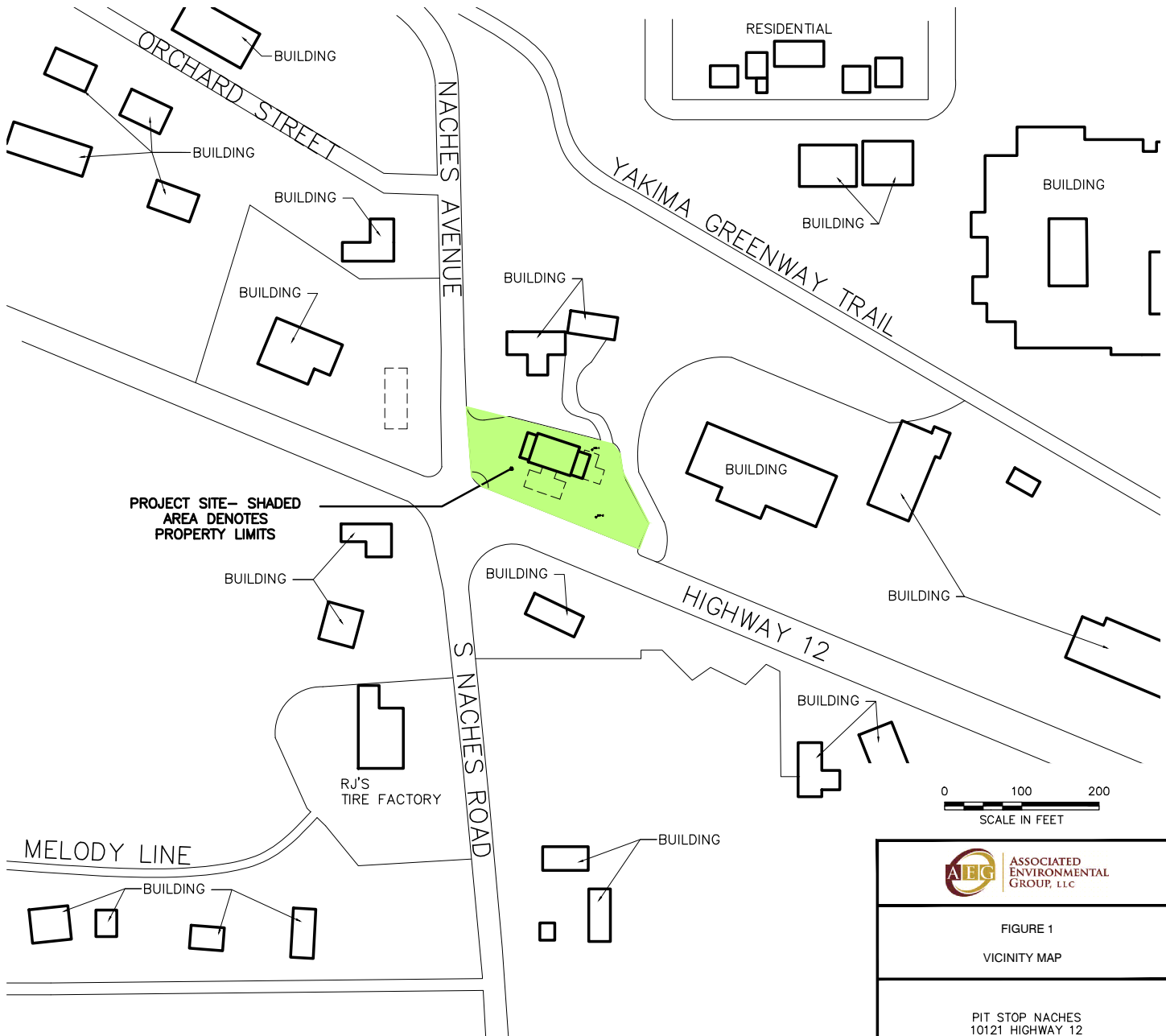


NOTES

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.

REFERENCE

DRAWING CREATED FROM AERIAL PHOTOGRAPH AND NOTES PROVIDED BY AEG, LLC.
VICINITY IMAGE SOURCE: U.S. GEOLOGICAL SURVEY-2013, 7.5 MINUTE QUADRANGLE MAP NACHES, WASHINGTON



AIEG ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 1
VICINITY MAP

PIT STOP NACHES
10121 HIGHWAY 12
NACHES, WASHINGTON

FILENAME 16-102_1504.DWG
 DRAWN BY ICD 2/01/2016
 CHECKED BY BD 2/01/2016
 APPROVED BY BD 2/01/2016
 PROJECT NUMBER 16-102

NACHES AVENUE

HIGHWAY 12

BUILDING

BUILDING

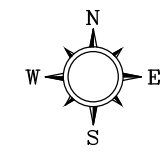
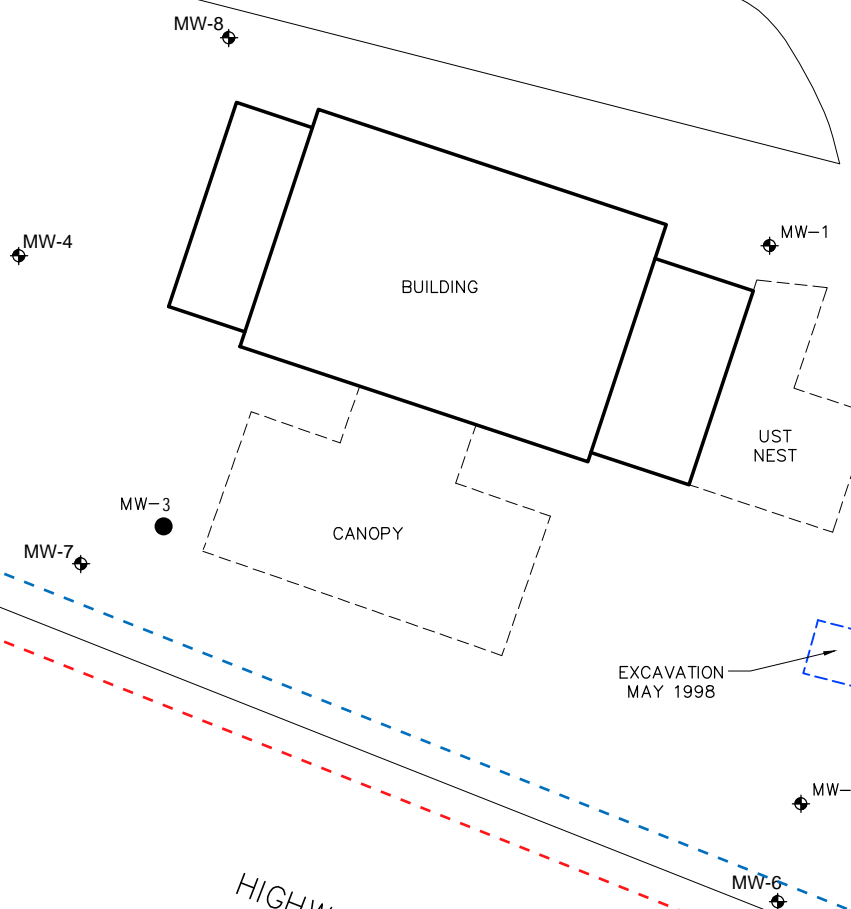
CANOPY

UST NEST

FLOWER STAND

SIGN

EXCAVATION
MAY 1998



LEGEND

- MW-1 ◆ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-3 ● SOIL BORING LOCATION
- WATER LINE
- POWER LINE

NOTES

1. THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE
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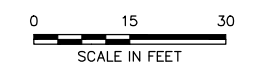


FIGURE 2
SITE MAP

PIT STOP NACHES
10121 HIGHWAY 12
NACHES, WASHINGTON

TABLES

Table 1 - Summary of Soil Analytical Results

Naches Pit Stop
Naches, Washington

Sample Number	Depth Collected (feet)	Date Collected	Volatile Organic Compounds (mg/kg)				Total Petroleum Hydrocarbons (TPH) (mg/kg)			Lead (mg/kg)	EDC (mg/kg)	EDB (mg/kg)	Total Naphthalenes (mg/kg)	MTBE (mg/kg)
			Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline	Diesel	Heavy Oil					
MW1-13	13.0	1/21/2016	<0.02	<0.05	<0.05	<0.15	<10	<50	<100	--	--	--	--	--
MW1-15	15.0	1/21/2016	<0.02	<0.05	<0.05	<0.15	<10	<50	<100	--	--	--	--	--
MW2-8	8.0	1/21/2016	<0.02	<0.05	<0.05	<0.15	<10	<50	<100	--	--	--	--	--
MW2-13	13.0	1/21/2016	<0.02	<0.05	<0.05	<0.15	<10	1,400	<100	--	--	--	--	--
MW2-15	15.0	1/21/2016	<0.02	<0.05	<0.05	<0.15	<10	<50	<100	--	--	--	--	--
MW3-10	10.0	1/21/2016	<0.02	<0.05	<0.05	<0.15	<10	<50	<100	--	--	--	--	--
MW4-5	5.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	<5.0	<0.03	<0.005	<0.10	<0.05
MW4-10	10.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	<5.0	<0.03	<0.005	<0.10	<0.05
MW5-5	5.0	5/23/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
MW5-10	10.0	5/23/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
MW6-5	5.0	5/23/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
MW6-10	10.0	5/23/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
MW7-5a	5.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	<5.0	<0.03	<0.005	<0.10	<0.05
MW7-6	6.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	<5.0	<0.03	<0.005	<0.10	<0.05
MW7-10	10.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	<5.0	<0.03	<0.005	<0.10	<0.05
MW8-5	5.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
MW8-10	10.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
MW8-15	15.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
MW8-20	20.0	5/24/2016	<0.02	<0.10	<0.05	<0.15	<10	<50	<250	--	--	--	--	--
PQL (mg/kg)			0.02	0.05 / 0.10	0.05	0.15	10	50	100	5.0	0.03	0.005	0.10	0.05
MTCA Method A Cleanup Levels (mg/kg)			0.03	7	6	9	100*	2,000	2,000	250	11**	0.005	5.0	0.1

Notes:

mg/kg = milligrams per kilogram

-- = Not analyzed for constituent

< = Not detected at the listed laboratory detection limits

EDC = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

MTBE = Methyl tert-butyl ether

PQL = Practical Quantification Limit (laboratory detection limit)

Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

* TPH-Gasoline cleanup level with no presence of Benzene anywhere at the Site

** No MTCA Method A cleanup level established, Method B cleanup level used

Table 2 - Summary of Groundwater Analytical Results

Naches Pit Stop
Naches, Washington

Sample Number	Date Collected	Volatile Organic Compounds (µg/l)				Total Petroleum Hydrocarbons (TPH) (µg/l)			Lead (µg/l)	Cadmium (µg/l)	Chromium (µg/l)	Arsenic (µg/l)	Mercury (µg/l)	EDC (µg/l)	EDB (µg/l)	Total Naphthalenes (µg/l)	MTBE (µg/l)
		Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline	Diesel	Heavy Oil									
MW-1	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--
MW-2	1/21/2016	<1.0	<1.0	<1.0	<3.0	3,000	61,000	<500	--	--	--	--	--	--	--	--	--
	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--
MW-4	5/27/2016	<1.0	<1.0	<1.0	<2.0	<100	<200	<400	84	<0.5	<5.0	<3.0	<0.5	<1.0	<0.01	<5.0	<5.0
MW-5	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--
MW-6	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--
MW-7	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	102	<0.5	<5.0	<3.0	<0.5	<1.0	<0.01	<5.0	<5.0
MW-8	5/27/2016	<1.0	<2.0	<1.0	<2.0	<100	<200	<400	--	--	--	--	--	--	--	--	--
PQL (µg/l)		1.0	1.0 / 2.0	1.0	2.0 / 3.0	100	200	400	5.0	0.5	5.0	3.0	0.5	1.0	0.01	5.0	5.0
MTCA Method A Cleanup Levels (µg/l)		5.0	1,000	700	1,000	1000*	500	500	15	2	19	20	2	5	0.01	160	20

Notes:

µg/L = micrograms per liter

-- = Not analyzed for constituent

< = Not detected at the listed laboratory detection limits

EDC = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

MTBE = Methyl tert-butyl ether

PQL = Practical Quantification Limit (laboratory detection limit)

Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

* TPH-Gasoline Cleanup Level with no presence of Benzene anywhere at the Site







APPENDIX A

Site Photographs

PROPERTY AND VICINITY PHOTOGRAPHIC RECORD

Project No.: 16-102







Project Name: Naches Pit Stop, Naches, Washington

			
<p>Photo #1:</p>	<p>Photo looking northeast at the location of monitoring well MW-5.</p>		<p>Photo #2:</p> <p>Photo looking at soil cuttings from monitoring well MW-5.</p>
			
<p>Photo #3:</p>	<p>Photo looking east at the location of monitoring well MW-6.</p>		<p>Photo #4:</p> <p>Photo looking at soil cuttings from monitoring well MW-6.</p>
			
<p>Photo #5:</p>	<p>Photo looking east at the location of monitoring well MW-7.</p>		<p>Photo #6:</p> <p>Photo looking at soil cuttings from monitoring well MW-7.</p>

PROPERTY AND VICINITY PHOTOGRAPHIC RECORD

Project No.: 16-102

Project Name: Naches Pit Stop, Naches, Washington

			
<p>Photo # 7</p>	<p>Photo looking east at the location of monitoring well MW-4.</p>	<p>Photo # 8</p>	<p>Photo looking at soil cuttings from monitoring well MW-4.</p>
			
<p>Photo # 9</p>	<p>Photo looking northeast at the location of monitoring well MW-8.</p>	<p>Photo # 10</p>	<p>Photo looking at soil cuttings from monitoring well MW-8.</p>
			
<p>Photo # 11</p>	<p>Photo looking at rock core from monitoring well MW-4.</p>	<p>Photo # 12</p>	<p>Photo looking at typical surface monument of monitoring well MW-5.</p>

APPENDIX B

Supporting Documents

Boring Logs

Laboratory Datasheets

LOG OF BOREHOLE

PROJECT: <i>Naches Pit Stop</i>	JOB # <i>16-102</i>	Monitoring Well # <i>MW-4</i>	PAGE <i>1 OF 1</i>
Location: <i>10121 Highway 12, Naches, WA</i>	Approximate Elevation: <i>1461 feet above mean sea level</i>		
Subcontractor / Driller: <i>Holt / Pete</i>	Equipment / Drilling Method: <i>Sonic Drilling Rig</i>		
Date: <i>May 24, 2016</i>	Logged By: <i>Nicolas Pushckor</i>		

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	3 inch asphalt surface underlain by; Brown, moist, medium dense, <u>SILTY SAND</u> ; fine grained sand	SW	1				N/A		None	
			2							
			3							
			4							
5	At 4 feet; Gray, dry, very dense, <u>GRAVEL</u> ; coarse grained gravel	GP	5		MW4-5	11:16		1.3		
			6							
			7							
			8							
			9							
10			10		MW4-10	11:36		7.9		
	At 11 feet; Wet		11							
			12	⊗						
			13							
			14							
15			15		MW4-15	11:44		0.6		
			16							
			17							
			18							
			19							
20			20		MW4-20	11:44		0.9		
			21							
			22							
			23							
			24							
			25							

Total Depth = 20 feet

Explanation	Monitoring Well Construction	Ecology Tag # BJX 333
Sample Advance / Recovery	Grout/Concrete	
No Recovery	3/4-inch bentonite chips	
Contact located approximately	Silica sand	
Groundwater level at time of drilling or date of measurement	2-inch diameter blank PVC casing from	
	2-inch diameter PVC 0.01 slotted screen	

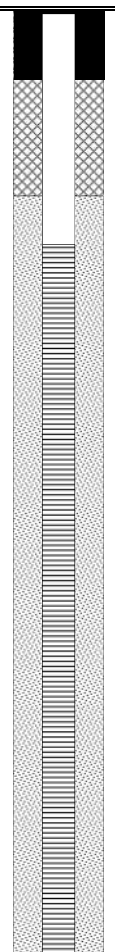
LOG OF BOREHOLE

PROJECT: *Naches Pit Stop* **JOB #** *16-102* **Monitoring Well #** *MW-5* **PAGE 1 OF 1**




Location: *10121 Highway 12, Naches, WA* **Approximate Elevation:** *1461 feet above mean sea level*

Subcontractor / Driller: *Holt / Pete* **Equipment / Drilling Method:** *Sonic Drilling Rig*






Date: *May 23, 2016* **Logged By:** *Nicolas Pushckor*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	3 inch asphalt surface underlain by; Brown, moist, medium dense, SILTY SAND ; fine grained sand	SW	1				N/A		None	
	At 2 feet; Gray, dry, very dense, GRAVEL ; coarse grained gravel	GP	2							
5			3		MW5-5	11:13		0.0		
			4							
			5							
			6							
			7							
			8							
			9							
10			10		MW5-10	11:22		0.0		
	At 11 feet; Wet		11							
			12							
			13	⊗						
			14							
15			15							
			16		MW5-16	11:28		5.0		
			17							
			18							
			19							
20			20							
	Total Depth = 20 feet									
25										

Explanation

-  Sample Advance / Recovery
-  No Recovery
- - - - Contact located approximately
-  Groundwater level at time of drilling or date of measurement

Monitoring Well Construction

-  Grout/Concrete
-  3/4-inch bentonite chips
-  Silica sand
-  2-inch diameter blank PVC casing from
-  2-inch diameter PVC 0.01 slotted screen

Ecology Tag #
BJX 330

LOG OF BOREHOLE

PROJECT: *Naches Pit Stop* **JOB #** *16-102* **Monitoring Well #** *MW-6* **PAGE 1 OF 1**




Location: *10121 Highway 12, Naches, WA* **Approximate Elevation:** *1461 feet above mean sea level*

Subcontractor / Driller: *Holt / Pete* **Equipment / Drilling Method:** *Sonic Drilling Rig*






Date: *May 23, 2016* **Logged By:** *Nicolas Pushckor*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	3 inch asphalt surface underlain by; Brown, moist, medium dense, SILTY SAND ; fine grained sand	SW	1				N/A		None	
	At 2 feet; Gray, dry, very dense, GRAVEL ; coarse grained gravel	GP	2							
5			3		MW6-5	13:53		1.3		
			4							
			5							
			6							
			7							
			8							
			9							
10			10		MW6-10	13:57		0.8		
			11							
			12	⊗						
			13							
			14							
15	At 15 feet; Wet	▼	15		MW6-15	14:03		1.2		
			16							
			17							
			18							
	From 18 to 19 feet; Discolored gray soil		19		MW6-19	14:03		0.4		
			20							
			21							
	Total Depth = 20 feet									
25										

Explanation

-  Sample Advance / Recovery
-  No Recovery
- - - - Contact located approximately
-  Groundwater level at time of drilling or date of measurement

Monitoring Well Construction

-  Grout/Concrete
-  3/4-inch bentonite chips
-  Silica sand
-  2-inch diameter blank PVC casing from
-  2-inch diameter PVC 0.01 slotted screen

Ecology Tag #
BJX 331

LOG OF BOREHOLE

PROJECT: *Naches Pit Stop* **JOB #** *16-102* **Monitoring Well #** *MW-7* **PAGE 1 OF 1**

Location: *10121 Highway 12, Naches, WA* **Approximate Elevation:** *1461 feet above mean sea level*

Subcontractor / Driller: *Holt / Pete* **Equipment / Drilling Method:** *Sonic Drilling Rig*

Date: *May 24, 2016* **Logged By:** *Nicolas Pushckor*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
	3 inch asphalt surface underlain by; Brown, moist, medium dense, SILTY SAND ; fine grained sand	SW	1				N/A		None	
			2							
			3							
			4							
5	At 4 feet; Gray, dry, very dense, GRAVEL ; coarse grained gravel	GP	5		MW7-5a	8:24		139		
			6		MW7-6	8:50		71.4		
			7							
			8							
			9							
10			10		MW7-10	9:02		44.7		
			11							
			12	⊗						
			13							
			14							
15	At 15 feet; Wet	▼	15		MW7-15	9:10		2.7		
			16							
			17							
			18							
			19							
20			20		MW7-20	9:10		7.5		

Total Depth = 20 feet

Concrete was encountered at 5 feet bgs, boring moved to the east

Explanation		Monitoring Well Construction		Ecology Tag # BJX 332
Sample Advance / Recovery	No Recovery	Grout/Concrete	3/4-inch bentonite chips	
--- Contact located approximately	Groundwater level at time of drilling or date of measurement	Silica sand	2-inch diameter blank PVC casing from	
		2-inch diameter PVC 0.01 slotted screen		

LOG OF BOREHOLE

PROJECT: *Naches Pit Stop* **JOB #** *16-102* **Monitoring Well #** *MW-8* **PAGE 1 OF 1**




Location: *10121 Highway 12, Naches, WA* **Approximate Elevation:** *1461 feet above mean sea level*

Subcontractor / Driller: *Holt / Pete* **Equipment / Drilling Method:** *Sonic Drilling Rig*






Date: *May 24, 2016* **Logged By:** *Nicolas Pushckor*

Boring Depth (feet)	Soil Description	Unified Soil Symbol	Sample Depth	Sample Recovery	Sample Number	Time	Blows/Foot	PID Reading	Sheen	Monitoring Well Construction
0	3 inch asphalt surface underlain by; Brown, moist, medium dense, SILTY SAND ; fine grained sand	SW	1				N/A		None	
5	At 5 feet; Gray, dry, very dense, GRAVEL ; coarse grained gravel	GP	2		MW8-5	13:07		3.2		
10	At 10.5 feet; Wet		3							
			4							
			5							
			6							
			7							
			8							
			9							
15			10		MW8-10	13:15		20.2		
			11							
			12							
			13							
			14							
			15		MW8-15	13:30		30.4		
			16							
			17							
			18							
			19							
20			20		MW8-20	13:30		4.9		
	Total Depth = 20 feet									
25										

Explanation

-  Sample Advance / Recovery
-  No Recovery
- - - - Contact located approximately
-  Groundwater level at time of drilling or date of measurement

Monitoring Well Construction

-  Grout/Concrete
-  3/4-inch bentonite chips
-  Silica sand
-  2-inch diameter blank PVC casing from
-  2-inch diameter PVC 0.01 slotted screen

Ecology Tag #
BJX 334



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

June 6, 2016

Michael Chun
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Mr. Chun:

Please find enclosed the analytical data report for the Naches Pit Stop Project located in Naches, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-2
Client Project # 16-102

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@aol.com

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Soil

Sample Number	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline (mg/kg)	Surrogate Recovery (%)
Method Blank	6/2/16	nd	nd	nd	nd	nd	98
LCS	6/2/16	115%	114%				90
MW5-5	6/2/16	nd	nd	nd	nd	nd	67
MW5-10	6/2/16	nd	nd	nd	nd	nd	76
MW6-5	6/2/16	nd	nd	nd	nd	nd	74
MW6-10	6/2/16	nd	nd	nd	nd	nd	74
MW6-10 Dup	6/2/16	nd	nd	nd	nd	nd	79
MW8-5	6/2/16	nd	nd	nd	nd	nd	75
MW8-10	6/2/16	nd	nd	nd	nd	nd	75
MW8-10 Dup	6/2/16	nd	nd	nd	nd	nd	99
MW8-15	6/2/16	nd	nd	nd	nd	nd	75
MW8-20	6/2/16	nd	nd	nd	nd	nd	73
MW7-6 MS	6/2/16	96%	82%				77
MW7-6 MSD	6/2/16	93%	83%				73
Practical Quantitation Limit		0.02	0.10	0.05	0.15	10	

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-2
Client Project # 16-102

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Specific Halogenated and Aromatic Hydrocarbons by EPA 8260C in Soil

Sample Description	Method	MW7-5a	MW7-6	MW7-10	MW4-5	MW4-10
	Blank					
Date Sampled	N/A	5/23/16	5/23/16	5/23/16	5/23/16	5/23/16
Date Analyzed	PQL	6/2/16	6/2/16	6/2/16	6/2/16	6/2/16
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.02	nd	nd	nd	nd	nd
Toluene	0.10	nd	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd	nd
Total Xylenes	0.15	nd	nd	nd	nd	nd
1,2-Dichloroethane (EDC)	0.03	nd	nd	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.005	nd	nd	nd	nd	nd
Total Naphthalenes	0.10	nd	nd	nd	nd	nd
Methyl <i>tert</i> - Butyl Ether (MTBE)	0.05	nd	nd	nd	nd	nd
Surrogate Recovery						
Dibromofluoromethane	126	96	101	97	96	104
1,2-Dichloroethane-d4	120	102	110	103	105	119
Toluene-d8	98	72	72	95	98	66
4-Bromofluorobenzene	67	107	114	104	96	88

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

* ANALYZED BY SIM

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
 AEG, LLC
 Naches, Washington
 Libby Project # L160527-2
 Client Project # 16-102

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QA/QC Data - EPA 8260C Analyses

Sample Identification: MW7-6							
	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Benzene	0.5	0.48	96	0.5	0.46	92	4.3
Toluene	0.5	0.41	82	0.5	0.42	84	2.4

Surrogate Recovery

Dibromofluoromethane	102	96
1,2-Dichloroethane-d4	106	101
Toluene-d8	77	73
4-Bromofluorobenzene	103	93

Laboratory Control Sample

	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Benzene	0.5	0.57	114
Toluene	0.5	0.57	114

Surrogate Recovery

Dibromofluoromethane	115
1,2-Dichloroethane-d4	107
Toluene-d8	90
4-Bromofluorobenzene	74

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-2
Client Project # 16-102

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Analyses of Gasoline (NWTPH-Gx) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline (mg/kg)
Method Blank	6/2/16	98	nd
MW7-5a	6/2/16	72	nd
MW7-6	6/2/16	72	nd
MW7-10	6/2/16	95	nd
MW4-5	6/2/16	98	nd
MW4-10	6/2/16	66	nd
Practical Quantitation Limit			10

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Trifluorotoluene): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-2
Client Project # 16-102

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Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Soil

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel (mg/kg)	Oil (mg/kg)
Method Blank	5/31/16	100	nd	nd
Method Blank	6/1/16	108	nd	nd
MW5-5	5/31/16	113	nd	nd
MW5-10	5/31/16	120	nd	nd
MW6-5	5/31/16	106	nd	nd
MW6-10	5/31/16	122	nd	nd
MW7-5a	5/31/16	99	nd	nd
MW7-6	5/31/16	114	nd	nd
MW7-10	5/31/16	104	nd	nd
MW4-5	5/31/16	118	nd	nd
MW4-10	5/31/16	104	nd	nd
MW8-5	5/31/16	118	nd	nd
MW8-5 Dup	5/31/16	115	nd	nd
MW8-10	5/31/16	96	nd	nd
MW8-15	6/1/16	111	nd	nd
MW8-20	6/1/16	103	nd	nd
MW8-20 Dup	6/1/16	102	nd	nd
Practical Quantitation Limit			50	250

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Maria Friedrich

Libby Environmental, Inc.

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NACHES PIT STOP PROJECT

AEG, LLC

Naches, Washington

Libby Project # L160527-2

Client Project # 16-102

Analyses of Total Lead in Soil by EPA Method 7010 Series

Sample Number	Date Analyzed	Lead (mg/kg)
Method Blank	6/5/16	nd
MW7-5a	6/5/16	nd
MW7-6	6/5/16	nd
MW7-10	6/5/16	nd
MW4-5	6/5/16	nd
MW4-10	6/5/16	nd
MW4-10 Dup	6/5/16	nd
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-2
Client Project # 16-102

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QA/QC for Lead in Soil by EPA Method 7010 Series

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	6/5/16	103%
MW4-10 MS	6/5/16	89%
MW4-10 MSD	6/5/16	84%
RPD	6/5/16	7%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE Olympia, WA 98506
 Ph: 360-352-2110 Fax: 360-352-4154

Date: 5-27-16 Page: 1 of 2

Client: AEG
 Address: 605 11th Ave SE Suite 201
 City: Olympia State: WA Zip: 98501
 Phone: 360 352 9835 Fax: 360 352 8164
 Client Project # 16-102

Project Manager: Mike Chun
 Project Name: Naches Pit Stop
 Location: 10121 Hwy 12 City, State: Naches, WA
 Collector: Nicolas Pushckor Date of Collection: 5/23, 5/24
 Email: npushckor@degwa.com



Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTC 5 Metals	RCRA 8 Metals	EDB/EDC/MPPE	Naphthalenes	Total Lead	Field Notes				
1 MW5-5	5	1113	soil	VDA/JAR	X	X		X											5/23				
2 MW5-10	10	1122	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]	[Handwritten wavy lines]				
3 MW5-16	16	1128																		hold			
4 MW6-5	5	1353																					
5 MW6-10	10	1357																					
6 MW6-15	15	1403																		hold			
7 MW6-19	19	1403																		hold			
8 MW7-5a	5	824																		X	X	X	5/24
9 MW7-6	6	850																					
10 MW7-10	10	902																					
11 MW7-15	15	910																		hold			
12 MW7-20	20	910																		hold			
13 MW4-5	5	1116																					
14 MW4-10	10	1136																					
15 MW4-15	15	1144																		hold			
16 MW4-20	20	1144																		hold			

Relinquished by: M PM 5/27 1404	Date / Time	Received by: [Signature] 5/27/16 1404	Date / Time	Sample Receipt Good Condition? <input checked="" type="radio"/> N Temp. -3 °C Seals Intact? <input checked="" type="radio"/> N N/A Total Number of Containers 60	Remarks: TAT: 24HR 48HR 5-DAY
Relinquished by:	Date / Time	Received by:	Date / Time		
Relinquished by:	Date / Time	Received by:	Date / Time		
Relinquished by:	Date / Time	Received by:	Date / Time		

Libby Environmental, Inc.

Chain of Custody Record

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 5-27-16 Page: 2 of 2

Client: A/E
Address: 605 11th Ave SE, Suite 201
City: Olympia State: WA Zip: 98501
Phone: 360 352 9835 Fax: 360 352 8164
Client Project # 16-102

Project Manager: Mike Chun
Project Name: Naches Pit Stop
Location: 10121 Hwy 12 City, State: Naches, WA
Collector: Nicolas Pushkeor Date of Collection: 5/24
Email: npushkeor@aequa.com



Sample Number	Depth	Time	Sample Type	Container Type											Field Notes									
					VOC 8260	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals		RCRA 8 Metals								
1	MW8-5	5	1307	Soil	VOL/JAR	X	X		X															
2	MW8-10	10	1315																					
3	MW8-15	15	1330																					
4	MW8-20	20	1330																					
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								

Relinquished by:	Date / Time	Received by:	Date / Time	Sample Receipt Good Condition? <input checked="" type="radio"/> N Temp. <u>-3</u> °C Seals Intact? <input checked="" type="radio"/> N N/A Total Number of Containers <u>60</u>	Remarks:
<u>MM PM</u>	<u>5/27 1404</u>	<u>Woody Eley</u>	<u>5/27/16 1404</u>		
Relinquished by:	Date / Time	Received by:	Date / Time		
Relinquished by:	Date / Time	Received by:	Date / Time	TAT: 24HR 48HR <u>5-DAY</u>	

Libby Environmental, Inc.

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NACHES PIT STOP PROJECT

AEG, LLC

Naches, Washington

Libby Project # L160527-3B

Client Project # 16-102

Analyses of Total Metals in Water by EPA Method 7010 Series

Sample Number	Date Analyzed	Cadmium µg/L	Chromium µg/L	Arsenic µg/L
Method Blank	6/21/16	nd	nd	nd
MW-4	6/21/16	nd	nd	nd
MW-8	6/21/16	nd	nd	nd
MW-8 Dup	6/21/16	nd	nd	nd
Practical Quantitation Limit		0.5	5.0	3.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Jamie Deyman

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3B
Client Project # 16-102

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Phone: (360) 352-2110
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QA/QC for Metals in Water by EPA Method 7010 Series

Sample Number	Date Analyzed	Cadmium (% Recovery)	Chromium (% Recovery)	Arsenic (% Recovery)
LCS	6/21/16	110%	115%	112%
MW-8 MS	6/21/16	105%	107%	91%
MW-8 MSD	6/21/16	100%	97%	88%
RPD	6/21/16	5%	10%	3%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Jamie Deyman

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3B
Client Project # 16-102

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Analyses of Total Mercury in Water by EPA Method 7470.

Sample Number	Date Analyzed	Mercury $\mu\text{g/L}$
Method Blank	6/21/16	nd
MW-4	6/21/16	nd
MW-8	6/21/16	nd
MW-8 Dup	6/21/16	nd
Practical Quantitation Limit		0.5

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Jamie Deyman

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3B
Client Project # 16-102

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QA/QC for Mercury by EPA Method 7470

Sample Number	Date Analyzed	Mercury (% Recovery)
LCS	6/21/16	102%
MW-8 MS	6/21/16	93%
MW-8 MSD	6/21/16	107%
RPD	6/21/16	14%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Jamie Deyman



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

June 7, 2016

Michael Chun
Associated Environmental Group, LLC
605 11th Avenue SE, Suite 201
Olympia, WA 98501

Dear Mr. Chun:

Please find enclosed the analytical data report for the Naches Pit Stop Project located in Naches, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt
Senior Chemist
Libby Environmental, Inc.

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3
Client Project # 16-102

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Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Water

Sample Number	Date Analyzed	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	Gasoline (µg/l)	Surrogate Recovery (%)
Method Blank	5/31/16	nd	nd	nd	nd	nd	107
LCS	5/31/16	102%	116%				107
MW-1	5/31/16	nd	nd	nd	nd	nd	102
MW-5	5/31/16	nd	nd	nd	nd	nd	99
MW-2	5/31/16	nd	nd	nd	nd	nd	100
MW-6	5/31/16	nd	nd	nd	nd	nd	100
MW-8	5/31/16	nd	nd	nd	nd	nd	100
L160527-4 MS	5/31/16	92%	103%				119
L160527-4 MSD	5/31/16	93%	105%				132
Practical Quantitation Limit		1.0	2.0	1.0	2.0	100	

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Kodey Eley

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3
Client Project # 16-102

4139 Libby Road NE
Olympia, WA 98506
Phone: (360) 352-2110
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Analyses of Gasoline (NWTPH-Gx) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline ($\mu\text{g/l}$)
Method Blank	5/31/16	107	nd
MW-7	5/31/16	100	nd
MW-4	5/31/16	101	nd
Practical Quantitation Limit			100

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Toluene-d8): 65% TO 135%

ANALYSES PERFORMED BY: Kodey Eley

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3
Client Project # 16-102

4139 Libby Road NE
Olympia, WA 98506
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Email: libbyenv@aol.com

Specific Halogenated and Aromatic Hydrocarbons by EPA 8260C in Water

Sample Description		Method Blank	MW-7	MW-4
Date Sampled		N/A	5/27/16	5/27/16
Date Analyzed	PQL	5/31/16	5/31/16	5/31/16
	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Benzene	1.0	nd	nd	nd
Toluene	1.0	nd	nd	nd
Ethylbenzene	1.0	nd	nd	nd
Total Xylenes	2.0	nd	nd	nd
1,2-Dichloroethane (EDC)	1.0	nd	nd	nd
1,2-Dibromoethane (EDB) *	0.01	nd	nd	nd
Total Naphthalenes	5.0	nd	nd	nd
Methyl <i>tert</i> - Butyl Ether (MTBE)	5.0	nd	nd	nd
Surrogate Recovery				
Dibromofluoromethane		109	91	92
1,2-Dichloroethane-d4		97	95	99
Toluene-d8		107	100	101
4-Bromofluorobenzene		104	101	101

"nd" Indicates not detected at listed detection limit.

"int" Indicates that interference prevents determination.

* ANALYZED BY SIM

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 65% TO 135%

ANALYSES PERFORMED BY: Kodey Eley

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
 AEG, LLC
 Naches, Washington
 Libby Project # L160527-3
 Client Project # 16-102

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QA/QC Data - EPA 8260C Analyses

Sample Identification: L160527-3							
	Matrix Spike		Matrix Spike Dup		RPD		
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)	
Benzene	10	9.2	92	10	9.3	93	0.3
Toluene	10	10.3	103	10	10.5	105	1.4
Surrogate Recovery							
Dibromofluoromethane			125			127	
1,2-Dichloroethane-d4			129			134	
Toluene-d8			119			132	
4-Bromofluorobenzene			101			104	

Laboratory Control Sample			
	Spiked Conc. (µg/l)	Measured Conc. (µg/l)	Spike Recovery (%)
Benzene	10	10.2	102
Toluene	10	11.6	116
Surrogate Recovery			
Dibromofluoromethane			109
1,2-Dichloroethane-d4			127
Toluene-d8			107
4-Bromofluorobenzene			102

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
 ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Kodey Eley

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3
Client Project # 16-102

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Phone: (360) 352-2110
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Analyses of Diesel & Oil (NWTPH-Dx/Dx Extended) in Water

Sample Number	Date Analyzed	Surrogate Recovery (%)	Diesel ($\mu\text{g/l}$)	Oil ($\mu\text{g/l}$)
Method Blank	6/1/16	100	nd	nd
MW-1	6/1/16	97	nd	nd
MW-5	6/1/16	93	nd	nd
MW-2	6/1/16	83	nd	nd
MW-6	6/1/16	95	nd	nd
MW-7	6/1/16	103	nd	nd
MW-4	6/1/16	97	nd	nd
MW-8	6/1/16	100	nd	nd
MW-8 Dup	6/1/16	95	nd	nd
Practical Quantitation Limit			200	400

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Kodey Eley

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3
Client Project # 16-102

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Analyses of Total Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead $\mu\text{g/L}$
Method Blank	5/28/16	nd
MW-7	5/28/16	102
MW-4	5/28/16	84
Practical Quantitation Limit		5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

NACHES PIT STOP PROJECT
AEG, LLC
Naches, Washington
Libby Project # L160527-3
Client Project # 16-102

4139 Libby Road NE
Olympia, WA 98506
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QA/QC for Lead in Water by EPA 7010 Series

Sample Number	Date Analyzed	Lead (% Recovery)
LCS	5/28/16	115%
L160524-1 MS	5/28/16	83%
L160524-1 MSD	5/28/16	88%
RPD	5/28/16	6%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

4139 Libby Road NE
Olympia, WA 98506

Ph: 360-352-2110
Fax: 360-352-4154

Date: 5/27/16

Page: 1 of 1

Client: AEG

Project Manager: Mike Chun

Address: 605 11th Ave SE, Suite 201

Project Name: Naches Pit Stop

City: Olympia, WA State: WA Zip: 98501

Location: 10121 Highway 12 City, State: Naches, WA

Phone: 360 352 9835 Fax: 360 352 864

Collector: Nicolas Pushckor Date of Collection: 5/27/16

Client Project # 16-02

Email: npushckor@aegwa.com



Sample Number	Depth	Time	Sample Type	Container Type	Analytes											Field Notes									
					VOC 8260	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals	RCRA 8 Metals		EDB/EDX/MBE Aph/Phthalates Total Lead								
1 MW-1	-	601	water	Vot/Amber	X	X			X																
2 MW-5	-	652	}	}	X	X			X																
3 MW-2	-	715			X	X			X																
4 MW-6	-	802			X	X			X																
5 MW-7	-	842			Vot/Amber/Poly		X	X			X									X	X	X			
6 MW-4	-	931			X	X			X									X	X	X					
7 MW-8	-	1012		Vot/Amber	X	X			X																
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									

Relinquished by: MM PM	Date / Time: 5/27 1404	Received by: Rodney Clay	Date / Time: 5/27/16 1404
Relinquished by:	Date / Time:	Received by:	Date / Time:
Relinquished by:	Date / Time:	Received by:	Date / Time:

Sample Receipt	
Good Condition?	<input checked="" type="radio"/> Y <input type="radio"/> N
Temp.	-3 °C
Seals Intact?	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A
Total Number of Containers	20

Remarks:

TAT: 24HR 48HR **5-DAY**