



ASSOCIATED  
ENVIRONMENTAL  
GROUP, LLC

## Phase II Environmental Site Assessment

*Conducted on:*

***Naches Pit Stop***

10121 Highway 12

Naches, Washington 98937-9785

Ecology Facility/Site ID: 505

*Prepared for:*

Mr. Han Chang

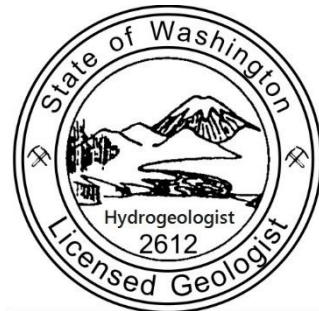
10121 Highway 12

Naches, Washington 98937-9785

*Prepared & Reviewed by:*

A handwritten signature in blue ink, appearing to read 'Nicolas Pushckor'.

Nicolas Pushckor  
*Staff Geologist*



ADAM H HARRIS

A handwritten signature in black ink, appearing to read 'Adam Harris'.

Adam Harris, L.G., L.H.G.  
*Project Hydrogeologist*

AEG Project #: 16-102  
Date of Report: March 4, 2016

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## 1.0 INTRODUCTION

Associated Environmental Group, LLC (AEG) has completed a Phase II Environmental Site Assessment (Phase II ESA) at Pit Stop Naches, located at 10121 Highway 12, in Naches, Washington (Site). This Phase II 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 Phase II ESA was to investigate subsurface conditions at the Site, to evaluate whether residual contamination reportedly left in place during a 1991 underground storage tank (UST) decommissioning and subsequent 1998 petroleum-contaminated soil (PCS) excavation project was detectable in soil and groundwater.

To detect potential contamination, AEG advanced three soil borings on the property, completing two soil borings as monitoring wells. Soil and groundwater samples were collected and laboratory analyzed for the presence of gasoline through oil-range total petroleum hydrocarbons (TPH) 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 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. Figure 1, *Vicinity Map and Site Area 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 constructed and samples were obtained from each pit. White Shield (1991) reports 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. reports 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.”*

### **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 15 feet bgs, sandy gravel was encountered. Groundwater was encountered at the time of drilling at approximately 14 feet bgs in each of the borings. 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 Phase II Environmental Site Assessment to investigate possible petroleum hydrocarbon 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 encountered during drilling at the Site, it was not possible to complete the third soil boring as a monitoring well. The borings were advanced in the vicinity of the USTs and fuel canopy (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 three soil borings to 15 feet bgs, and completing two soil borings as monitoring wells at select locations on the Site, using a direct-push drilling rig;
- 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;
- Collecting a groundwater sample from one monitoring well;

- Containing investigation-derived-wastes, including soil cuttings 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 Ecology's 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 Soil Borings**

On January 21, 2016, AEG supervised the advancement of monitoring wells MW-1 and MW-2 and soil boring MW-3 at the Site. The monitoring wells were located in the eastern area of the Site, north and south of the USTs. The boring was located west of the fuel dispenser islands. The monitoring wells and boring were each advanced to a maximum depth of 15 feet bgs via a direct-push drilling rig operated by ESN, a licensed driller in the State of Washington. Soil samples were collected during drilling for field screening and laboratory analyses. The locations of the soil borings 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*.

#### **3.2 Soil Sampling Procedures**

Soil sampling methods for this work followed the protocols established by Ecology and the U.S. Environmental Protection Agency (EPA). To minimize volatile organic constituent (VOC) losses, soil sampling and field preservation methods for VOCs followed methods set forth by EPA's Method 5035A and Ecology's guidance, "*Collecting and Preparing Soil Samples for VOC Analysis*". Soil samples were collected from the soil borings via continuous soil cores in an acetate sleeve inside the drilling rod's core barrel. Soils were observed to document soil lithology, color, moisture content, and sensory evidence of contamination. A Photoionization Detector (PID) was used to detect hydrocarbons in the soil cores.

Soil samples were selected for laboratory analysis based on field observations and PID readings. Soil samples were collected and placed into laboratory-provided pre-weighed 40-milliliter (ml) volatile organic analysis (VOA) glass vials and pre-weighed 4-ounce glass jars for the analyses of gasoline, diesel, and heavy oil components. The soil samples were transported to the ESN laboratory in Olympia, Washington, for analyses following industry standard chain-of-custody procedures. A total of 6 soil samples were analyzed.

### **3.3 Well Construction**

Monitoring wells MW-1 and MW-2 were constructed pursuant to the Ecology *Minimum Standards for Construction and Maintenance of Wells*, Chapter 173-160 WAC. The monitoring wells were each constructed to a depth of 15 feet bgs with 10 feet of 2-inch diameter 0.010-inch slot polyvinyl chloride (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 foot 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-1           BJW 759
- MW-2           BJW 760

### **3.4 Groundwater Sampling Procedures**

AEG sampled the groundwater from monitoring well MW-2. Dedicated polyethylene tubing was inserted into the well, and groundwater was purged using a peristaltic pump and EPA-approved low-flow purge techniques until the 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.

### **3.5 Laboratory Analyses**

Selected soil and groundwater samples were analyzed for:

- Diesel- and heavy oil-range total petroleum hydrocarbons (TPH) by Method NWTPH-Dx Extended; and
- Gasoline-range TPH and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Method NWTPH-Gx/8260c.

### **3.6 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; and
- 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;
- 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*.

### **3.7 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 the Washington State Department of Ecology's (Ecology) Model Toxics Control Act (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 indicate the presence of diesel-range TPH below the MTCA Method A soil cleanup level of 2,000 mg/kg in monitoring well MW-2 (1,400 mg/kg at 13 feet bgs). 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 sample obtained from MW-2 indicate the presence of gasoline and diesel-range TPH above their respective MTCA Method A groundwater cleanup levels. These exceedances include the following:

- Gasoline-range TPH was detected at 3,000 µg/L, **above** the MTCA Method A cleanup level of 1,000 micrograms per liter (µg/L).
- Diesel-range TPH was detected at 61,000 µg/L, **above** the MTCA Method A cleanup level of 500 µg/L.

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 assessment activities at the Site are as follows:

### 5.1 Conclusions

- 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.

## **5.2 Recommendations**

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

- Additional characterization is warranted to define the lateral extent of impacts to soil and groundwater. AEG recommends advancing additional soil borings on Site in the vicinity of monitoring well MW-2, and installing at least one groundwater monitoring well to further define the extent of contamination and determine the groundwater flow direction and magnitude at the Site;
- A tiered vapor assessment should be performed to determine the potential for exposure via vapor intrusion to nearby structures; and
- Upon collection of additional data, a Remedial Investigation Report should be drafted, the Site should then be enrolled in Ecology's Voluntary Cleanup Program, and the Remedial Investigation Report should be submitted to Ecology for review and opinion.

## **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*.

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.

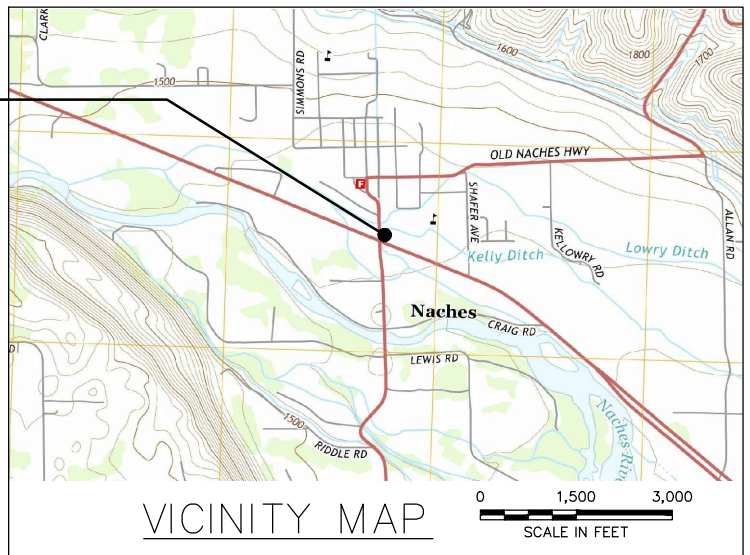
Washington State Department of Ecology, 2007, *Model Toxic Control Act Statute and Regulation – Chapter 173-340 WAC*, Publication number 94-06 (Revised November 2007).

## **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**

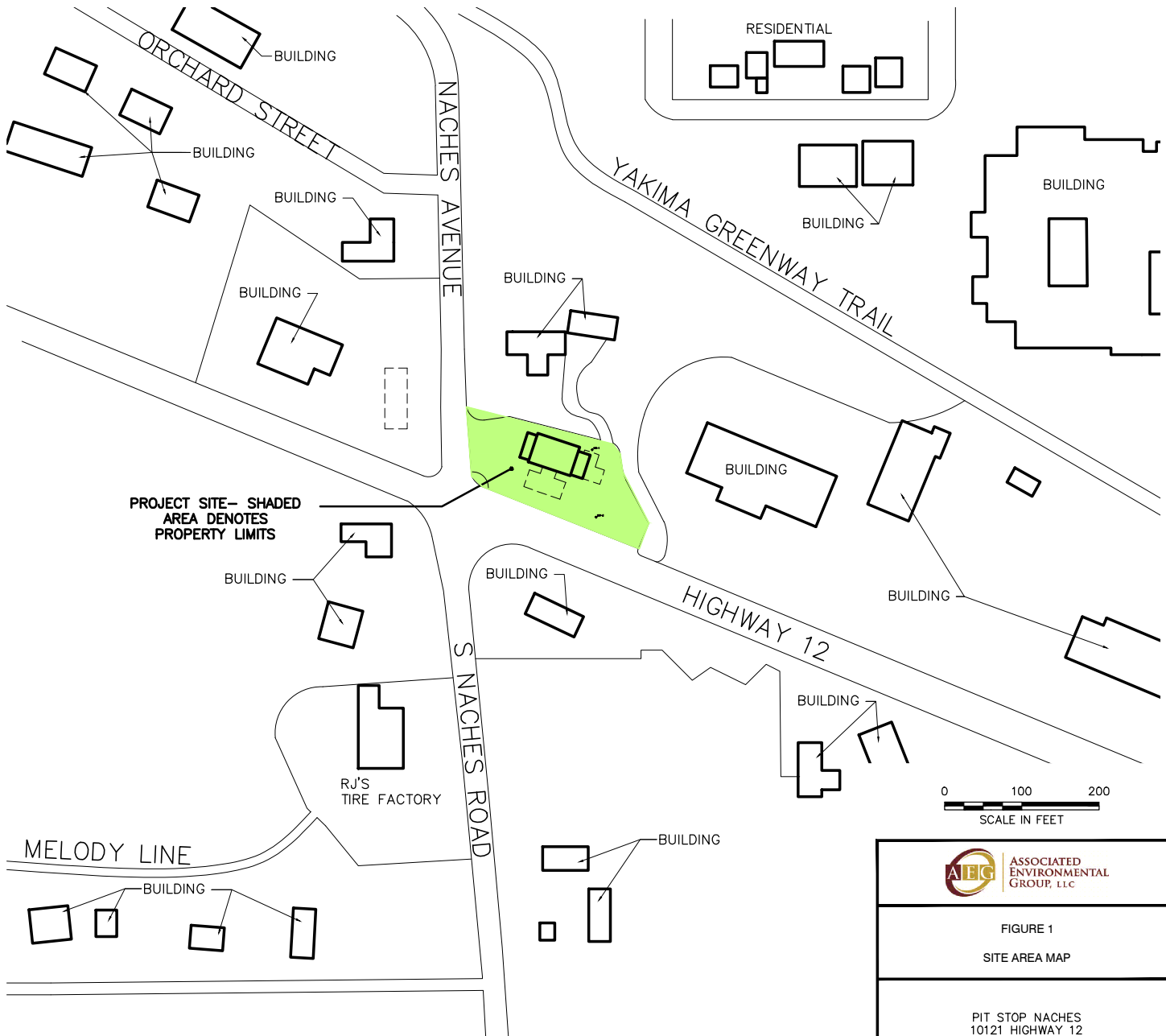


**NOTES**

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  
SITE AREA 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

BUILDING

BUILDING

MW-1

UST  
NEST

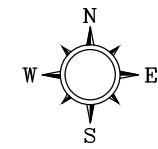
MW-3

CANOPY

EXCAVATION  
MAY 1998

MW-2

HIGHWAY 12



LEGEND

- MW-1 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-3 SOIL SAMPLING 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.

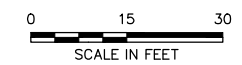


FIGURE 2  
SITE MAP

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)		
			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	<b>1,400</b>	<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
PQL (mg/kg)			0.02	0.05	0.05	0.15	10	50	100
MTCA Method A Cleanup Levels (mg/kg)			0.03	7	6	9	100*	2,000	2,000

Notes:

mg/kg = milligrams per kilogram

-- Not analyzed for constituent

< Not detected at the listed laboratory detection limits

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

**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)		
		Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline	Diesel	Heavy Oil
MW-2	1/21/2016	<1.0	<1.0	<1.0	<3.0	<b>3,000</b>	<b>61,000</b>	<500
PQL (µg/l)		1.0	1.0	1.0	3.0	100	250	500
MTCA Method A Cleanup Levels (µg/l)		5.0	1,000	700	1,000	1000*	500	500

Notes:

ug/L= micrograms per liter

-- Not analyzed for constituent

< Not detected at the listed laboratory detection limits

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

## SITE PHOTOGRAPHIC RECORD

**Project No.: 16-102**

**Project Name: Naches Pit Stop**

			
<p>Photo #1:</p>	<p>Photo looking at soil cores from monitoring well MW-1.</p>	<p>Photo #2:</p>	<p>Photo looking at soil cores from monitoring well MW-2.</p>
			
<p>Photo #2:</p>	<p>Photo looking at soil cores from monitoring well MW-3.</p>	<p>Photo #4:</p>	<p>Photo looking at location of monitoring well MW-1.</p>

## **APPENDIX B**

### Supporting Documents

*Boring Logs*

*Laboratory Datasheets*


















**LOG OF BOREHOLE**

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




**Location:** *10121 Highway 12, Naches, WA 98937* **Approximate Elevation:** *1462 feet above mean sea level*

**Subcontractor / Driller:** *ESN / Don* **Equipment / Drilling Method:** *Geoprobe / Direct Push*






**Date:** *January 21, 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;		1				N/A		None	
			2							
	Brown, moist, medium dense, <u>SILTY SAND</u> ; fine grained sand	SM	3							
			4							
5	At 4 feet; Brown, moist, medium dense, <u>SANDY GRAVEL</u> ; fine grained sand, coarse grained gravel	GW	5			11:08		0.0		
			6							
			7							
			8							
			9							
10			10			11:13		0.0		
			11							
			12							
			13							
			14		MW1-13					
			15							
15	At 14 feet; Wet		14			11:19				
			15		MW1-15					
	Total Depth = 15 feet									
20										
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 #  
BJW 759

# LOG OF BOREHOLE

**PROJECT:** *Pit Stop Naches*      **JOB #** *16-102*      **Monitoring Well #** *MW-2*      **PAGE** *1 OF 1*




**Location:** *10121 Highway 12, Naches, WA 98937*      **Approximate Elevation:** *1462 feet above mean sea level*

**Subcontractor / Driller:** *ESN / Don*      **Equipment / Drilling Method:** *Geoprobe / Direct Push*






**Date:** *January 21, 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;		1				N/A		None	
			2							
			3							
	Brown, moist, medium dense, <b>SILTY SAND</b> ; fine grained sand	SM	4							
5	At 4 feet; Brown, moist, medium dense, <b>SANDY GRAVEL</b> ; fine grained sand, coarse grained gravel	GW	5			12:20		0.0		
			6							
			7							
			8		MW2-8			0.0		
			9							
10			10			12:30				
			11							
			12							
			13		MW2-13			0.0		
			14							
15	At 13.5 feet; Wet		15		MW2-15	12:40		662		
			16							
	Total Depth = 15 feet									
20										
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 #  
BJW 760

# LOG OF BOREHOLE

**PROJECT:** Pit Stop Naches **JOB #** 16-102 **Boring #** MW-3 **PAGE** 1 OF 1


**Location:** 10121 Highway 12, Naches, WA 98937 **Approximate Elevation:** 1462 feet above mean sea level


**Subcontractor / Driller:** ESN / Don **Equipment / Drilling Method:** Geoprobe / Direct Push

**Date:** January 21, 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	Observations
	3 inch asphalt surface underlain by;		1				N/A		None	
			2							
			3							
	Brown, moist, medium dense, <b>SAND</b> ; coarse grained sand	SP	4							
5	At 4.5 feet; Gray, moist, medium dense, <b>SANDY GRAVEL</b> ; fine grained sand, coarse grained gravel	GW	5			13:46		0.0		
			6							
			7							
			8							
			9							
10			10		MW3-10	13:51		0.0		
			11							
			12							
			13							
			14							
15			15			14:01				Soil too dense, unable to install well
			16							
	Total Depth = 15 feet									
20										
25										

**Explanation**

 Sample Advance / Recovery


 No Recovery

--- Contact located approximately


 Groundwater level at time of drilling or date of measurement  
AT

**Monitoring Well Construction**

 Grout/Concrete

 3/4-inch bentonite chips

 Silica sand

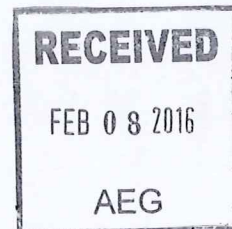
 2-inch diameter blank PVC casing from

 2-inch diameter PVC 0.01 slotted screen



February 2, 2016

Michael Chun  
Associated Environmental Group, Inc.  
605 11th Ave. SE, Suite 201  
Olympia, WA 98501



Dear Mr. Chun:

Please find enclosed the analytical data report for the 10121 Hwy 12 Project in Naches, Washington. Probe services were conducted on January 21, 2016. Soil & water samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended, Gasoline by NWTPH-Gx and BTEX by Method 8260 on January 25 - 28, 2016.

The results of the analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to Associated Environmental Group, Inc. 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,

A handwritten signature in cursive script that reads "Michael A. Korosec".

Michael A. Korosec  
*President*

**ESN NORTHWEST CHEMISTRY LABORATORY**

Associated Environmental Group  
NACHES PROJECT  
Client Project #16-102  
Naches, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnww.com

**Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil  
by Method NWTPH-Dx Extended**

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	1/25/2016	1/25/2016	113	nd	nd
LCS	1/25/2016	1/25/2016	81	85%	---
MW1-13	1/25/2016	1/25/2016	130	nd	nd
MW1-15	1/25/2016	1/25/2016	112	nd	nd
MW2-8	1/25/2016	1/25/2016	135	nd	nd
MW2-13	1/25/2016	1/25/2016	Int	<b>1,400</b>	nd
MW2-15	1/25/2016	1/25/2016	107	nd	nd
MW3-10	1/25/2016	1/25/2016	115	nd	nd
<b>Reporting Limits</b>				50	100

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

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

## ESN NORTHWEST CHEMISTRY LABORATORY

Associated Environmental Group  
NACHES PROJECT  
Client Project #16-102  
Naches, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnw.com

### Analysis of Diesel Range Organics & Lube Oil Range Organics in Water by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (ug/L)	Lube Oil Range Organics (ug/L)
Method Blank	1/26/2016	1/26/2016	125	nd	nd
LCS	1/26/2016	1/26/2016	88	68%	---
MW-2	1/26/2016	1/26/2016	Int	61,000	nd
Reporting Limits				250	500

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

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

**ESN NORTHWEST CHEMISTRY LABORATORY**

Associated Environmental Group  
 NACHES PROJECT  
 Client Project #16-102  
 Naches, Washington

ESN Northwest  
 1210 Eastside Street SE Suite 200  
 Olympia, WA 98501  
 (360) 459-4670 (360) 459-3432 Fax  
 lab@esnw.com

**Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260**

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	1/28/2016	1/28/2016	nd	nd	nd	nd	nd	110
LCS	1/28/2016	1/28/2016	110%	112%	114%	115%	78%	105
LCSD	1/28/2016	1/28/2016	132%	119%	128%	117%	---	103
MW1-13	1/21/2016	1/28/2016	nd	nd	nd	nd	nd	113
MW1-15	1/21/2016	1/28/2016	nd	nd	nd	nd	nd	108
MW1-15 Duplicate	1/21/2016	1/28/2016	nd	nd	nd	nd	nd	114
MW2-8	1/21/2016	1/28/2016	nd	nd	nd	nd	nd	111
MW2-13	1/21/2016	1/28/2016	nd	nd	nd	nd	nd	108
MW2-15	1/21/2016	1/28/2016	nd	nd	nd	nd	nd	112
MW3-10	1/21/2016	1/28/2016	nd	nd	nd	nd	nd	115
<b>Reporting Limits</b>			0.02	0.05	0.05	0.15	10	

"---" Indicates not tested for component.

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

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromofluorobenzene) & LCS : 65% TO 135%

**ESN NORTHWEST CHEMISTRY LABORATORY**

Associated Environmental Group  
NACHES PROJECT  
Client Project #16-102  
Naches, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnnw.com

**Analysis of Gasoline Range Organics & BTEX in Water by Method NWTPH-Gx/8260**

Sample Number	Date Analyzed	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Gasoline Range Organics (ug/L)	Surrogate Recovery (%)
Method Blank	1/27/2016	nd	nd	nd	nd	nd	109
LCS	1/27/2016	95%	88%	90%	89%	136%	104
LCSD	1/27/2016	107%	95%	100%	97%	---	100
MW-2	1/27/2016	nd	nd	nd	nd	3000	109
Trip Blank	1/27/2016	nd	nd	nd	nd	nd	107
Reporting Limits		1.0	1.0	1.0	3.0	100	

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

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromofluorobenzene) & LCS: 65% TO 135%

**CHAIN-OF-CUSTODY RECORD**

CLIENT: AEG DATE: 1/21/16 PAGE 1 OF 1  
 ADDRESS: 605 11<sup>th</sup> Ave SE, Suite 201, Olympia, WA PROJECT NAME: Naches  
 PHONE: 360 352 9835 FAX: 360 352 8164 LOCATION: 10121 Highway 12, Naches, WA  
 CLIENT PROJECT #: 16-102 PROJECT MANAGER: Mike Chun COLLECTOR: Nicolas Pushckov DATE OF COLLECTION: 1/21/16

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES														NOTES	Total Number of Containers	Laboratory	Note Number																
					TPH - HClD	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM					GRO Suite	DRO Suite	WO Suite													
1. MW1-13	13	1119	Soil	VOA/Jar	X	X	X																															
2. MW1-15	15	1119																																				
3. MW2-8	8	1230																																				
4. MW2-13	13	1240																																				
5. MW2-15	15	1240																																				
6. MW-2	-	1405	water	VOA/Amber																																		
7. MW3-10	10	1351	Soil	VOA/JAR																																		
8.																																						
9.																																						
10.																																						
11.																																						
12.																																						
13.																																						
14.																																						
15.																																						
16.																																						
17.																																						
18.																																						

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME	SAMPLE RECEIPT		LABORATORY NOTES:
	1/22/16 1052		1/22/16	TOTAL NUMBER OF CONTAINERS		
				CHAIN OF CUSTODY SEALS Y/N/NA		
				SEALS INTACT? Y/N/NA		
				RECEIVED GOOD COND./COLD		
				NOTES:		Turn Around Time: 24 HR 48 HR 5 DAY