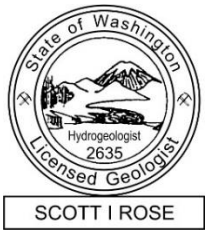
Groundwater Monitoring and Contingency Plan

Prepared for:
H & H Property
407 Porter Way
Milton, Washington 98354-9686
Ecology Facility/Site ID: 89863773
Ecology Cleanup Site ID: 4629

Prepared for:
Mr. Robert R. Graham
18811 – 16th Avenue South
Seattle, Washington 98188-5102

Prepared and Reviewed by:

Shawn Lombardini, L.G.
Project Geologist



Scott Rose, L.H.G.
Senior Hydrogeologist

AEG Project #15-112
Date of Report: December 5, 2018

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1.0 INTRODUCTION

Associated Environmental Group, LLC (AEG) has prepared the proposed ***Groundwater Monitoring and Contingency Plan*** for H&H Diesel, located at 407 Porter Way Milton, WA 98534, Pierce County, Washington (Site). The purpose and objectives of this report are to summarize the plan for ongoing confirmational monitoring of MW-4, MW-5, and MW-6 in support of a request of No Further Action with an Environmental Covenant for the Property.

1.1 Site Location and Description

The Model Toxics Control Act Cleanup Regulation (MTCA) defines a Site/Facility as:

"*…any building, structure, installation, equipment, pipe or pipeline…well, pits, pond, lagoon, impoundment, ditch, landfill, storage container…or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located.*" (WAC 173-340-200)

Under this definition, a Site is not limited to the legal property boundaries and can extend to other properties both private and public if contamination has migrated to them. For H&H Diesel, the "Site" includes the legal properties (Pierce County Parcel Numbers 0420057009 and 0420057010) on which the structures and former concrete underground storage vault are located.

The H&H Diesel properties are approximately 4.96 acres and 3.41 acres, respectively, and the majority of both properties are either covered by structures or asphalt paving used for semi-truck parking by Graham Trucking, as illustrated in Figure 1, *Current Site Layout*.

The current operation includes a centralized shop that was the former H&H Diesel repair shop. There is a Conex stationary trailer on the northeast part of the properties that is a trucking operations office. Lastly, a large storage shed is present on the southern extent of the properties. The remainder of the parcels is paved and has been redeveloped to accommodate Graham Trucking and its services.

2.0 PROPOSED GROUNDWATER COMPLIANCE/CONTINGENCY PLAN

The Groundwater Compliance/Contingency Plan, for petroleum hydrocarbon (TPH) constituents, based on WAC 173-340-820, includes a list of components as follows:

2.1 Well Sampling

Depth to water in monitoring wells MW-4, MW-5, and MW-6 will be measured using a Depth to Water Probe. The wells will be sampled via the EPA low-flow purging technique using a peristaltic pump at a rate of less than 500 milliliters (mL) per minute. The wells will be purged until the field parameters being measured using a YSI Groundwater Quality Monitoring Meter, including temperature, pH, conductivity, Total dissolved solids (TDS), dissolved oxygen (DO), and Oxidation/reduction potential (ORP), become stable and become visually free of sediment. The field parameters will be recorded every five minutes until stabilized. Stability by EPA methods include:

> *"…Three successive readings should be within ± 0.1 for pH, ± 3% for conductivity, ± 10 mv for redox potential, and ± 10% for turbidity and DO…."**
>
> * EPA-GROUND WATER ISSUE; *Low-Flow (minimal drawdown) Ground-Water Sampling Procedures*; by Robert W. Puls and Michael J. Barcelona

Groundwater samples will be collected in laboratory-provided 40-mL volatile organic analysis (VOA) vials and ½-Liter amber bottles for the following analyses:

- Gasoline-range TPH by Northwest Method NWTPH-Gx.
- Benzene, toluene, ethylbenzene, and xylene (BTEX) compounds by EPA Method 8260c.
- Diesel- and oil-range TPH by Northwest Method NWTPH-Dx Extended.

Upon collection, the groundwater samples will be placed in a 4 degree Celsius chilled cooler for transport to Libby Environmental analytical laboratory using the standard chain of custody protocols.

The sampling frequency and duration, as required by PLIA, is summarized as follows:

2018	2019	2020	2021	2022	2023
- GW Performance Sampling completed - Basis for No Further Action (NFA) Determination	Inspection only O&M: Semi Annual	- Begin GW Confirmation Monitoring; 4 Quarters - Inspection of capped areas: Semi Annual - Monitoring Wells O&M - Catchbasins O&M -Develop report and submit to PLIA	Inspection only O&M: Semi Annual	- Continue GW Confirmation Monitoring; 4 Quarters - Inspection of capped areas: Semi Annual - Monitoring Wells O&M - Catchbasins O&M -Develop report and submit to PLIA	- PLIA conducts 5-yr Review; Assesses need for sampling reduction/ cessation/ continuation/or Contingency for Further Action (Basis for the NFA Re-opener/rescission) - Contingency may occur at any period of monitoring

The well locations are illustrated on Figure 2, *Site Map*.

When a Periodic Review of the Site is performed by PLIA after about five years, depending on the groundwater data, AEG may petition to reduce the monitoring frequency or discontinue monitoring altogether.

2.2 Quality Controls

All groundwater samples will be collected in accordance with industry protocols for the collection, documentation, and handling of samples.

Nitrile gloves will be used in handling all sampling containers and sampling devices. All non-dedicated sampling equipment will be scrubbed with Alconox detergent and rinsed with distilled water prior to each use.

All samples will be transported in a cooler maintaining 4 degrees Celsius, and submitted to the laboratory under industry standard chain-of-custody protocols. The laboratory report will provide standard quality assurance/quality control (QA/QC), which will include the following: surrogate recoveries for each sample, method blank results, duplicate analyses, matrix or blank spiked analyses, and duplicate spiked analyses.

2.3 Cap and Stormwater Catchbasin Inspection

As part of sampling activities, the northern area of the former excavation and underground storage vault, which is acting as a cap for remaining soil contamination, will be inspected for integrity to ensure the cap is properly maintained, preventing exposure to residual contaminated soils.

In addition, all stormwater catchbasins, conveyance systems, and other appurtenances shall be inspected to ensure they continue to be of water-tight construction. This is to ensure the design and management of the stormwater system on Site does not exacerbate and create a renewed plume movement.

To document inspection activities, AEG will utilize the attached checklist, which will be included in any reporting to PLIA.

2.4 Reporting

Sampling Event Reports documenting the depth-to-water, analytical results summaries of the groundwater monitoring/sampling activities, results of cap inspection, and any other activities pertinent to the cleanup at the Site will be prepared following each event. All reports generated by AEG will be reviewed by a Washington State licensed hydrogeologist, and submitted to PLIA within 30 days of completion for review.

3.0 CONTINGENCY PLAN

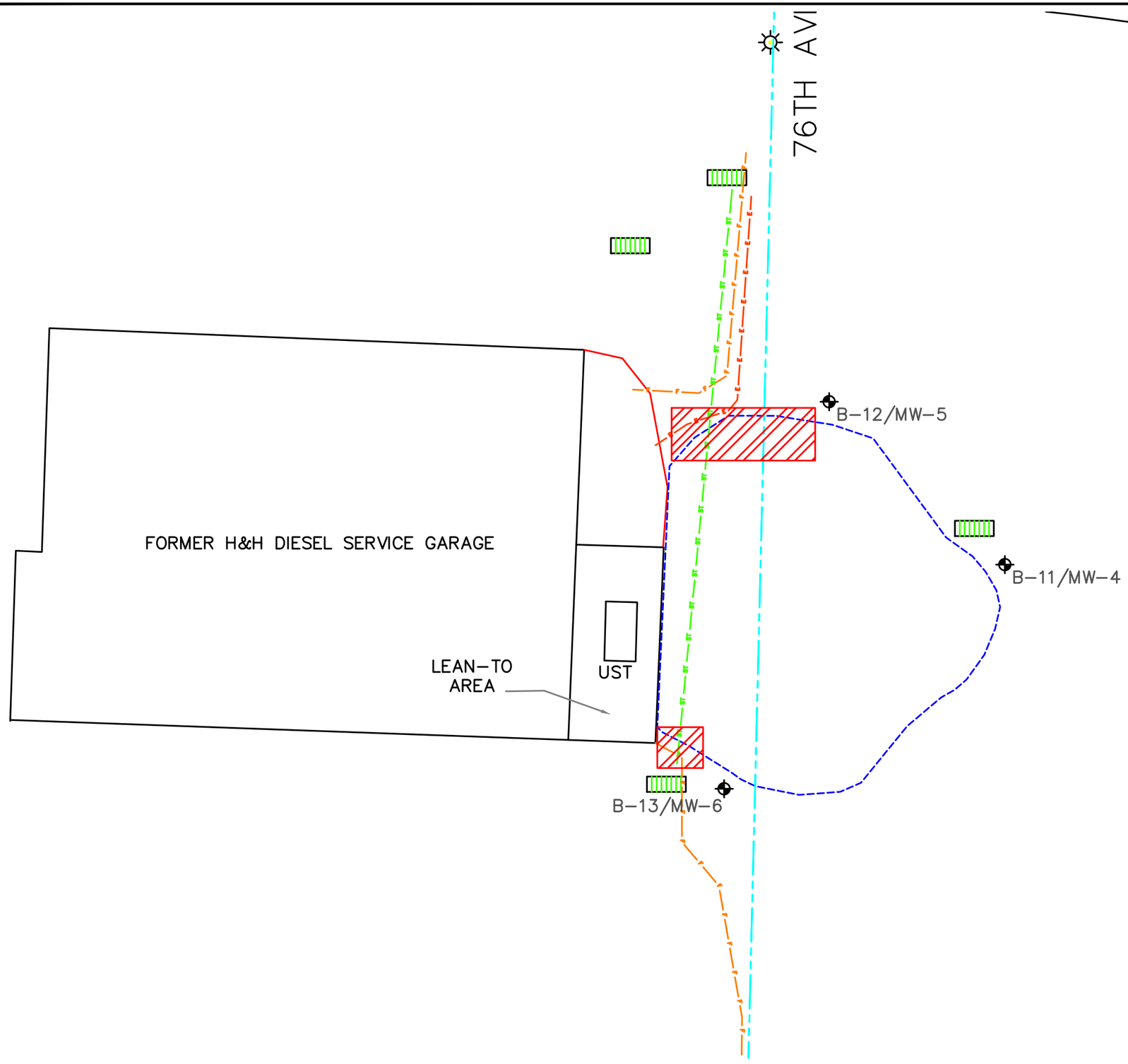
Should TPH constituents be detected above MTCA Method A cleanup levels in groundwater, AEG will immediately resample the well to confirm the presence of contaminants. AEG will notify PLIA and obtain an opinion for further action before initiating any additional cleanup.

PLIA must approve a contingency action before one is implemented; the approval of a contingency plan is a NFA re-opener and rescission pending completion of further action. After groundwater mitigation efforts are completed under the contingency plan, performance groundwater sampling will be performed for four consecutive quarters to demonstrate compliance to support re-issuance of the NFA pending the next 5-year review.

Figure 1 - Current Site Layout - H&H Diesel

Disclaimer: Map features are approximate and have not been surveyed. Additional features not yet mapped may be present.
Pierce County assumes no liability for variations ascertained by formal survey. 10/31/2018

FILENAME	DRAWN BY	CHECKED BY	APPROVED BY	PROJECT NUMBER
15-112_COMBINED OLD AND NEW (000).DWG	10/30/2018	DB 10/30/2018	DB 10/30/2018	15-112



N
W E
S

LEGEND

- PROPERTY LINE
- MW-1 GROUNDWATER MONITORING WELL LOCATION (AEG)
- STORM DRAIN/CATCH BASIN
- LIGHT POLE
- F FIBER OPTIC LINE
- E ELECTRIC LINE
- ST STORM WATER LINE
- APPROXIMATE LIMIT OF EXCAVATION
- SOIL COVERED BY ENVIRONMENTAL COVENANT

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.

0 10 20
SCALE IN FEET

ASSOCIATED ENVIRONMENTAL GROUP, LLC

FIGURE 2
SITE MAP
WITH SOIL COVERED BY ENVIRONMENTAL COVENANT

H & H PROPERTY
407 PORTER WAY
MILTON, WASHINGTON

Site Inspection Checklist - PLIA

I. SITE INFORMATION	
Site name:	**Date of inspection:**
Location and Region:	**F/S ID:** **PTAP ID:**
Agency, office, or company leading the five-year review:	**Weather/temperature:**

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other_____
- ☐ Containment (Monitored natural attenuation-Soil/GW)
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A
   Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
   Remarks_____

III. STORM DRAINS/CATCH BASINS & SOIL COVERED BY THE COVENANT & WELLS

A. Catch Basin Tested to Ensure Water-Tight Construction

1. Date Tested_____ Passed: ☐ Failed: ☐

   If Failed; Date of Reconstruction _____
   Remarks_____

B. Surface Areas: Around Catch Basins & Soil Covered by the Covenant

1. Settlement (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. Cracks ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. Erosion ☐ Location shown on site map ☐ Erosion not evident

Areal extent_____ Depth_____

Remarks_____

_____

4. Holes ☐ Location shown on site map ☐ Holes not evident

Areal extent_____ Depth_____

Remarks_____

_____

5. Monitoring Wells

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

C. Monitoring Data

1.Monitoring Data

☐ Is routinely submitted on time ☐ Is of acceptable quality

2.Monitoring data suggests:

☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Containment Remedy (Monitored Natural Attenuation)

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs Maintenance ☐ N/A

Remarks_____

_____

IV. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

V. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, which suggest that the protectiveness of the remedy may be compromised in the future.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.