



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

December 26, 2012

Mr. Michael S. Chun  
Associated Environmental Group  
605 11<sup>th</sup> Ave SE, Suite 201  
Olympia, WA 98501

**Re: Further Action at the following Site:**

- **Site Name:** ACME Fuel Bulk Plant 305
- **Site Address:** 303 Thurston Avenue NE, Olympia
- **Facility/Site No.:** 37135969
- **Cleanup Site ID No.:** 11769
- **VCP Project No.:** SW1243

Dear Mr. Chun:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the ACME Fuel Bulk Plant 305 Facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

**Issue Presented and Opinion**

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Is further remedial action necessary to clean up contamination at the Site?

**YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.**

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

**Description of the Site**

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This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release:

- Petroleum hydrocarbons and related constituents into the Soil and Groundwater.

**Enclosure A** includes a detailed description and diagram of the Site, as currently known to Ecology.



Mr. Michael S. Chun  
December 26, 2012  
Page 2

Please note the parcels of real property can be affected by multiple sites. Vinyl chloride has been detected in groundwater beneath properties located adjacent to the south of the Site. However, no samples from this Site were tested for vinyl chloride. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

### **Basis for the Opinion**

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This opinion is based on the information contained in the following documents:

1. AECOM, Ecology ERTS# 629277 – MTCA 90-day Report for Release at ACME Energy Services, Olympia, Washington, December 14, 2011.
2. AECOM, TECHNICAL MEMORANDUM, To Kenan Advantage Group (KAG), January 24, 2012.
3. AECOM, Ecology ERT# 629277 – Additional Soil Removal at ACME Energy Services, Olympia, Washington, July 11, 2012.
4. Supplemental Site Characterization Conducted on ACME Bulk Fuel Plant & Cardlock 303 Thurston Ave. NE, Olympia, WA 98501.
5. GeoEngineers, Groundwater Compliance Monitoring Data Summary Report-August 2012. October 31, 2012.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

### **Analysis of the Cleanup**

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Ecology has concluded that **further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. **Characterization of the Site.**

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A**.

ACME Fuel Bulk Plant 305 (ACME Fuel) is located at 303 Thurston Avenue NE, Olympia, Washington. The fuel service facility included two aboveground storage tanks (ASTs), installed in the mid 1970s, with approximate capacities of 70,000 gallons and 30,000 gallons, respectively. These ASTs had stored only diesel, kerosene, and/or bio-diesel fuel. The ASTs were contained in a concrete berm. Located adjacent to the east of ACME Fuel is a cardlock facility, known as Fast Fuel, which is operated by the ACME Fuel Company. The Fast Fuel facility, constructed in 1985, is comprised of five dispenser islands, including four islands housed under two canopies, and the fifth as a stand-alone, non-canopied diesel pump island. There are four 8,000-gallon underground storage tanks (USTs) at this facility, including three storing gasoline, and one storing diesel. There are no spill or release records for these USTs (see Fig. 2 of Enclosure A).

On September 17, 2011, 2,600 gallons of diesel were released during delivery of fuel from a tanker truck to the larger AST at the Site. The AST was under repair and was not properly locked out/tagged out to prevent fuel from being introduced into the AST. The spill originated from a man-hole cover that had been loosened due to the repairs.

Due to the emergency nature of the spill, interim cleanup actions were taken prior to any Site characterization being conducted. Immediately after the spill incident, NRC Environmental Services (NRC) was retained to clean up the spilled product from the Site, which included using vacuum trucks to collect product from the berm containment and ground surface, and using wells and trenches to recover product from groundwater (see Section 4 of this letter for details). Some wells were noted as no product present, among the 51 recovery wells in total installed at the Site. However, no records were made on which wells revealed product and which did not, to define the extent of contamination.

Soil from all accessible impacted areas, except soil directly underneath the concrete berm/pad and associated pipings, was excavated down to the groundwater table; however, no information on specific locations of the excavation was provided and no confirmation soil samples were collected to confirm the cleanup was complete.

Site investigation efforts were initiated on November 1, 2011. Soil and groundwater samples were collected from 11 boring locations, all outside the concrete berm/wall area at accessible locations at the time of drilling. Five of the borings were completed as groundwater monitoring wells (MW-1 through MW-5). These groundwater monitoring wells were mostly located to the north of the AST, including along the property's northern boundary (Fig. 2 in Enclosure A).

One soil sample (MW-4-4.5) near the concrete berm area detected diesel-range total petroleum hydrocarbons (TPH-Dx) and gasoline-range total petroleum hydrocarbons (TPH-Gx) above the MTCA Method A cleanup levels. Three groundwater wells (MW-3, MW-4,

Mr. Michael S. Chun

December 26, 2012

Page 4

and MW-5) detected TPH-Dx in groundwater above the MTCA Method A cleanup level, and one well (MW-4) detected benzene in groundwater above the MTCA Method A cleanup level.

In April 2012, further interim cleanup action was taken, including demolition of the larger AST, removal of the concrete pad (berm), and excavation of the soil beneath the concrete pad (see Section 4 of this letter for details). Confirmation soil samples were collected from the excavation bottom and sidewalls. The results indicated that soil from north, northeast, southeast, and south sidewall all detected TPH-Dx above the MTCA Method A cleanup level.

On September 27, 2012, a supplemental Site investigation was conducted. Twelve soil borings were advanced at the Site to further characterize the extent of contamination, including four borings (B-2, B-4, B-5, and B-7) within the former AST and containment concrete pad area, which had been removed and excavated in April 2012; and eight borings outside the former AST containment area, in both the ACME Fuel and the Fast Fuel facility areas. Since the former AST containment area had been excavated and backfilled, no soil samples were collected within 7 feet below ground surface (bgs), just groundwater samples were collected from all four borings. Among the eight borings outside the former AST area, one soil and one groundwater sample from all borings, except B-9, for which groundwater was not encountered, were collected. Additionally, the previously installed monitoring wells, MW-1 through MW-5, were sampled for groundwater.

The soil and groundwater sampling results from this supplemental investigation demonstrated that, a year after the spill incident, groundwater contamination from the diesel spill remained at the Site, and some TPH-Gx contamination was also found, which may be from a separate source, as summarized below:

- Groundwater within the former AST containment area is contaminated by TPH-Dx at concentrations ranging from 28,000 to 75,000 micrograms per liter (ug/L).
- Benzene was found to be present in groundwater at the former AST containment area (B-2 at 35 ug/L), north of this area (B-1 at 16 ug/L; MW-4 at 7.4 ug/L), and along the northern property boundary (MW-5 at 6.3 ug/L).
- Only two boring locations (B2 and B4) were tested for carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) and both detected cPAHs above the MTCA Method A cleanup level (at 3.0 and 6.5 ug/L, respectively).
- TPH-Gx was found in groundwater outside the former AST area (B-1 at 2,600 ug/L; B-3 at 1,700 ug/L). TPH-Gx had previously been detected above the MTCA Method A cleanup level in soil from MW-4 at roughly the same location in November 2011.

- One boring (B-6) in the adjacent Fast Fuel facility detected a pocket of soil contamination with TPH-Dx, TPH-Gx, and benzene all above the MTCA Method A cleanup levels, at 4,600 milligrams per kilogram (mg/kg), 830 mg/kg, and 0.06 mg/kg, respectively.

Based on a review of Site investigations and confirmation soil sampling during interim cleanup activities, Ecology has determined the investigations were not sufficient to characterize the extent of contamination at the Site, and has following comments:

1. Extent of soil contamination was not fully characterized at the Site. Soil confirmation sampling after April 2012 excavation indicated that soil contamination still remained at the north, northeast, southeast, and south walls of the excavation pit. Soil outside the concrete berm also detected TPH-Gx and TPH-Dx above the MTCA Method A cleanup levels (MW-4). The soil sampling during the September 2012 Site Investigation only collected soil from the north of the excavation pit (B-7, B-1) and northeast (B-3), but no soil samples were taken along the east side (near the propane tank), south and southwest side along the railroad track. Additional Site characterization is warranted to define the extent of soil contamination.
2. Free product was present in many recovery wells during the initial recovery effort. However, no record was made to define the extent of the groundwater plume from these recovery wells. A November 2, 2011 groundwater investigation indicated that TPH-Dx contamination in groundwater had extended to the northern boundary (down gradient) of the Site. The September 2012 Site Investigation again indicated that wells along the northern property boundary contained benzene at concentrations above the MTCA Method A cleanup level.

Groundwater contamination near the southern boundary in B-4 (TPH-Dx at 28,000 ug/L, and cPAHs at 3.0 ug/L) from the September 2012 investigation, and at least two oil recovery wells located in the railroad track area (RW-5, RW-6) were retained for product recovery after majority of the wells were abandoned on November 18, 2011, which indicated that groundwater contamination may have extended beyond ACME Fuel's south boundary.

Groundwater wells beyond the southern and northern property boundaries are needed to define the extent of groundwater contamination, and to demonstrate compliance with MTCA for monitoring purposes. Additionally, groundwater monitoring well(s) should be installed at the former AST containment area for MTCA compliance monitoring purposes.

Mr. Michael S. Chun

December 26, 2012

Page 6

3. The only two wells tested for cPAHs both detected it at concentrations above the MTCA Method A cleanup level. All monitoring wells should be tested for cPAHs to define its extent in groundwater.
  4. TPH-Gx was detected in soil and groundwater at some sampling locations, yet it is not likely that the TPH-Gx contamination is from the diesel spill incident. A separate source may have contributed to the soil and groundwater contamination by TPH-Gx, which appears to be commingled with TPH-Dx contamination. Additional characterization, including soil and groundwater sampling, and source identification, are needed.
  5. One boring (B-6) located in the Fast Fuel facility detected a pocket of soil contamination with TPH-Dx, TPH-Gx, and benzene all above the MTCA Method A cleanup levels. Further characterization is needed to define the extent of contamination in this area.
  6. Vinyl chloride has been detected in groundwater beneath properties located adjacent to the south of the Site. At least one round of groundwater samples from on-Site wells of this Site should be analyzed for vinyl chloride to determine if it is present.
  7. A Terrestrial Ecological Evaluation (TEE) needs to be completed for the Site. Please fill out the form on our website and submit it to Ecology (along with any supporting documentation, as appropriate) for review. The form can be found at: <http://www.ecy.wa.gov/biblio/ecy090300.html>.
  8. In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both a written and electronic format. For additional information regarding electronic format requirements, see the website <http://www.ecy.wa.gov/eim>. Be advised that according to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. **Data must be submitted to Ecology in this format for Ecology to issue a No Further Action determination.** Please be sure to submit all data in this format. Data collected prior to August 2005 (effective date of this policy) is not required to be submitted; however, you are encouraged to do so if it is available. Be advised that Ecology requires up to two weeks to process the data once it is received.
2. **Establishment of cleanup standards.**

Ecology has determined the cleanup levels and points of compliance you established for the Site have not met the substantive requirements of MTCA.

MTCA Method A cleanup levels for soil and groundwater were used for the Site. Standard points of compliance should be used for the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance should be established in the soils throughout the Site from the ground surface to 15 feet bgs. In addition, the point of compliance for the protection of groundwater should be established throughout the Site from the uppermost level of the saturated zone extending vertically to the lower most depth that could potentially be affected by the Site.

**3. Selection of cleanup action.**

Ecology has determined the interim cleanup actions you selected for the Site have not met the substantive requirements of MTCA.

Cleanup actions conducted to date included source removal (removal of the AST and free product from containment berm area, ground surface, and surface of groundwater table); contaminated soil excavation; and pumping and discharge of contaminated groundwater. The discharge of the contaminated water was off Site (see Section 4 of this letter for details). Further characterization is warranted prior to selecting a final cleanup action.

**4. Cleanup.**

Ecology has determined the interim cleanup you performed has not met the cleanup standards at the Site. The cleanup activities conducted so far at the Site included:

- The same day after the spill incident, NRC was retained to conduct the recovery activities. Fuel in the AST, within the AST containment, and on the ground surface was recovered using a vacuum truck.
- NRC installed 51 8-inch diameter perforated PVC recovery wells and two trenches to recover free product from the groundwater surface. Not all the recovery wells revealed product but the ones that observed product were vacuumed on a regular basis. As of December 7, 2011, approximately 1,950 gallons of diesel and 37,020 gallons of hydrocarbon-impacted water were recovered. The recovered diesel and associated water was managed off Site at the Petroleum Reclaiming Services, Inc. (PRS) Group facility at 3003 Taylor Way, Tacoma, WA 98421.
- Excavation of the diesel-impacted soil was conducted in September 2011 at areas accessible from around the AST and within the retaining wall of the tank berm area, down to the groundwater table, except for the soil directly beneath the AST and associated piping. A total of 140 tons of soil was removed.

- In April 2011, the AST from which the spill occurred was removed together with its concrete containment pad. After the AST removal, soil excavation was conducted on April 22 – 23, 2011. The soil beneath and in the vicinity of the former AST was excavated to a depth greater than 6 feet bgs. Since groundwater was encountered at about 3 to 4 feet bgs, a vacuum truck was used for dewatering to allow excavation. Soil was excavated down to 6 feet because the groundwater depth was 5 feet bgs at the time of spill. A total of 296 tons of soil was excavated. During this excavation operation, 4,350 gallons of diesel-impacted groundwater was removed and disposed of at PRS Group, Inc., in Tacoma, WA. However, confirmation samples were collected after excavation indicated that soil contamination existed beyond the excavation extent (see Section 1 of this letter for details).

Even though various interim cleanup actions have been taken at the Site, further characterization of residual contamination in soil and groundwater is needed prior to identifying a final cleanup action.

### **Limitations of the Opinion**

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**1. Opinion does not settle liability with the state.**

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

**2. Opinion does not constitute a determination of substantial equivalence.**

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. See RCW 70.105D.080 and WAC 173-340-545.

Mr. Michael Chun  
December 26, 2012  
Page 9

**3. State is immune from liability.**

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

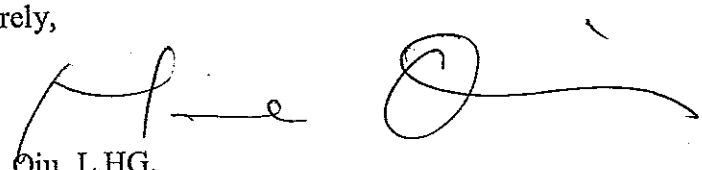
**Contact Information**

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Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: [www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm](http://www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm). If you have any questions about this opinion, please contact me by phone at (360) 407-6265 or by e-mail at [hqiu461@ecy.wa.gov](mailto:hqiu461@ecy.wa.gov).

Sincerely,

  
Hans Qiu, L.HG.  
Site Manager  
SWRO Toxics Cleanup Program

HQ/ksc:Site FA Final ACME Fuel SW1243

Enclosures: A – Description and Diagrams of the Site

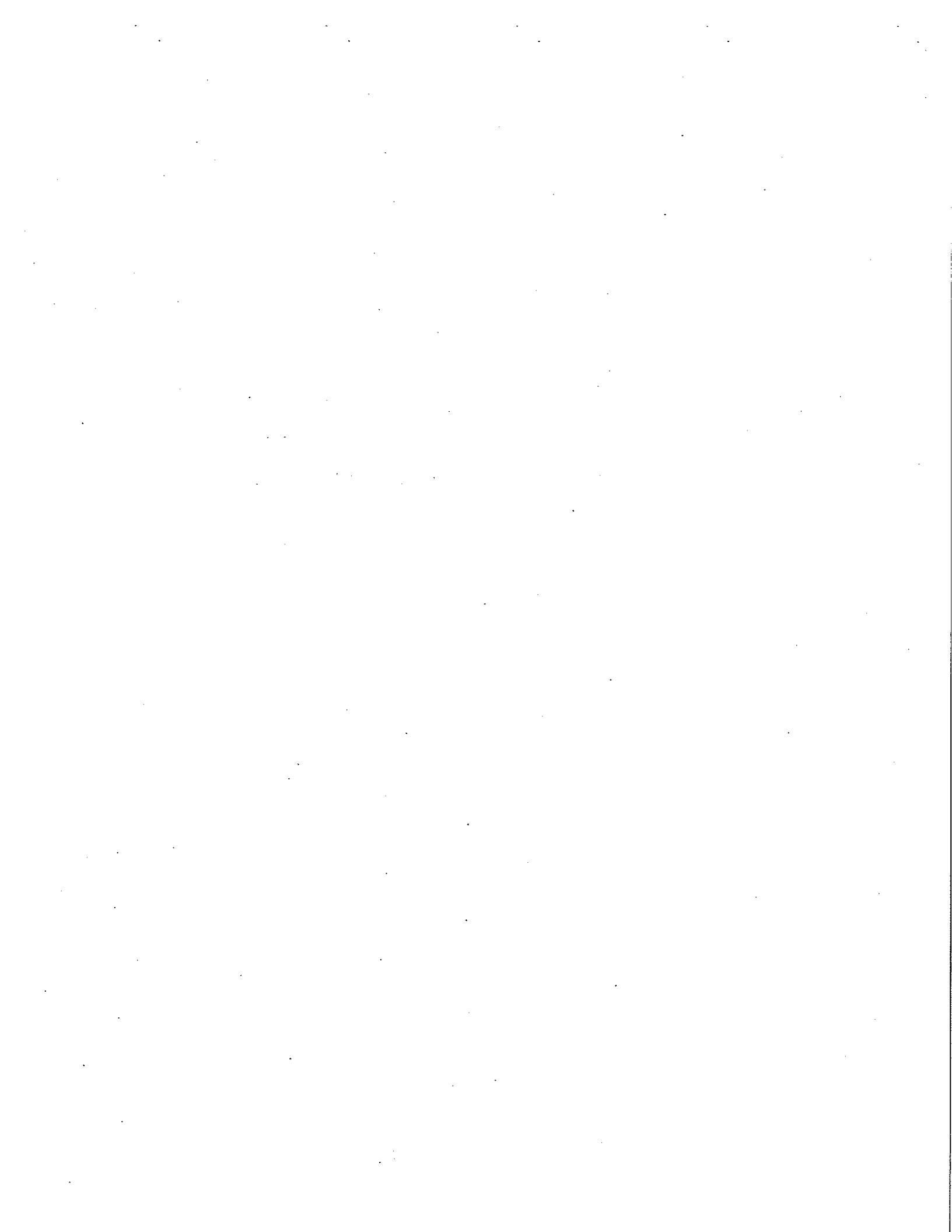
By certified mail: (7011 1150 0000 7881 5830)

cc: Christophe Allen, Vice President, ACME Fuel Company  
Gerald Tousley, Thurston County Health Department  
Dolores Mitchell – Ecology  
Scott Rose – Ecology



## **Enclosure A**

### **Description and Diagrams of the Site**



## Site Description

ACME Fuel Bulk Plant 305 (ACME Fuel) is located at 303 Thurston Avenue NE, Olympia, Washington. The fuel service facility included two aboveground storage tanks (ASTs), installed in the mid 1970s, with approximate capacities of 70,000 gallons and 30,000 gallons, respectively. These ASTs had stored only diesel, kerosene, and/or bio-diesel fuel. The ASTs were contained in a concrete berm. Additional equipment included diesel loading rack, fuel dispensary, loading/storage area, and associated facilities. Located adjacent east of ACME Fuel is a cardlock facility, also known as Fast Fuel, which is operated by the ACME Fuel Company. The Fast Fuel facility, constructed in 1985, is comprised of five dispenser islands housed under two canopies and a stand-alone, non-canopied diesel pump island. There are four 8,000-gallon underground storage tanks (USTs) at this facility, including three storing gasoline, and one storing diesel. The USTs are single wall steel tanks installed in 1986 (see Fig. 2 of Enclosure A).

The Site is a triangle property surrounded by Adams Street to the east, Thurston Avenue NE to the north, and a railroad rack consists of its third boundary, which runs diagonal through the block from northwest, intercepting with Thurston Avenue NE, to southeast, intercepting with Adams St.

The Site is located within the southern area of the Puget Lowland area. Borings at the Site revealed poorly graded sand to silt sand and gravel to medium stiff clay to approximately 10 feet below ground surface (bgs). A weathered wood debris/fragments layer ranging from several inches to at least 2 feet thick were encountered at the Site. Groundwater was encountered at 4.5 to 5.8 feet deep and flows from south to north-northeast direction toward Puget Sound.



Fig 1. Location of ACME Fuel Plant 305 Site, in Olympia, WA (Snapped from Google Map)

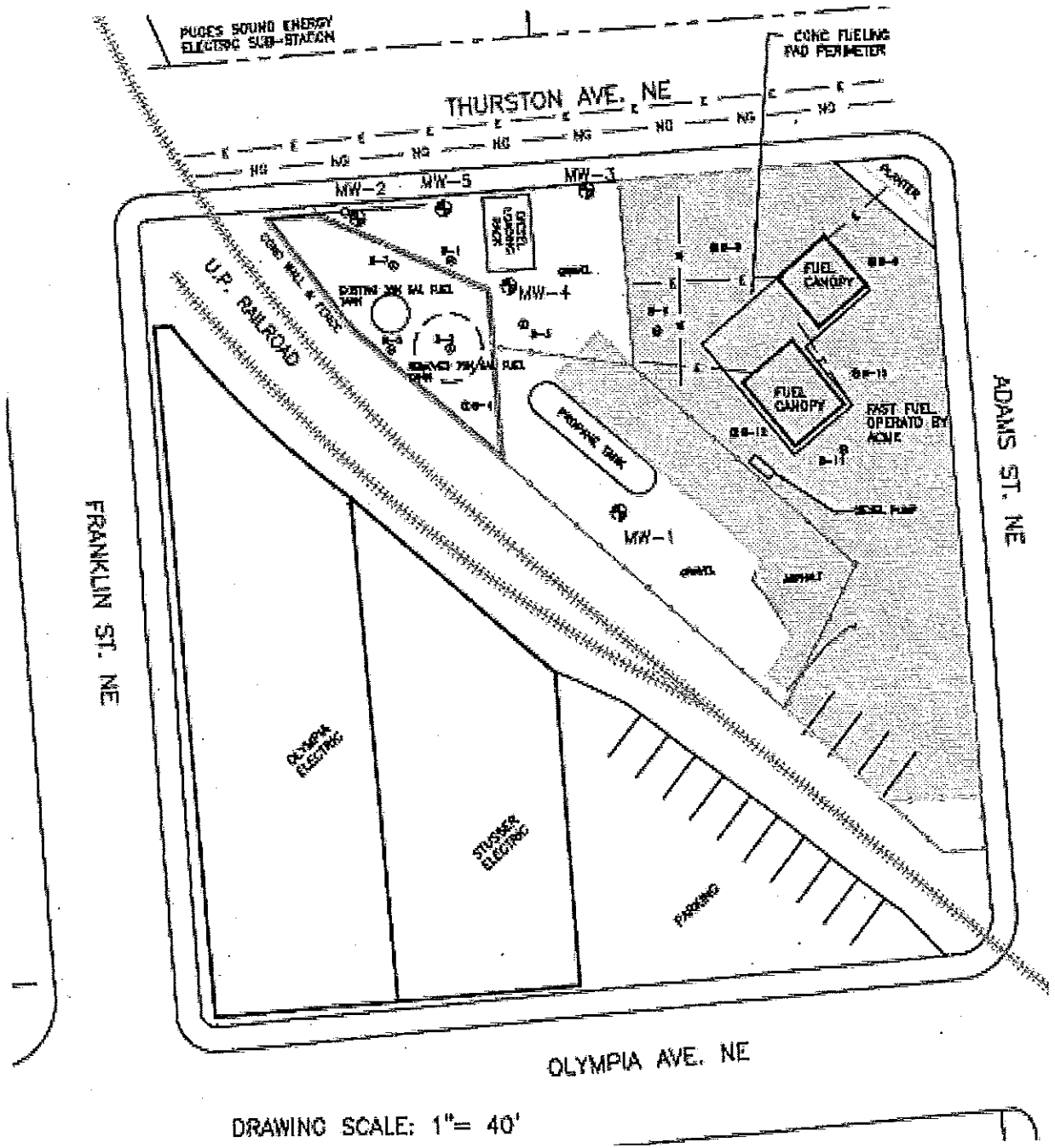


Fig. 2 Soil and groundwater sampling locations at ACME Fuel and its associated Fast Fuel facility (Courtesy of Associated Environmental Group, LLC)





**Table 1 Summary of Soil Analytical Results - Supplemental Site Characterization  
Acme Bulk Fuel Plant & Cardlock (Fast Fuel)  
Olympia, WA**

Sample Number	Date Sampled	Depth Sampled (feet)	Diesel Extended TPH <sup>2</sup> (mg/Kg)		Gasoline TPH <sup>3</sup> (mg/Kg)	Selected Volatile Organic Compounds <sup>4</sup> (mg/Kg)			
			Diesel	Heavy Oil		Benzene	Toluene	Ethylbenzene	Total Xylenes
B1-S1-4.5/5.0	9/27/2012	4.5-5.0	<50	<100	<10	<0.02	<0.05	<0.05	<0.15
B3-S2-6.5/7.0	9/27/2012	6.5-7.0	<50	<100	<10	<0.02	<0.05	<0.05	<0.15
B6-S1-4.5/5.0	9/27/2012	4.5-5.0	<b>4,600</b>	<100	<b>830</b>	<b>0.06</b>	<b>0.26</b>	<0.05	<b>0.29</b>
B8-S1-4.5/5.0	9/27/2012	4.5-5.0	<50	<100	<10	<0.02	<0.05	<0.05	<0.15
B9-S2-7.5/8.0	9/27/2012	7.5-8.0	<50	<100	<10	<0.02	<0.05	<0.05	<0.15
B10-S1-4.5/5.0	9/27/2012	4.5-5.0	<50	<100	<10	<0.02	<0.05	<0.05	<0.15
B11-S2-7.0/7.5	9/27/2012	7.0-7/5	<50	<100	<10	<0.02	<0.05	<0.05	<0.15
B12-S1-4.5/5.0	9/27/2012	4.5-5.0	<50	<100	<10	<0.02	<0.05	<0.05	<0.15
PQL			50	100	10	0.02	0.05	0.05	0.15
Ecology MTCA Method A Clean Up			2,000	2,000	30 <sup>5</sup>	0.03	7	6	9

**Notes:**

- <sup>1</sup>Approximate sample locations are shown in Figure 2
- <sup>2</sup>Diesel and Heavy Oil range total petroleum hydrocarbons (TPH). Analyzed by Northwest Method NWTPH-Dx/Dx Extended.
- <sup>3</sup>Gasoline range TPH. Analyzed by Northwest Method NWTPH-Gx.
- <sup>4</sup>Select Volatile Organic Compounds. Analyzed by EPA Method 8260C.
- <sup>5</sup>Cleanup level with presence of benzene
- mg/Kg = milligrams per kilograms
- MTCA = Model Toxics Control Act
- PQL=Practical Quantitation Limits
- = not analyzed for this constituent
- < = not detected above laboratory limits
- \* Ecology has not designated a MTCA Method A cleanup level for this constituent
- Bold** indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

**Table 2 Summary of Groundwater Analytical Results - Supplemental Site Characterization  
Acme Bulk Fuel Plant & Cardlock (Fast Fuel)  
Olympia, WA**

Sample Number	Date Sampled	Diesel Extended TPH <sup>2</sup> (ug/L)		Gasoline TPH <sup>3</sup> (ug/L)	Select Volatile Organic Compounds <sup>4</sup> (ug/L)					Total cPAH <sup>5</sup> (ug/L)
		Diesel	Heavy Oil		Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Naphthalenes	
B1-W	9/27/2012	<250	<500	2,600	16	1	72	41		--
B2-W	9/27/2012	75,000	<500	--	35	2.3	77	340		6.5
B3-W	9/27/2012	<250	<500	1,700	4.2	1.2	35	120		--
B4-W	9/27/2012	28,000	<500	--	3.3	4.9	115	390		3
B5-W	9/27/2012	<250	<500	--	2.3	1.5	40	110		--
B6-W	9/27/2012	<250	<500	<100	<1.0	<1.0	<1.0	<3.0		--
B7-W	9/27/2012	<250	<500	--	<1.0	<1.0	<1.0	<3.0		--
B8-W	9/27/2012	<250	<500	<100	<1.0	<1.0	<1.0	<3.0		--
B10-W	9/27/2012	<250	<500	<100	<1.0	<1.0	<1.0	<3.0		--
B11-W	9/27/2012	<250	<500	<100	<1.0	<1.0	<1.0	<3.0		--
B12-W	9/27/2012	<250	<500	<100	<1.0	<1.0	<1.0	<3.0		--
PQL		250	500	100	1	1	1	3	5	0.1
MTCA Method A Cleanup Levels		500	500	800 <sup>6</sup>	5	1,000	700	1,000	160	0.1

**Notes:**

- <sup>1</sup>Approximate sample locations are shown in figure 2
- <sup>2</sup>Diesel and Heavy Oil range total petroleum hydrocarbons (TPH). Analyzed by Northwest Method NWTPH-Dx/Extended.
- <sup>3</sup>Gasoline range TPH. Analyzed by Northwest Method NWTPH-Gx.
- <sup>4</sup>Select Volatile Organic Compounds. Analyzed by EPA Method 8260C.
- <sup>5</sup>Carcinogenic Polyaromatic Hydrocarbons (cPAH). Analyzed by EPA Method 8270 (SIM)
- <sup>6</sup>Cleanup level with presence of benzene
- <sup>7</sup>Cleanup Level for total carcinogens of PAHs are comprised of benzo(a)anthracene through dibenzo(a,h)anthracene ug/L= micrograms per liter
- MTCA = Model Toxics Control Act
- PQL=Practical Quantitation Limits
- = not analyzed for this constituent
- < = not detected above laboratory limits
- \* Ecology has not designated a MTCA Method A cleanup level for this constituent
- Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level

**Table 3 Summary of Groundwater Analytical Results - Monitoring Wells  
Acme Bulk Fuel Plant  
Olympia, WA**

Sample Number	Date Sampled	Diesel Extended TPH <sup>2</sup> (ug/L)		Gasoline TPH <sup>3</sup> (ug/L)	Select Volatile Organic Compounds <sup>4</sup> (ug/L)				Total gPAH <sup>5</sup> (ug/L)
		Diesel	Heavy Oil		Benzene	Toluene	Ethylbenzene	Total Xylenes	
MW-1	11/22/2011 <sup>8</sup>	400	<200	--	--	--	--	--	--
	9/19/2012 <sup>9</sup>	<200	<400	<100	<2.0	<1.0	<3.0	<3.0	--
MW-2	11/22/2011 <sup>8</sup>	240	<200	--	--	--	--	--	--
	9/19/2012 <sup>9</sup>	<200	<400	117	<2.0	<1.0	<3.0	<3.0	--
MW-3	11/22/2011 <sup>8</sup>	1,200	210	300	<0.2	<0.2	<0.2	<0.2	--
	9/19/2012 <sup>9</sup>	<200	<400	--	<2.0	<1.0	<3.0	<3.0	<0.100
MW-4	11/22/2011 <sup>8</sup>	1,700	<200	670	17	14	47	47	--
	9/19/2012 <sup>9</sup>	<200	<400	--	7.4	64.3	171	171	<0.100
MW-5	11/22/2011 <sup>8</sup>	2,900	<200	<250	<0.2	<0.2	0.3	0.3	--
	9/19/2012 <sup>9</sup>	<200	<400	--	6.3	24.1	14.3	14.3	<0.100
MITCA Method A Cleanup Levels	PQL	200	400	100	2	1	3	3	0.1
		500	500	800 <sup>5</sup>	1,000	700	1,000	1,000	160

**Notes:**

- <sup>1</sup> Approximate AECOM monitoring well locations are shown in figures 2 and 3
- <sup>2</sup> Diesel and Heavy Oil range total petroleum hydrocarbons (TPH). Analyzed by Northwest Method NWTPH-Dx/Dx Extended.
- <sup>3</sup> Gasoline range TPH. Analyzed by Northwest Method NWTPH-Gx.
- <sup>4</sup> Select Volatile Organic Compounds. Analyzed by EPA Method 8260C.
- <sup>5</sup> Carcinogenic Polyaromatic Hydrocarbons (gPAH). Analyzed by EPA Method 8270 (SIM)
- <sup>6</sup> Cleanup level with presence of benzene
- <sup>7</sup> Cleanup Level for total carcinogens of PAHs are comprised of benzo(a)anthracene through dibenzo(a,h)anthracene
- <sup>8</sup> Groundwater monitoring/sampling conducted by AECOM in November 2011. Analytical results presented in AECOM December 14, 2011 MITCA Release Report.
- <sup>9</sup> Groundwater monitoring/sampling conducted by AEG in September 2012.

ug/L= micrograms per liter

MITCA = Model Toxics Control Act

PQL=Practical Quantitation Limits

-- = not analyzed for this constituent

< = not detected above laboratory limits

\* Ecology has not designated a MITCA Method A cleanup level for this constituent

Bold indicates the detected concentration exceeds Ecology MITCA Method A cleanup level