SITE HAZARD ASSESSMENT
WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

Name: Jack's Auto Repair
Address: 1400 Bethel Street NE
City: Olympia   **County:** Thurston   **State:** WA   **Zip:** 98506
Section/Township/Range: S12/T18/R2W
Latitude: 47.05736   **Longitude:** -122.88467
Ecology FSID #13693544
Date Scored: December 27, 2013

SITE DESCRIPTION:

The site is located at the intersection of Bethel Street NE and San Francisco Avenue NE in Olympia, Washington. The 0.19 acre parcel contains a former gasoline service station, which was constructed in 1957. Surrounding properties are primarily residential, but also includes several businesses and an elementary school.

The surrounding geology is glacial in origin, with Alderwood gravelly sandy loam being the dominant soil type. According to boring logs in the vicinity, underlying formations consist of alternating layers of brown, very stiff silt to very dense sand with fine to coarse gravel. Highly compacted Vashon Till deposits are also found in the surrounding area. Groundwater has been reported at depths greater than 25 feet below ground surface (bgs).

PREVIOUS INVESTIGATIONS:

In 1990 and 1991, six underground storage tanks (USTs) were excavated and removed from the site, which included two 1,000-gallon gasoline USTs, one 1,000-gallon heating oil UST, one 500-gallon waste oil UST, one 6,000-gallon gasoline UST, and one 4,000-gallon gasoline UST. Reportedly, petroleum-contaminated soil (PCS) was encountered during the project and stockpiled on site for subsequent thermal treatment. However, complete documentation could not be located.

In August 2012, a Limited Phase II Environmental Site Assessment was conducted at the site. The project included the advancement of four geoprobe borings in areas adjacent to the former USTs and pump island. Soil samples were collected at selected intervals based on the potential presence of volatile organic compounds utilizing field screening techniques (i.e. visual/olfactory indicators, Photoioniozation Detector). The borings were extended to depths ranging from 15.3 to 17 feet bgs, where drilling refusal was encountered due to the presence of compacted glacial till. Groundwater was not encountered in any of the borings. A total of four soil samples were analyzed for gasoline-range hydrocarbons (TPH-G), volatile organic compounds, and benzene, toluene, ethylbenzene, xylene. Laboratory results confirmed the presence of TPH-G at a concentration of 1,100 milligrams per kilogram (mg/kg), which exceeds the Model Toxics Control Act (MTCA) Method A cleanup level of 100 mg/kg. BTEX compounds were either not detected or detected at concentrations less than MTCA Method A cleanup levels.

CONCLUSION

Previous site investigations have confirmed the presence of petroleum hydrocarbons in subsurface soil at the site. Although groundwater impacts have not been confirmed, the extent of contamination has not been fully delineated.

SPECIAL CONSIDERATIONS

Due to the contamination documented on-site being primarily subsurface, the surface water and air routes are not applicable for WARM scoring for this site.

ROUTE SCORES:

Surface Water/Human Health:	**NS**	Surface Water/Environmental:	**NS**
Air/Human Health:	**NS**	Air/Environmental:	**NS**
Groundwater/Human Health:	**29.6**	**Overall Rank:**	**5**

Route Documentation

1. **SURFACE WATER ROUTE – NOT SCORED**

    a. List those substances to be <u>considered</u> for scoring: Source:

    b. Explain basis for choice of substance(s) to be <u>used</u> in scoring.

    c. List those management units to be <u>considered</u> for scoring: Source

    d. Explain basis for choice of unit to be <u>used</u> in scoring:

2. **AIR ROUTE – NOT SCORED**

    a. List those substances to be <u>considered</u> for scoring: Source:

    b. Explain basis for choice of substance(s) to be <u>used</u> in scoring:

    c. List those management units to be <u>considered</u> for scoring: Source:

    d. Explain basis for choice of unit to be <u>used</u> in scoring:

3. **GROUNDWATER ROUTE**

    a. List those substances to be <u>considered</u> for scoring: Source: 1
       TPH-Gasoline

    b. Explain basis for choice of substance(s) to be <u>used</u> in scoring:
       According to analytical results, the substances listed above were detected at concentrations exceeding MTCA Method A cleanup levels in soil.

    c. List those management units to be <u>considered</u> for scoring: Source: 1
       Contaminated soil

    d. Explain basis for choice of unit to be <u>used</u> in scoring:
       Documented release to soil

WORKSHEET 6
Groundwater Route

1.0 SUBSTANCE CHARACTERISTICS

1.2 Human Toxicity

	Substance	Drinking Water Standard (µg/L)	Value	Acute Toxicity (mg/ kg-bw)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	TPH-Gasoline	5	8	3306 rat	3	ND	-	1.0	.029	3
2										
3										

* Potency Factor, ND-No Data

Source: 3, 4

Highest Value: 8

(Max = 10)

Plus 2 Bonus Points? No

Final Toxicity Value: 8

(Max = 12)

1.2 Mobility (use numbers to refer to above listed substances)

Cations/Anions [Coefficient of Aqueous Migration (K)] OR	Solubility (mg/L)
1=	**1=** TPH-Gasoline, 1.8+03, Value 3
2=	**2=**
3=	**3=**

Source: 3, 4

Value: 3

(Max = 3)

1.3 Substance Quantity (volume):

Explain basis: Quantity unknown, use default value = 1	Source: 3, 4 **Value: 1** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Site and surrounding areas are paved, score as landfill: 1) No liner, Value 3. 2) Low permeability cover, Value 1. 3) No leachate collection, Value 2,	1	**6** (Max = 10)
2.2	**Net precipitation:** Nov-Apr (inches): 38.54" total precipitation, 11.74" evapotranspiration rate, 38.54-11.74 = 26.80 net precip.	5, 6	**3** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** Glacial till, dense/stiff sands and gravels	1	**2** (Max = 4)
2.4	**Vertical depth to groundwater:** 25-50 feet	1	**6** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Public supply, alternate sources available	8	**4** (Max = 10)
3.2	**Distance to nearest drinking water well:** _2,600_ **feet**	7	**3** (Max = 5)
3.3	**Population served within 2 miles:** $\sqrt{}$ **pop.** = >10,000	8, 9	**100** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** 138 acres $(0.75)*\sqrt{\#}138 = 8.8$	9	**9** (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: No documented release	1	**0** (Max = 5)

SOURCES USED IN SCORING

1. Associated Environmental Group, LLC., *Limited Phase II ESA – Subsurface Investigation, Former Jack's Auto Repair,* Leobardo Chaidez, R.S.A., October 16, 2012.
2. Ecology Assessment Group, LTD., *Contamination Site Assessment Report,* M.D. Ikenberry, March 4, 1991.
3. Washington Department of Ecology, *Toxicology Database for Use in Washington Ranking Method Scoring*, January 1992.
4. Washington Department of Ecology, *WARM Scoring Manual*, April 1992.
5. Western Regional Climate Center, Precipitation data from the Olympia, Washington Airport, June 1948 to September 2005.
6. Table 16-Estimated Evapotranspiration, E.M. 2462, p42, for Thurston County Airport.
7. Thurston County Geodata Center, Roads and Transportation Division, December 2007.
8. Washington State Department of Health, Drinking Water Division, Sentry Database, October 2007.
9. Washington Department of Ecology, Water Resources Program, Water Right Tracking System (WRTS), October 2007.