

SITE HAZARD ASSESSMENT
WORKSHEET 1
 Summary Score Sheet

SITE INFORMATION:

Name: Tanglewilde Chevron
Address: 7291 Martin Way E
City: Olympia **County:** Thurston **State:** WA **Zip:** 98506
Section/Township/Range: S15/T18/R1W
Latitude: 47.05276 **Longitude:** -122.78302
Ecology FSID #75957582
 Date Scored: September 19, 2012

SITE DESCRIPTION:

Tanglewilde Chevron is located along the 7000 Block of Martin Way East in Olympia, Washington. The site currently contains an active fuel station with three 10,000-gallon gasoline underground storage tanks (USTs). Available information suggests that the site contained an automotive service shop until approximately 1998. The shop included two hydraulic hoists, an oil/water separator connected to a drywell, and three 1000-gallon UST's (two waste oil and one heating oil), which were decommissioned in 1998. Information also suggests that the site formerly contained four additional USTs, which were likely utilized for fuel storage. However, detailed information was not available at the time of this report. Surrounding properties include a variety of commercial, industrial, and residential land uses.

In March 2006, the Washington State Department of Ecology (Ecology) issued an advisory opinion regarding past remedial activities and proposed remedial action at the site. After reviewing site documentation from 1994 through 2006, Ecology identified several data gaps and determined that the "full extent of contamination in soil and groundwater has not been determined." The data gaps included a lack of soil and groundwater analysis near the former waste oil UST, former heating oil UST, southern pump island, and former gasoline USTs. Furthermore, inconsistent groundwater flow direction and a lack of information regarding former monitoring wells were also identified as potential data gaps.

Since 2006, frequent groundwater monitoring has occurred at the site. Recent groundwater analysis has confirmed the presence of gasoline-range hydrocarbons, diesel-range hydrocarbons, and benzene, toluene, ethylbenzene, xylene (BTEX) at concentrations greater than Ecology's Model Toxics Control Act (MTCA) Method A cleanup levels (Table 1 below).

TABLE 1: GROUNDWATER ANALYTICAL RESULTS

Well ID#	Date	Benzene	Toluene	Ethylbenzene	Xylene	TPH-Gas	TPH-Diesel
MW-3	11/3/2009	11	170	170	1,700	10,000	120
MW-3	12/7/2010	340	7,100	2,600	16,000	na	1,000
MW-3	10/28/2011	100	510	810	4,600	36,000	240
MTCA ¹		5	1,000	700	1,000	800	500

¹MTCA Method A Cleanup Level for Groundwater, Bold entries indicate MTCA exceedances

All results are reported in parts per billion (ug/L)

nd-analyte not detected

na-not analyzed

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:	<u>NS</u>	Surface Water/Environmental:	<u>NS</u>
Air/Human Health:	<u>NS</u>	Air/Environmental:	<u>NS</u>
Groundwater/Human Health:	<u>49.4</u>	Overall Rank:	<u>3</u>

WORKSHEET 2
Route Documentation

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

- a. List those substances to be considered for scoring: Source:

- b. Explain basis for choice of substance(s) to be used in scoring.

- c. List those management units to be considered for scoring: Source

- d. Explain basis for choice of unit to be used in scoring:

2. **AIR ROUTE – NOT SCORED**

- a. List those substances to be considered for scoring: Source:

- b. Explain basis for choice of substance(s) to be used in scoring:

- c. List those management units to be considered for scoring: Source:

- d. Explain basis for choice of unit to be used in scoring:

3. **GROUNDWATER ROUTE**

- a. List those substances to be considered for scoring: Source: 1
TPH-Gasoline, TPH-Diesel, BTEX

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

- c. List those management units to be considered for scoring: Source: 1
Contaminated soil and groundwater

- d. Explain basis for choice of unit to be used in scoring:
Documented release to groundwater

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	Xylene (mixed)	10000	2	50 hmn	10	2.0	1	ND	ND	-
3										

* Potency Factor, ND-No Data

Source: 3, 4

Highest Value: 10

(Max = 10)

Plus 2 Bonus Points? Yes

Final Toxicity Value: 12

(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= Xylene, 2.0E+02, Value 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, 2	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: gravelly sandy loam	7	3 (Max = 4)
2.4	Vertical depth to groundwater: Less than 25 feet	1	8 (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: <u>300 feet</u>	7	5 (Max = 5)
3.3	Population served within 2 miles: $\sqrt{\text{pop.}} = >10,000$	8, 9	100 (Max = 100)
3.4	Area irrigated by (groundwater) wells within 2 miles: 501 acres $(0.75)*\sqrt{501}= 16.8$	9	17 (Max = 50)

4.0 RELEASE

		Source	Value
	Explain basis for scoring a release to groundwater: Documented release	1, 2	5 (Max = 5)

SOURCES USED IN SCORING

1. Arcadis, *Annual Groundwater Monitoring Report 2011, Chevron No. 9-4486*, Allen Just, P.E., February 16, 2012.
2. Washington Department of Ecology, *Opinion Letter, Tanglewilde Chevron*, Carol A. Johnston, March 14, 2006.
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, September 2012.
8. Washington State Department of Health, Drinking Water Division, Sentry Database, September 2012.
9. Washington Department of Ecology, Water Resources Program, Water Right Tracking System (WRTS), May 2008.