SITE HAZARD ASSESSMENT

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:

Site Name: Texaco Ken Harrison
Address: 905 Simpson Ave, Hoquiam
Ecology Facility Site ID No.: 21142429
Section/Township/Range: 17 N/10 W/11 WM
Latitude: 46.97638 Longitude: -123.88201

Site scored/ranked for the August 2014 update
Today's date: February 27, 2014

SITE DESCRIPTION:

The subject site consists of a 0.29 acre rectangular parcel designated as "Other Retail Trade" in an area of Hoquiam zoned for commercial and residential uses. The site lies twelve feet above mean sea level. Simpson Avenue and 9th Street provide the southern and western boundaries, respectively. The Hoquiam River, a salmon-bearing river, lies approximately 290 feet northeast of the subject site.

Historically the site has been used as a fueling station since 1935. Currently the site houses the Hoquiam Liquor Store & More. The subject site is almost entirely paved.

In May of 1992, a Site Assessment Report was completed by Northwest Testing Company. The report documented the closure of a 4,000 gallon leaded gasoline underground storage tank (UST). No odors were noted on the excavation walls. An auger was used to collect soil samples along the west, north, and south sidewalls of the excavation. The soil sample results returned with gasoline and benzene above their MTCA Method A Cleanup Levels. The Washington State Department of Ecology (Ecology) sent a letter to the property owner stating a final version of the cleanup report had not been received as of August 2000.

In July of 1998, Ecology received a complaint on their Environmental Report Tracking System regarding on-site pressure washing and steam cleaning practices without water collection and treatment.

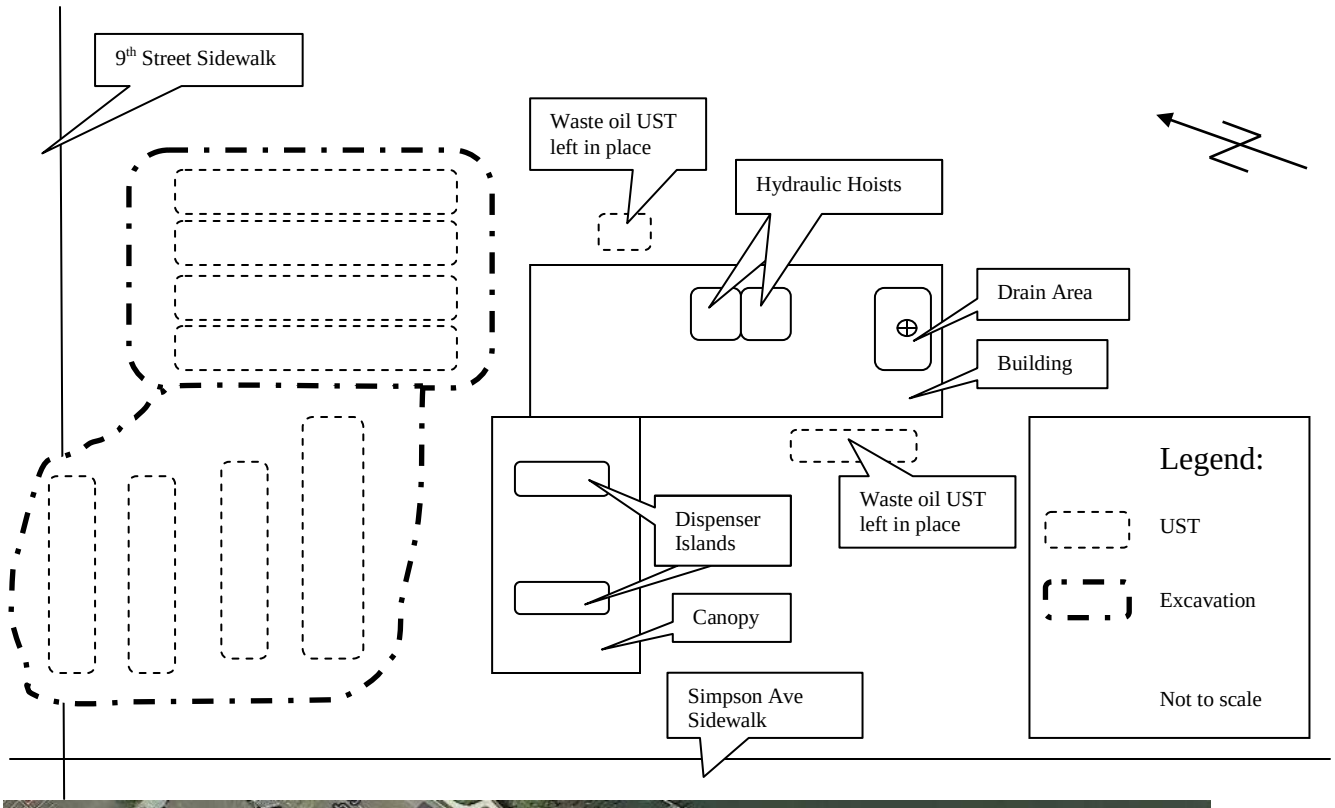
In September of 2000, MDK Construction completed a Site Assessment on behalf of a potential purchaser. A total of four soil samples and two groundwater samples were collected from the site. The soil sample results returned with petroleum contamination. The groundwater sample results retuned with gasoline and benzene concentrations above their MTCA Method A Cleanup Levels.

In January of 2001, Northwest Land and Environmental Services Inc completed an UST Inspection Report for the subject site. The inspection results for the two USTs tested showed at least one leak in each tank.

In June of 2001, Farallon Consulting completed a Subsurface Investigation Report to delineate the extent of petroleum contamination in the soil and groundwater. A total of seven soil borings were completed to a depth between 10 and 16 feet below ground surface (bgs) around the perimeter of the site. Samples were collected from the borings at three foot intervals. The soil and groundwater samples were analyzed for gasoline, diesel, heavy oil, and benzene, toluene, ethyl benzene, and xylene (BTEX). The soil sample results returned below the detection limits for all compounds. Groundwater was encountered between 2.5 and 10 feet bgs. Groundwater sample results returned with benzene above 5 ug/L, the MTCA Method A Cleanup Level for benzene in groundwater. All the collected samples were treated with a silica gel cleanup before analyses were completed, which may have produced low petroleum yields in the sample results. The sample results lead the contractor to believe the contamination was contained within the property boundaries, but may extend up to 16 feet bgs.

In October of 2001, A Supplemental Subsurface Investigation Report was completed by Farallon Consulting. The report focused on the two hydraulic hoists, a floor drain within the service bay area, and a waste oil UST. A total of six soil borings were completed to a depth between 6 and 16 feet bgs. Sheens, staining, and petroleum odors were noted in every boring and light non-aqueous phase liquid (LNAPL) was observed in a soil boring at a depth of three feet bgs. Soil samples were collected continuously from the borings and were analyzed for diesel, gasoline, heavy oil, BTEX, and lead. The soil samples were treated with a silica gel cleanup before analyses were completed. The quality assurance and quality control samples were out of acceptable ranges. Soil sample results returned above the MTCA Method A Cleanup Levels for heavy oil and diesel. Gasoline was detected in two of the soil sample results but was only quantified for one of the samples, this sample analysis results were below 100 mg/kg, the MTCA Method A Cleanup Level for gasoline in soil. Groundwater samples were not collected at this time. The Subsurface Investigation and Supplemental Subsurface Investigation identified three areas of concern: the tank farm area, the service bay/waste oil UST area, and the southwest dispenser island.

In June of 2008, Stemen Environmental Inc completed an Underground Gasoline Storage Tank Systems Removal and Remedial Corrective Actions Report. A total of ten USTs were documented at the site and historically contained gasoline, leaded gasoline, and waste oil. Eight of the ten USTs were removed at this time. The two waste oil USTs were left in place and were documented to be substantially filled with oily liquids. Three monitoring wells were installed to a depth of 12 feet bgs. A total of nine samples were collected from the monitoring well borings, three samples from each boring. The soil samples were analyzed for gasoline diesel, heavy oil, mineral oil, BTEX, and lead. The soil sample results returned with gasoline and BTEX above their MTCA Method A Cleanup Levels. Groundwater samples were not mentioned in the report; however, groundwater was removed from the excavations for disposal.


9th Street Sidewalk
Waste oil UST left in place
Hydraulic Hoists
Drain Area
Building
Waste oil UST left in place
Dispenser Islands
Canopy
Simpson Ave Sidewalk
Legend:
UST
Excavation
Not to scale


Levee St
8th St
101
9th St
Levee St
Levee St
Simpson Ave
10th St
10th St
101
J St
9th St
N

SPECIAL CONSIDERATIONS (include limitations in site file data or data which cannot be accommodated in the model, but which are important in evaluating the risk associated with the site, or any other factor(s) over-riding a decision of no further action for the site):

The scope of this Site Hazard Assessment did not include a hydrogeologic survey of the subject site and surrounding area. The groundwater contamination documented or inferred at the subject site is therefore considered to have the potential to impact any well located within the prescribed 2-mile radius and all such wells were used in the scoring process.

The documented contamination on this site is primarily subsurface. The Surface Water and Air routes have not been scored.

ROUTE SCORES:

Surface Water/Human Health: Not scored
Surface Water/Environmental.: Not scored
Air/Human Health: Not scored
Air/Environmental: Not scored
Groundwater/Human Health: **48.2 => 4**

OVERALL RANK: 3

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE**

   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**

   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: 1,2

      TPH as gasoline (from benzene), TPH as diesel (from naphthalene), toluene, ethyl benzene, xylene

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

      TPH as gasoline and xylene will be used due to their presence in the subsurface soils, confirmed through sample analysis. Groundwater sample results from the site confirm benzene contamination above 5 ug/L, the MTCA Method A Cleanup Level for benzene in groundwater.

   c. List those management units to be considered for scoring: Source: 1,2

      Spills, discharges, and contaminated soil

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

Spills, discharges, and contaminated soil will be the managements units used for scoring due to the impact caused by leaking underground storage tanks which have been covered by an impervious surface.

WORKSHEET 4

Surface Water Route

1.0 SUBSTANCE CHARACTERISTICS

1.1 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										
2										
3										
4										
5										
6										

* *Potency Factor*

Source:

Highest Value:
(Max = 10)

Plus 2 Bonus Points?

Final Toxicity Value:
(Max = 12)

1.2 Environmental Toxicity ( ) Freshwater ( ) Marine

	Substance	Acute Water Quality Criteria		Non-Human Mammalian Acute Toxicity	
		(µg/L)	Value	(mg/kg)	Value
1					
2					
3					
4					
5					
6					

Source:

Highest Value:
(Max = 10)

1.3 Substance Quantity	
Explain Basis:	Source: **Value:** (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment** **Explain basis:**		_ (Max = 10)
2.2	**Surface Soil Permeability:**		_ (Max = 7)
2.3	**Total Annual Precipitation:**		_ (Max = 5)
2.4	**Max 2yr/24hr Precipitation:**		_ (Max = 5)
2.5	**Flood Plain:**		_ (Max = 2)
2.6	**Terrain Slope:**		_ (Max = 5)

3.0 TARGETS

		Source	Value
3.1	**Distance to Surface Water:**		_ (Max = 10)
3.2	**Population Served within 2 miles (see WARM Scoring Manual Regarding Direction):**		_ (Max = 75)
3.3	**Area Irrigated by surface water within 2 miles : (0.75)*√ # acres =**		_ (Max = 30)
3.4	**Distance to Nearest Fishery Resource**		_ (Max = 12)
3.5	**Distance to, and Name(s) of, Nearest Sensitive Environment(s):**		_ (Max = 12)

4.0 RELEASE

Explain Basis:	Source: **Value:** (Max = 5)

WORKSHEET 5
Air Route

1.0 SUBSTANCE CHARACTERISTICS

1.1. Introduction (WARM Scoring Manual) – Please review before scoring

1.2 Human Toxicity

	Substance	Air Standard ($\mu g/m^3$)	Value	Acute Toxicity (mg/m^3)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1										
2										
3										
4										
5										

* *Potency Factor*

Source:

Highest Value:
(Max = 10)

Plus 2 Bonus Points?

Final Toxicity Value:
(Max = 12)

1.3 Mobility (Use numbers to refer to above listed substances)

	1.3.1 Gaseous Mobility	1.3.2 Particulate Mobility		
	Vapor Pressure(s) (mmHg)	Soil Type	Erodibility	Climatic Factor
1				
2				
3				

Source:

Value:
(Max = 4)

Source:

Value:
(Max = 4)

1.4 Highest Human Health Toxicity/ Mobility Matrix Value (from Table A-7)
(Use highest of:)

Final Matrix Value:
(Max = 24)

1.5 Environmental Toxicity/Mobility –						
Substance		**Non-human Mammalian Inhalation Toxicity (mg/m^3)**	**Acute Value**	**Mobility (mmHg)**	**Value**	**Matrix Value**
2						
6						

Highest Environmental Toxicity/Mobility Matrix Value (Table A-7) = **Final Matrix Value:**
(Max = 24)

1.6 Substance Quantity	
Explain Basis:	Source: **Value:** (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	**Value**
2.1	**Containment:**		(Max = 10)

3.0 TARGETS

		Source	**Value**
3.1	**Nearest Population:**		(Max = 10)
3.2	**Distance to [and name(s) of] nearest sensitive environment(s):**		(Max = 7)
3.3	**Population within 0.5 miles:**		(Max = 75)

4.0 RELEASE

Explain Basis for scoring a release to air:	Source: **Value:** (Max = 5)

WORKSHEET 6
Groundwater Route

1.0 SUBSTANCE CHARACTERISTICS

1.1 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 as gasoline (from benzene)	5	8	3306	3	ND	ND	A	0.029	5
2	Xylene	10,000	2	50	10	2	1	--	--	ND
3										
4										
5										
6										

* *Potency Factor*

Source: 1,2,3

Highest Value: 10
(Max = 10)

Plus 2 Bonus Points? 2

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= 1.80E+03 = 3
2=	2= 2.00E+02 = 2
3=	3 =
4=	4=
5=	5=
6=	6=

Source: 2,3

Value: 3
(Max = 3)

1.3 Substance Quantity:

Explain basis: The substance quantity was based on the total volume of all the USTs documented to have been at the site. A value of 35,300 gallons was used for scoring	Source: 1,2 **Value: 6** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Scored as a landfill with no liner, an impervious cover with unknown maintenance, no known collection system, and with disposal of free/bulk liquids	1,2	**9** (Max = 10)
2.2	**Net precipitation:** 70.1-80 inches	2,4,7	**5** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** Udorthents, man-made till	2,7,8	**4** (Max = 4)
2.4	**Vertical depth to groundwater:** Contamination was confirmed at the site through groundwater sample analysis.	1,2	**8** (Max = 8)

2.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Private supply, but alternate unthreatened sources available with minimal hookup requirements	2,5,6	**4** (Max = 10)
3.2	**Distance to nearest drinking water well:** The nearest well is located approximately 600 feet southwest of the subject site	2,6,7	**5** (Max = 5)
3.3	**Population served within 2 miles:** Approximately 15 residents served by groundwater within two miles of the subject site	2,5,6,7	**4** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** **(0.75)***√ There are no documented acres irrigated by groundwater within two miles of the subject site	2,7,9,10	**0** (Max = 50)

3.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Contamination was confirmed at the site through groundwater sample analysis.	1,2	**5** (Max = 5)

SOURCES USED IN SCORING

1. Washington State Department of Ecology Site Hazard Assessment File/TCP file
2. Washington State Department of Ecology, WARM Scoring Manual, April 1992
3. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
4. U.S. Department of Interior Geological Survey Topographical Map
5. Washington State Department of Health, Public Water System Database
6. Washington State Department of Ecology, Water Resources Explorer
7. Grays Harbor County GIS map
8. Washington State Department of Agriculture, soil maps
9. Washington State Department of Ecology Water Rights Tracking System
10. GeoCommunicator, Land Survey Information System
11. Washington State Department of Ecology Well Log Viewer
12. Model Toxics Control Act, Statue and Regulation, November 2007