SITE HAZARD ASSESSMENT

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:

Whitten Oil #1
370 West 5th
Colville, Stevens County, WA 99114
Section/Township/Range: Sections 9/T35N/R39E
Latitude: 48.54894 Longitude: -117.90972
Ecology Site ID#: 49354234

Site scored/ranked for the August, 2013 update

SITE DESCRIPTION (management areas, substances of concern, and quantities):

Whitten Oil #1 is an active convenience store with gasoline and diesel service as well as a 6 bay car wash, located in the city limits of Colville along Highway 395N. The site is approximately 1 mile northeast of the Colville River, 600 feet north of an un-named stream, and 2,600 feet northeast of freshwater emergent wetlands. Groundwater levels in the area have been recorded at approximately 5 feet below ground surface (bgs). Site geology consists of fill/fine grained alluvium overlying low permeability clay at 8 feet. The property has been in operation as a bulk fuel facility or gas station since 1933. Fuel storage was provided by 8 underground storage tanks (UST's) until 1990 at which time all were closed and replaced with 4 modern tanks in a subsurface containment basin. Seven of the original USTs were removed and one tank was left in place as prior expansion of the office/convenience store had taken place over the top of it. Approximately 1,200 cubic yards (yd^3) of petroleum contaminated soils were removed during tank removal and hauled off site for remediation. Excavation voids were backfilled with clean fill and pavement was installed over the entire lot.

BACKGROUND/ENVIRONMENTAL SAMPLING

The property has had various owners from 1933 until 1973 at which time it was purchased and operated by Whitten Oil Company. A car wash facility was constructed north north-west of the original USTs in 1988. In September of 1989 Petroleum Equipment Sales, Inc. (PES) encountered petroleum contaminated soils on the property while excavating for a new UST basin. PES was also contracted to close and remove the original USTs with oversight being provided by Sunrise Environmental Services (SES). Seven USTs were removed and a 12,000 gallon dual compartment tank located under the store/office building was left in place. Three of the UST's were reported by SES to have had holes in them and a fourth tank was noted to have been crushed and in poor condition prior to its discovery.

In January 1990, Delta Environmental Consultants, Inc. (Delta) was contracted to conduct a Phase I Environmental Site Assessment (EA) at the Whitten Oil #1 property. Six soil borings were advanced between 10 and 15 feet bgs to assess the extent of subsurface petroleum contamination. Samples were

collected at five foot advancements and field screened with a photoionization meter to determine the presence of organic vapors. Samples testing positive for organic vapors were sent to Technology Laboratory, Inc. (TLI) for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylene (BTEX) analyses. Analytical data indicates that only soil boring SB-5 had TPH, benzene and xylene concentrations exceeding Model Toxics Control Act (MTCA) cleanup levels.

Five of the six soil borings were completed as 2" diameter groundwater monitoring wells. Samples were collected from each well and submitted to TLI for analyses. TPH and BTEX were present in monitor wells MW-2, MW-4 and MW-6. MTCA cleanup levels were exceed for benzene only in MW-6; benzene and TPH exceeded cleanup levels in MW-2 and MW-4.
Delta concluded that while petroleum contamination was still present, 1,200 yd^3 of contaminated soil had been removed off site for remediation and the low permeability clay on site would likely prevent any remaining contamination from moving off site.

The property was purchased by LDH Investments, Inc. in January of 2006. An Initial Investigation (II) was conducted by the Department of Ecology (Ecology) in September of 2011, at which time it was recommended that the site be scheduled for a Site Hazard Assessment (SHA).

An SHA site visit was conducted on July 17, 2013, by Bryan Hunt (NETCHD). Mr. Ankur Sood and Ms. Aditti Sood (current owners/operators) were also present at the time of the site visit. Mr. Sood indicated that Mr. Kevin Wilkerson of Northwest Environmental had done some work for them since LDH, Inc. had purchased the property and may have more recent sample results from the monitoring wells. Attempts to reach Mr. Wilkerson were unsuccessful and no additional sample results could be obtained.

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 scoring and ranking of this site was based on the site-specific results from environmental samples collected in January of 1990. No new sampling data was generated during the SHA process. The ranking represents the overall relative threat to human health and the environment based on Washington Ranking Method (WARM) scoring elements.

ROUTE SCORES:

Surface Water/Human Health:	**3.2**	Surface Water/Environmental.:	**3.5**
Air/Human Health:	**0.0**	Air/Environmental:	**0.0**
Groundwater/Human Health:	**45.6**		

OVERALL RANK: 4

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE**

   a. List those substances to be considered for scoring: Source: 1-4

      Benzene, TPH-Gasoline, Xylene

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

      Contaminants detected in subsurface soils which exceed acceptable regulatory levels.

   c. List those management units to be considered for scoring: Source 1-4

      Surface soils.

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

      The contaminating substances were detected in sub-surface soils at the site in significant concentrations compared to the acceptable regulatory levels, and for which there are no significant barriers to migration in this route.

2. **AIR ROUTE**

   a. List those substances to be considered for scoring: Source: N/A

      Not Scored

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

      Note: Benzene contaminated subsurface soils were removed from the site, preventing any further release to air.

   c. List those management units to be considered for scoring: Source N/A.

   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: 1-4

Benzene, TPH-Gasoline, Xylene

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

Contaminants detected in ground water which exceed acceptable regulatory levels.

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

Ground Water Source:1-4

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

The contaminating substance was detected in ground water in significant concentrations compared to the acceptable regulatory levels, and for which there are no significant barriers to migration in this route.

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	Benzene	5	8	3306 (rat)	3	X		1.0	.029	3
2	TPH-Gasoline	5	8	3306 (rat)	3	X	ND	1.0		
3	Xylene	10000	2	50	10	2	1	X	X	

* *Potency Factor*

Source: 1-4

Highest Value: 10
(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 12
(Max = 12)

1.2 Environmental Toxicity (X) Freshwater ( ) Marine

	Substance	Acute Water Quality Criteria		Non-Human Mammalian Acute Toxicity	
		(µg/L)	Value	(mg/kg)	Value
1	Benzene	5300	2	-	-
2	TPH-Gasoline	5300	2		
3	Xylene	-	-		

Source: 1-4

Highest Value: **2**
(Max = 10)

1.3 Substance Quantity

Explain Basis: Based on approximate footprint of convenience store, as per Table SW-6.

Source: 1,3,4

Value: 7 (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment:** Maximum value of 10 points scored. **Explain basis:** Contaminated soils excavated and remediated off site, clean fill brought in. Site has been paved, preventing run-on/runoff/infiltration	1,3,4	**0** (Max = 10)
2.2	**Surface Soil Permeability:** fine grained alluvium overlying low permeability clay at 8'	1,3,4,10	**7** (Max = 7)
2.3	**Total Annual Precipitation:** the average total precipitation for the area is approx. 16.23"	3,4,5,11	**2** (Max = 5)
2.4	**Max 2yr/24hr Precipitation:** 1.4 inches	3,4,11	**2** (Max = 5)
2.5	**Flood Plain:** Not in 100 yr flood plain	3,4,11	**0** (Max = 2)
2.6	**Terrain Slope:** <2%	1,3,4	**1** (Max = 5)

3.0 TARGETS

		Source	Value
3.1	**Distance to Surface Water:** <1000' feet	3,4,11	**10** (Max = 10)
3.2	**Population Served within 2 miles (see WARM Scoring Manual Regarding Direction):**	3,4,6	**0** (Max = 75)
3.3	**Area Irrigated by surface water within 2 miles : (0.75)*√ # acres =** 0.75 * √0 = 0	3,4,6	**0** (Max = 30)
3.4	**Distance to Nearest Fishery Resource:** >10,000 feet	3,4,11	**0** (Max = 12)
3.5	**Distance to, and Name(s) of, Nearest Sensitive Environment(s):** freshwater wetlands >2,500 -5,000 feet	1,3,4,11	**6** (Max = 12)

4.0 RELEASE

Explain Basis:	Source: 1-4 **Value: 0** (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	Benzene	5	8	3306 (rat)	3	X	X	1.0	.029	3
2	TPH-Gasoline	5	8	3306 (rat)	3	X		1.0		
3	Xylene	10000	2	50	10	2	1	X	X	

* *Potency Factor*

Source: 1-4

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	OR	Solubility (mg/L)
1=		1= 1800
2=		2= 1800
		3= 200

Source: 3,4

Value: 2
(Max = 3)

1.3 Substance Quantity:

Explain basis:
Approximately 1200 cu. yds. of soil remains

Source: 1,3,4

Value: 4
(Max=10)

5.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Scored as unlined landfill, low permeability cover, no leachate collection system, no liquids present per Table GW-8.	1-4	**7** (Max = 10)
2.2	**Net precipitation:** 16.23" – unknown evapotranspiration	3,4,5,11	**3** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** fine grained alluvium overlying low permeability clay	1,3,4	**2** (Max = 4)
2.4	**Vertical depth to groundwater:** +/-5 feet	1,3,4	**8** (Max = 8)

6.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Public supply, unthreatened alts. available	3,4,7,8	**4** (Max = 10)
3.2	**Distance to nearest drinking water well:** >8000 feet	3,4,7,8	**1** (Max = 5)
3.3	**Population served within 2 miles:** √5040 = 70.9 = 71	3,4,7,8	**71** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles: Dominion Meadows Golf Course 425 acres (0.75)*√425 acres = 15.46 = 15**	3,4,7,8	**15** (Max = 50)

7.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Contamination present in groundwater as documented by monitor well samples.	1,3,4	**5** (Max = 5)

SOURCES USED IN SCORING

1. Phase I Environmental Site Assessment, Whitten Oil Company, Colville, WA, Delta Environmental Consultants, Inc., March 12, 1990.
2. SHA site visit by Bryan Hunt, Northeast Tri-County Health District, July 17, 2012.
3. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
4. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
5. PRISM Data Explorer – Net Rainfall.
6. Washington Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
7. Washington Department of Ecology, Washington State Well Log Images Map printout for two-mile radius of site.
8. Washington Department of Health, Sentry Internet Database printout for public water supplies.
9. USGS Topographic map for site area.
10. USDA NRCS, Web Soil Survey
11. Stevens County GIS Maps