Reviewed 1/26/10
E-mail sent

SITE HAZARD ASSESSMENT

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:

Usk General Store
111 5th St.
Usk, Pend Oreille County, WA
Section/Township/Range: Sections 32/T33N/R44E
Latitude: 48° 18' 48.5" Longitude: 117° 16' 50.5"
Ecology Facility Site ID No.: 76475815

48.31347
117.28069

Site scored/ranked for the February 21, 2010 update

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

The Usk General Store (store) is an active service station, general store and café. The store is located approximately 140 feet west of the Pend Oreille River which has been designated by the U.S. Fish and Wildlife Service as proposed critical habitat in the Bull Trout Draft Recovery Plan. Gasoline service from 1970 to 1986 was provided by two (2) five hundred gallon underground storage tanks (UST). The tanks were suspected of leaking and removed from service by an unknown contractor in 1986 and replaced by a single twelve thousand five hundred (12,500) gallon tank. On March 26, 2007, ACT Inc. was contracted for the inerting, cutting, cleaning, re-excavation and site assessment of the 12,500 gallon tank.

BACKGROUND/ENVIRONMENTAL SAMPLING

Headspace analysis was conducted by ACT Inc. utilizing a Photo Ionization Detector (PID), as a method of determining what hydrocarbon contamination may be present. Headspace analysis indicated that hydrocarbon contamination did exist over acceptable limits in the area under the tank location as well as in the stockpiles of soil that had been removed during tank excavation. Laboratory samples were also collected to verify the concentrations of the identified contaminants. Results from six of the laboratory samples identified Benzene levels in excess of Model Toxics Control Act (MTCA) clean up levels.

Sample Medium	Analyte Found	Sample Result Mg/kg (ppm)	Screening Standard	(ppm)
Soil	Benzene	.032 – 1.45	MTCA A	.03

*MTCA A Industrial refers to the Model Toxics Control Act Table 745-1 Method A Soil Cleanup Levels for Industrial Properties.
+MTCA Method B

Five of the six samples exceeding cleanup levels were located between 12 and 21 feet below ground surface (bgs). This is of concern as groundwater wells in the area indicate that the water table is approximately 20 feet, which also corresponds to the elevation of the Pend Oreille River. No groundwater samples have been collected as there are no monitor wells at the site. Therefore, actual impacts to groundwater cannot be evaluated. There are also no known releases to the nearby surface waters of the Pend Oreille River.

The Washington State Department of Ecology (DOE) conducted an Initial Investigation (II) of the site and in March of 2007, placed the site on the Confirmed and Suspected Contaminated Sites List. On October 27, 2009, DOE notified the property owner that a Site Hazard Assessment (SHA) would be conducted by the Northeast Tri-County Health District (NETCHD) for the purpose of scoring the site using the Washington Ranking Method (WARM) Scoring Manual.

An SHA site visit was conducted on November 24, 2009, by Bryan Hunt (NETCHD) with support from Phil Leinart and Jason Cocke (DOE). The property owner, Mr. Luke Keogh, also arrived on site midway through the assessment. Mr. Cocke identified the former location of the 12,500 gallon UST as well as the extents of excavation activities and the locations of soil excavation stockpiles. Mr. Leinart provided discussion regarding the Confirmed and Suspected Contaminated Sites List and the purpose of the SHA.

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 site-specific results from environmental samples collected by ATC Inc. on March 26, 2007. 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:	**3.3**	Surface Water/Environmental.:	**9.2**
Air/Human Health:	**0.0**	Air/Environmental:	**0.0**
Groundwater/Human Health:	**49.4**		

OVERALL RANK: ~~XX~~ 4

1
0
4

1
0

16+2+0/8= 18/8= 3

1

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE**

   a. List those substances to be considered for scoring: Source: 1-3

      Benzene

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

      Benzene levels 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 substance was 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: 1-3

      Not Scored

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

      Note: Surface stockpiles of 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 1-4

   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: 1-3

Benzene

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

Benzene levels detected in subsurface soils which exceed acceptable regulatory levels.

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

Surface soils. Source:1-4

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

The contaminating substance was 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.

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 WOE	Carcinogenicity PF*	Value
1	Benzene	5	8	3306 (rat)	3	X		1.0	.029	1

* *Potency Factor*

Source: 1, 3,5,6

Highest Value:8
(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 10
(Max = 12)

1.2 Environmental Toxicity (X) Freshwater ( ) Marine

	Substance	Acute Water Quality Criteria (µg/L)	Value	Non-Human Mammalian Acute Toxicity (mg/kg)	Value
1	Benzene	5300	10	-	-

Source: 1,5,6

Highest Value: 10
(Max = 10)

1.3 Substance Quantity

Explain Basis: Once full volume of UST = 12,500 gallons

Source: 1,4,6

Value: 5
(Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment:** Maximum value of 10 points scored.	1,4	**0** (Max = 10)

	Explain basis: Surface soil contamination with no maintained cover.		
2.2	**Surface Soil Permeability:** Silty Clay Loam	1,13	**5** (Max = 7)
2.3	**Total Annual Precipitation:** the average total precipitation for the area is approx. 20"	7	**2** (Max = 5)
2.4	**Max 2yr/24hr Precipitation:** 1.4 inches	5	**2** (Max = 5)
2.5	**Flood Plain:** In 100 yr flood plain	14	**2** (Max = 2)
2.6	**Terrain Slope:** >8%	1,3,4	**5** (Max = 5)

3.0 TARGETS

		Source	Value
3.1	**Distance to Surface Water:** <1000' feet	1,4,11	**10** (Max = 10)
3.2	**Population Served within 2 miles (see WARM Scoring Manual Regarding Direction):**	8	**0** (Max = 75)
3.3	**Area Irrigated by surface water within 2 miles : (0.75)*√ # acres =** 0.75 * √3 = 1.29 = 1	8	**1** (Max = 30)
3.4	**Distance to Nearest Fishery Resource:** <1000 feet	1,4,5	**12** (Max = 12)
3.5	**Distance to, and Name(s) of, Nearest Sensitive Environment(s):** fishery resource <1000 feet	1,4,5,13	**12** (Max = 12)

4.0 RELEASE

Explain Basis: Documented by analytical data during ATC Inc., Tank Closure and Site Assessment	Source: 1-3 **Value: 0** (Max = 5)

WORKSHEET 5
Air Route
Not Scored

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										

* *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)

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**
1						
2						

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: 0** (Max = 5)
No documented release to air.	

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)	1		X	1.0	.029	1

* *Potency Factor*

Source: 1,4,5

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= Benzene 1800
2=		2=

Source: 5

Value: 3
(Max = 3)

1.3 Substance Quantity:

Explain basis:	
Approximately 168 cu. yds. of excavated soil removed	Source: 1,3,4,5 **Value: 3** (Max=10)

5.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** For all spills, discharges and contaminated soil, assign a containment value of 10	1,2,3,4,6	**10** (Max = 10)
2.2	**Net precipitation:** 13.4" – unknown evapotranspiration	7	**2** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** silty clay loams	13	**2** (Max = 4)
2.4	**Vertical depth to groundwater:** 21 feet to static water level	1,3,4	**8** (Max = 8)

6.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Public supply, unthreatened alts. available	9,10	4 (Max = 10)
3.2	**Distance to nearest drinking water well:** ½ mile	9,10	2 (Max = 5)
3.3	**Population served within 2 miles:** √1213 = 34.8 = 35	9,10	35 (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles: (0.75)*√20 acres = 3.35 = 3**	8,9	3 (Max = 50)

7.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Assumed release to groundwater based on presence of Benzene in soils at a depth consistent with elevation of static water levels in the area.	1,2,3,5	5 (Max = 5)

SOURCES USED IN SCORING

1. Underground Storage Tank Closure Site Assessment, Usk General Store, Usk , WA, ATC Inc., May 17, 2007.
2. Phase 1 Environmental Site Assessment, Keo's Corner, Usk, WA, Industrial Tank June 1, 1993.
3. LUST Initial Investigation Report, Usk General Store, Usk , WA, DOE, July 23, 2007.
4. SHA site visit by Bryan Hunt, Northeast Tri-County Health District, November 25, 2009.
5. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
6. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
7. PRISM Data Explorer – Net Rainfall.
8. Washington Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
9. Washington Department of Ecology, Washington State Well Log Images Map printout for two-mile radius of site.
10. Washington Department of Health, Sentry Internet Database printout for public water supplies.
11. USGS Topographic map for site area.
12. Bull Trout Draft Recovery Plan, United States Fish and Wildlife Service, 2002.
13. USDA NRCS, Web Soil Survey
14. Pend Oreille County GIS Maps