CSID 3497

WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

Name: **Klickitat Cnty Road Dept**
Address: **1181 W Broadway**
City: **Goldendale** County: **Klickitat** State: **WA** Zip: **98620**
Section/Township/Range: **S17/T4N/R16E**
Latitude: **45° 49' 28"** Longitude: **120° 50' 29"**
TCP ID #: **35691825**

Site scored/ranked for the 02/23/05 update

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

Due to the addition of a new building for the Klickitat County Shops, a washdown slab was removed. During the removal process, contamination appeared to be present under the slab. According to Mr. Steve Nygaard (Former Public Works Director) the facility has operated for decades. The washdown pad served as a location to washdown vehicles and dispose of unwanted contaminants, including gasoline, solvents, and herbicides. This practice was reportedly discontinued upon the implementation of more recent environmental regulations.

According to a 1994 Site Assessment, "a drain near the north end of the pad discharged to the ground surface near the northeast corner of the existing facility. Water and contaminants either flowed or were absorbed into the soil column as part of the natural drainage path, to the west, along the north end of the building. Furthermore, washdown of the shop floor and local work station disposal was discharged through the north wall of the facility where it is believed to have entered the same soil column as the washdown pad."

During site investigations, a considerable amount of dark staining was noticed on the soil. Two hundred tons of contaminated soil was excavated from the site, however, contamination still resides at the site under building structures and elsewhere on the site. A copy of a bill of lading found in the file documents that contaminated soil was taken to Rabanco Landfill for disposal.

Twenty-one soil and groundwater samples were collected from the site, however the Site Assessment Report only provides lab results for 14 samples. Scoring of this site was based only on these 14 samples. (Additional information, including interpretation of the report, was requested from Mike Black, PD Consultants; however, he was not able to answer the questions.) Results of the following samples indicate contaminated soil, at levels which exceed Model Toxics Control Act cleanup levels, was left in place at the site.

Sample No.	Hazardous Substance	Concentration (ppm)	Cleanup Level[a]
KLC-1-1-a,b	Total Petroleum Hydrocarbons	1600	NA[b]
KLC-2-1	Gasoline	590	30[c]
	Diesel	3100	2000
KLC-2-2	Total Petroleum Hydrocarbons	6400	NA
KLC-3-1	Benzene	0.140	0.03
	Tetrachloroethene	0.330	0.05
KLC-3-4	Cadmium	12.0	2.0

a. The Model Toxics Control Act (MTCA) Method A cleanup levels are applied where applicable: gasoline, diesel, benzene and tetrachloroethene. The cleanup level for Cadmium was based on Method B.
b. Since the revision of MTCA in August 2001, there is no longer a cleanup level for Total Petroleum Hydrocarbons.
c. The Method A cleanup level for gasoline is 100 ppm when benzene is not present. In this case, benzene was detected in a nearby sample. Therefore, the cleanup level is 30ppm.

Laboratory analysis of one groundwater sample (KLC-2-4), collected from the base of the washpad pit, indicates that groundwater has been impacted with gasoline. Only one groundwater monitoring well has been installed at the site. A groundwater sample was also collected from an onsite monitoring well (MW-1), but no analytes were detected. The well log for this well indicates shallow groundwater (about 6 ½ feet below ground surface) as the well was only drilled to a depth of 10 feet below ground surface. Based on surface topography and the nearness to the Little Klickitat River, it is likely that groundwater flows in a south/southwest direction. The groundwater sample collected from MW-1 is not likely representative of downgradient groundwater conditions.

A site visit with Steve Nygaard was conducted on December 16, 2004. During the visit, Mr. Nygaard described past wash pad practices, how the waste was discharged into the soil, and the cleanup activities that followed when updating the washdown pad. He admitted that while most washdowns occurred on the pad, sometimes it occurred to the east of the washdown pad. This soil has not been tested for contaminants. He explained that the entire facility sits on a basalt layer about 5-7 feet below ground surface. According to Mr. Nygaard, water seems to flow freely on this layer and during heavy rains collects in the parking lot to the southwest of the washpad.

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):

Due to the significant contamination documented on-site being primarily subsurface, the surface water and air routes are not applicable for WARM scoring for this site. Thus, only the groundwater route will be scored.

ROUTE SCORES:

Surface Water/Human Health:	**NS**	Surface Water/Environmental.:	**NS**
Air/Human Health:	**NS**	Air/Environmental:	**NS**
Groundwater/Human Health:	**48.9**		

OVERALL RANK: 3

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE** – *Not Scored*

2. **AIR ROUTE** – *Not Scored*

3. **GROUNDWATER ROUTE** –

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

   Total Petroleum Hydrocarbons as gasoline and diesel, Benzene, Tetrachloroethene, and Cadmium

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

   Analytical results indicate the presence of these hazardous substances at levels which exceed the MTCA Method A and B cleanup levels.

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

   Subsurface soil and groundwater

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

   Spill/discharge caused soil and groundwater contamination

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 as diesel	160	4	490	5	0.004	3	ND		ND
2	Benzene	5	8	3306	3	--	ND	1.0	0.029	5
3	Cadmium	5	8	225	5	0.0005	5	0.8	ND	ND
4	Tetrachloroethene		8	800	5	0.01	3	ND		ND

* *Potency Factor*

Source: 4, 5
Highest Value: 8
(Max = 10)
Plus 2 Bonus Points? 2
Final Toxicity Value: 10
(Max = 12)

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

Cations/Anions	OR	Solubility (mg/L)
1=		1= 30 = 1
2=		2= $1.8 \times 10^3 = 3$
3= K = Greater than 1.0 = 3		3=
4=		4= $1.5 \times 10^2 = 2$

Source: 4, 5
Value: 3
(Max = 3)

1.3 Substance Quantity:

Explain basis: Contaminated soil remains at the site in unknown quantities, therefore the default value (1) was used.	Source: 1, 5 **Value: 1** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** The contaminated soil is not capped.	2, 5	**10** (Max = 10)
2.2	**Net precipitation:** 13.1 – 3.4 = 9.7 inches	5, 6	**1** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** sandy silt to silt, trace of clay, trace of gravel	2, 5	**3** (Max = 4)
2.4	**Vertical depth to groundwater:** 6.7 feet bgs – drilling log info	1, 5	**8** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** public supply; no alternate unthreatened sources available with minimal hookups	9	**9** (Max = 10)
3.2	**Distance to nearest drinking water well:** 210 **feet**	1, 5	**5** (Max = 5)
3.3	**Population served within 2 miles: √ pop. =** √400 = 20	7, 5	**20** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles: (0.75)*√# acres =** 0.75 * √1659 = 30.5	5, 8	**31** (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: laboratory analysis of a pit water sample indicates that groundwater has been impacted	1, 5	**5** (Max = 5)

SOURCES USED IN SCORING

1. *Site Assessment for Klickitat County Road Department*, PD Consultants, January 9, 1994
2. Water Well Report for MW-1
3. Site Hazard Assessment Site Visit with Steve Nygaard (Kittitas County Road Department), Krystal Rodriguez, December 16, 2004
4. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
5. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
6. Washington Climate – Net Rainfall Table
7. Washington State Department of Ecology, Facility/Site Identification System search for Group A and B wells – printout for two-mile radius
8. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
9. Washington State Department of Health, SADIE Database printout for public water supplies