

. CS # 708

SITE HAZARD ASSESSMENT <u>WORKSHEET 1</u> Summary Score Sheet

SITE INFORMATION:

Havillah Road Oil Dumping

780 Havillah Rd. Tonasket, Okanogan County, WA 98855 Section/Township/Range: S28 - T38N - R28E Latitude: 48° 46' 08.31" Longitude: 119° 18' 49.18"

Ecology Facility Site ID No.: 3383437

Site scored/ranked for the August 25, 2006 update: June 20, 2006

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

This site is comprised of three adjoining properties, owned by Angela Lorz, Scott Morrison, and Gary Super. These three properties are located in north-central Okanogan County in dry, lowland forest. The terrain is rolling hills with a predominantly westerly aspect. There is no surface water in the immediate vicinity, and the water table is fairly deep. The nearest registered well is 300' deep, with a static level of 104'. An unregistered well is located approximately 100' down-gradient from the contaminated site. All three parcels are rural residential property, and at least one property is used for free-range livestock grazing.

A complaint to the Washington Department of Ecology stated that oil had been dumped, spilled, or applied to the surface of an access road running through all three parcels. During an Initial Investigation by Douglas Hale, Okanogan County Public Health, on August 24th, 2005, dark staining of the native soil road surface was observed, extending across all three named properties and petroleum odors were noticed in the disturbed soil.

Two soil samples were collected from the Gary Super property. Angela Lorz, representative for the Marilyn Lorz and Scott Morrison properties, refused access for sampling on the other two sites. Sample results indicated that petroleum concentrations are in excess of the Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses. Diesel-range petroleum was measured at 5,000 mg/kg and motor oil-range petroleum at 30,700 mg/kg in the most contaminated sample. Because access was denied, but contamination was visible on adjoining parcels, all three properties are being ranked and scored based on the sample results 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):

Since the date of the Initial Investigation, Gary Super reported that the road surface has been scraped down and the contaminated soil moved to other locations on the Lorz/Morrison properties. This was

1

not confirmed at the time of this report. Any subsequent cleanup and/or site assessment activities should address not only the roadbed, but also the locations where this soil may have been moved to.

ROUTE SCORES:

Surface Water/Human Health:	<u> 4.8 </u>	
Air/Human Health:	6.3	
Groundwater/Human Health:	12.0	

<u>7.8</u> NS

5

OVERALL RANK:

2

WORKSHEET 2

Route Documentation

1. SURFACE WATER ROUTE

a. List those substances to be <u>considered</u> for scoring:

Source: <u>1,2</u>

Total Petroleum Hydrocarbons (TPH) – Diesel range organics.

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

Soil sample analysis shows diesel contamination of on-site soils in excess of MTCA Method A Cleanup Levels for Unrestricted Land Use.

c. List those management units to be <u>considered</u> for scoring:

Source <u>1,2</u>

Contaminated on-site surface and subsurface soils.

d. Explain basis for choice of unit to be <u>used</u> in scoring:

Analytical confirmation of this contaminant in on-site soils.

2. AIR ROUTE

a. List those substances to be <u>considered</u> for scoring:

Total Petroleum Hydrocarbons (TPH) - Diesel range organics.

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

Soil sample analysis shows diesel contamination of on-site soils in excess of MTCA Method A Cleanup Levels for Unrestricted Land Use.

c. List those management units to be <u>considered</u> for scoring:

Contaminated on-site surface and subsurface soils.

d. Explain basis for choice of unit to be <u>used</u> in scoring:

Analytical confirmation of this contaminant in on-site soils.

3. GROUNDWATER ROUTE

a. List those substances to be <u>considered</u> for scoring:

Total Petroleum Hydrocarbons (TPH) – Diesel range organics.

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

Soil sample analysis shows diesel contamination of on-site soils in excess of MTCA Method A Cleanup Levels for Unrestricted Land Use.

c. List those management units to be <u>considered</u> for scoring:

Source: 1,2

Source: 1,2

Contaminated on-site surface and subsurface soils.

d. Explain basis for choice of unit to be <u>used</u> in scoring:

Analytical confirmation of this contaminant in on-site soils.

Source: <u>1,2</u>

Source: 1,2

WORKSHEET 4

Surface Water Route

1.0 SUBSTANCE CHARACTERISTICS

1.	1 Human Toxici	ty								
		Drinking		Acute		Chronie		Carcino	ogenicity	
	Substance	Water	Value	Toxicity	Value	Toxicity	Value			Value
		(ug/L)		(mg/kg-bw)		(mg/kg/day)		WOE	PF*	
1	TPH – Diesel	160	4	490 (rat)	5	0.004	3	ND	ND	

*Potency Factor

Source: <u>1, 2, 5</u>

Highest Value: <u>5</u> (Max = 10) Plus 2 Bonus Points? <u>0</u> Final Toxicity Value: <u>5</u> (Max = 12)

1.2 Environmental Toxicity			6j		
Substance	Acute Water Quality Criteria		Non-Human Mammalian Acute Toxicity		
	(µg/L)	Value	(mg/kg)	Value	
1 TPH – Diesel	2300	2	NS		

Source: <u>1, 2, 5</u>

Highest Value: 2 (Max = 10)

 1.3 Substance Quantity

 Explain Basis: Soil staining was visible on the road surface for approximately 500', as measured on GIS aerial photo map. Average width is approximately 10'. 500' x 10' = 5,000 s.f.

 Source: 1, 6, 11

 Value: 7

 (Max = 10)

4

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	 Containment: Management unit scored as a spills/discharges/contaminated soil at the surface, with ineffectively maintained run-on/runoff controls (vegetated buffer). Explain basis: Roadside vegetation provides an un-maintained barrier to runoff. 	<u>1,6</u>	<u>4</u> (Max = 10)
2.2	Surface Soil Permeability: Sands/gravels/gravelly sandy loam	<u>1,3,6</u>	$\frac{1}{(\text{Max}=7)}$
2.3	Total Annual Precipitation: 11.3 inches (based on Omak station)	<u>6, 7</u>	$\frac{1}{(Max=5)}$
2.4	Max 2yr/24hr Precipitation: 0.99 in	<u>6, 14</u>	$\frac{1}{(Max = 5)}$
2.5	Flood Plain: Not in a flood plain	<u>8, 11</u>	$\underbrace{0}_{(Max=2)}$
2.6	Terrain Slope: 120'/908' x 100 = 13.2%	<u>11</u>	<u>5</u> (Max = 5)

3.0 TARGETS

		Source	value
3.1	Distance to Surface Water: ~4,550 feet	<u>11</u>	$\frac{4}{(Max = 10)}$
3.2	Population Served within 2 miles (see WARM Scoring Manual Regarding Direction): $\sqrt{0} = 0$	<u>10</u>	$\underbrace{0}_{(Max = 75)}$
3.3	Area Irrigated by surface water within 2 miles : $0.75 \ge \sqrt{40} = 0.75 \ge \sqrt{52} = 5.41$	<u>10</u>	<u>5</u> (Max = 30)
3.4	Distance to Nearest Fishery Resource: > 10,000'	<u>11</u>	<u>0</u> (Max = 12)
3.5	Distance to, and Name(s) of, Nearest Sensitive Environment(s): Washington State Dept. of Fish & Wildlife property lies approximately 600' south. Small wetland is located about 2,300 feet north.	<u>11</u>	<u>12</u> (Max = 12)

4.0 RELEASE

Explain Basis: None documented by analytical evidence.	Source: <u>1, 6</u>
	Value: $\underline{0}_{(Max = 5)}$

WORKSHEET 5 Air Route

1.0 SUBSTANCE CHARACTERISTICS

Introduction - Review WARM Scoring Manual before scoring 1.1.

1.2 Human Toxicity									
Substance	Amb. Air Standard (µg/m ³)	Value	Acute Toxicity (mg/ m ³)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcino WOE	genicity PF*	Value
1 TPH – Diesel	166.5	4	ND	·	ND		ND	ND	

* Potency Factor

Source: <u>5, 6</u> Highest Value: 4 (Max = 10)

Plus 2 Bonus Points? 0

Final Toxicity Value: $\frac{4}{(Max = 12)}$

1.3 Mobility (Use	numbers to refe	r to above listed subst	ances)	
1.3.1 Gaseous	Mobility	. 1.	3.2 Particulate Mobility	y
Vapor Pressure(s) (mmHg)	Soil Type	Erodibility	Climatic Factor
1 0.08	2			
	Source: <u>5, 6</u>			Source: <u>NA</u>
	Value: $\underline{3}$			Value: \underline{NS}

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

Final Matrix Value: 6 (Max = 24)

1.5 Environmental Toxicity/Mobility					
Substance	Non-human Mammalian Inhalation Toxicity (mg/m ³)	Acute Value	Mobility (mmHg)	Value	Matrix Value
1 TPH - Diesel	ND	· 	ND		

Highest Environmental Toxicity/Mobility Matrix Value (from Table A-7)

Final Matrix Value: NS (Max = 24)

1.6 Substance Quantity	
Explain Basis: Estimated extent of surface soil contamination = approx. 5,000 s.f.	Source: <u>1, 6, 11</u>
	Value: <u>5</u> (Max = 10)

2.0 MIGRATION POTENTIAL

			Source	Value
2.1	Containment:	Surface spill/discharge and no vapor collection system	<u>1,6</u>	$\frac{10}{(Max = 10)}$

3.0 TARGETS

<u></u>		Source	Value
3.1 Nearest Population: Ap	proximately 300 ft.	<u>1, 6, 11</u>	$\frac{10}{(Max = 10)}$
3:2 Distance to [and name(s) Washington State Dept. of wetland is located about 2.	of] nearest sensitive environment(s) [fisheries excluded]: Fish & Wildlife property lies approximately 600' south. Small ,300 feet north.	<u>6, 11</u>	(Max = 7)
3.3 Population within 0.5 mi	les: $\sqrt{pop.} = 14$ homes x 3 residents = 42. $\sqrt{42} = 6.5$	<u>6,11</u>	<u>6</u> (Max = 75)

4.0 RELEASE

Explain Basis for scoring a release to air: None documented		Source: <u>6</u>
		Value: <u>0</u>
	·	$(Max = \overline{5})$

WORKSHEET 6 Groundwater Route

1.0 SUBSTANCE CHARACTERISTICS

		Drinking		Acute		Chronic		Carcino	genicity	
	Substance	Standard (µg/L)	Value	Toxicity (mg/ kg-bw)	Value	Toxicity (mg/kg/day)	Value	WOE	PF*	Value
1	TPH – Diesel	160	4	490 (rat)	5	0.004	3	ND	ND	

Highest Value: 5 (Max = 10) Plus 2 Bonus Points? 0 Final Toxicity Value: 5 (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 = 30 mg/L			
2 =		2 =	· · ·		
	· · · · · · · · · · · · · · · · · · ·	· ·		g 5 (

Source: <u>5, 6</u> Value: <u>1</u> (Max = 3)

1.3 Substance Quantity:	
Explain basis: Surface extent of contamination is estimated at approximately 5,000 sq. ft. Depth of contamination is unknown; used default value of 1.	Source: <u>1, 6</u> Value: <u>1</u> (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	Containment (explain basis): Spill to ground surface with no containment.	<u>3</u>	$\frac{10}{(Max = 10)}$
2.2	Net precipitation: $6.8^{\circ} - 2.7^{\circ} = 4.1^{\circ}$	<u>7</u>	$\frac{1}{(Max = 5)}$
2.3	Subsurface hydraulic conductivity: Sands/gravels/gravelly sandy loam	<u>1,3</u>	$\frac{3}{(Max=4)}$
2.4	Vertical depth to groundwater: The nearest recorded well has a static water level of 104'. Depth of contamination is assumed to be 3'. Vertical depth to groundwater = 101 '.	<u>3,6</u>	$\frac{3}{(Max = 8)}$

3.0 TARGETS

		Source	Value
3.1	Groundwater usage: Private supply, no alternates available	<u>1, 9</u>	$\frac{4}{(Max = 10)}$
3.2	Distance to nearest drinking water well: <u>~660</u> feet	<u>1, 4, 6</u>	$\frac{4}{(Max = 5)}$
3.3	Population served within 2 miles: $\sqrt{\text{pop.}} = \sqrt{147} = 12.1$	<u>6, 11</u>	$\frac{13}{(Max = 100)}$
3.4	Area irrigated by wells within 2 miles: $0.75 \ge \sqrt{40} = 0.75 \ge \sqrt{31} = 4.18$	<u>4, 6</u>	<u>5</u> (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: None documented	<u>6</u>	$\underbrace{0}_{(Max=5)}$
	· · · · ·	· · · · · · · · · · · · · · · · · · ·

SOURCES USED IN SCORING

- 1. Site Hazard Assessment initial visit by Douglas Hale, August 24, 2005.
- 2. Soil sample analysis reports by Severn Trent Laboratories.
- 3. Soil log(s) on file at Okanogan County Health District.
- 4. Water Well Reports on file at Okanogan County Health District.
- 5. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
- 6. Washington Department of Ecology, WARM Scoring Manual, April 1992.
- 7. See attached table identified as Reference 7.
- 8. Flood Insurance Rate Maps (FIRM).
- 9. Ecology Water Rights Tracking System (WRTS).
- 10. Washington Department of Fish & Wildlife StreamNet database.
- 11. GIS data layers provided by Okanogan County Planning Department, composite map is attached as Reference 11.
- 12. US Census 2000 data.
- 13. SENTRY Public Water system data from Washington Department of Health.
- 14. NOAA Atlas II Precipitation Frequency Data Output, site specific estimate.