SITE HAZARD ASSESSMENT

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:

Stubblefield Salvage Yard Section/Township/Range: Sec 09/T20N/R03E
535 Offner Road Latitude: 46° 3' 53" Longitude: 118° 22' 14"
Walla Walla, Walla Walla County, WA 99326
Ecology Facility Site ID No.: 1367331

Site scored/ranked for the August 22, 2007 update
August 6, 2007

SITE DESCRIPTION:

The Stubblefield Salvage Yard site is metal salvaging business owned by Emory Stubblefield, located at 535 Offner Road, Walla Walla, Walla Walla County, WA. It is approximately 40 acres in area, bounded to the north by Mill Creek, which is heavily bermed as it passes the site area. The Walla Walla Regional Sewage Disposal Treatment Plant is immediately west of the site, with the south and eastern borders of the site being adjacent to relatively undeveloped open areas. The site property is just outside the Walla Walla City limits, with new residential development rapidly encroaching.

The main salvaging operation consists of a large shear used to cut up scrap metal and a large press to compress it into blocks. An abandoned three-story wooden building, which Mr. Stubblefield earlier had used as a rendering plant, is adjacent to the shear and press. An abandoned aluminum smelter is located at the rear of the wooden building and show signs of historical burning events.

The Washington Department of Ecology (Ecology) Eastern Regional Office (ERO) Hazardous Waste and Toxics Reduction (HWTR) Program had conducted Dangerous Waste Compliance Inspections at this site in 1999 and 2002, with Compliance Letters sent to Mr. Stubblefield following each inspection addressing the (improper) handling of used oil, spent batteries, incinerator ash, and various waste automotive fluids. Waste streams generated on-site include used oil, used tires, various metal solid wastes and spent batteries. The site has been in operation since the 1960's.

On October 19, 2006, Nicky Swanson and Lori Rodriguez, Ecology ERO HWTR, conducted an unannounced Dangerous Waste Compliance Inspection in response to previous concerns regarding waste management activities and site contamination. Mr. Stubblefield was at that time in the process of repairing the shear which has just had a large hydraulic fluid spill. A smoke cloud was observed emitting from an area where automobile seats were burning, and further inspection of the site showed several more areas with abundant evidence of previous burn events.

Numerous used batteries were observed scattered directly on the ground throughout the site, with no covering. There were at least 25 55-gallon drums of used oil, some "bulging" and none adequately labeled, stored directly on the ground among blackberry bush covered areas on the site property. Leaks and spills of used oil to the ground were visible at the base of at least one drum, the berry

bushes being too thick to allow access to all drums. There were many areas of what appeared to be dark staining on the ground surface (soil), allegedly from petroleum leaks/spills. All of these infractions were documented by a series of color photographs (copies enclosed in this site file).

ERO HWTR wrote a Compliance Report on January 10, 2007, detailing the above events and listing a number of required actions to be completed at the site in order to attain compliance under Washington State Dangerous Waste Regulations (Chapter 173-303) in establishing a system for safe and responsible management of dangerous wastes. The site was referred to Ecology's Toxics Cleanup Program (TCP) at that same time as a potential site for cleanup and disposal of historically contaminated soil areas under the Model Toxics Control Act (MTCA).

The site was listed on Ecology's Confirmed and Suspected Contaminated Sites list on January 26, 2007, with a notification (Early Notice Letter) going to Mr. Stubblefield February 1, 2007. This was followed up on February 28, 2007, with a notification letter to Mr. Stubblefield that a site hazard assessment (SHA) under MTCA, Chapter 173-340-320, would take place.

Michael Spencer, Ecology TCP Headquarters, met with Mr. Stubblefield at the site on April 24, 2007. Following a discussion about what the SHA would entail, Mr. Stubblefield gave Mr. Spencer access to do a walk-around of the site. Mr. Spencer's observations confirmed obvious releases to the environment (predominantly soil and air) of such hazardous contaminants as used motor oil and other heavy oils, likely diesel and gasoline fuel spills from engine and car dismantling activities, brake fluid (hydraulic fluids) releases, lead and acid contamination from damaged batteries lying uncovered directly on the ground surface and polynuclear aromatic hydrocarbon (PAH) releases from spills of used oil and burning of various automobile components on the ground surface. It was noted that there was sufficient berming of Mill Creek, which formed the northern border of the site, and other topological features of the site, to likely prevent surface water run-off into Mill Creek.

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 thorough documentation of contamination release events, likely over a nearly 50-year period, with detailed color photographs, by ERO HWTR, and confirmed by the SHA site visit, sampling for specific contaminants was not believed to be necessary at this time for this site. Based on a number of sites throughout the state with similar waste management activities/releases to the environment where soil sampling was done, the following contaminants would be highly likely to be found in significant concentrations, and will be used to score the site: lead, total petroleum hydrocarbons (TPH)-gasoline, TPH-diesel, TPH-other, cadmium and PAHs (from used oil and burning areas, specifically benzo(a)pyrene). Any future sampling should also include analyses for contaminants that commonly occur from the combustion of automotive wastes, including plastics.

ROUTE SCORES:

Surface Water/Human Health:	**9.3**	Surface Water/Environmental.:	**20.5**
Air/Human Health:	**31.0**	Air/Environmental:	**29.4**
Groundwater/Human Health:	**55.7**		

OVERALL RANK: 1

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE**

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

   Lead, TPH-gasoline, TPH-diesel, TPH-heavy oil, benzo(a)pyrene (PAH indicator), cadmium

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

   These substances are believed to occur on-site in surface/subsurface soils in significant concentrations, and are potentially available to the route of concern.

   c. List those management units to be considered for scoring: Source: 1-3

   Surface and subsurface soils.

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

   The contaminating substances would be detected in surface or subsurface soil samples in significant concentrations based on sampling knowledge from many other sites with very similar hazardous waste management/release to the environment practices.

2. **AIR ROUTE**

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

   Lead, TPH-gasoline, TPH-diesel, TPH-heavy oil, benzo(a)pyrene (PAH indicator), cadmium

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

   These substances are believed to occur on-site in surface/subsurface soils in significant concentrations, and are potentially available to the route of concern.

   c. List those management units to be considered for scoring: Source: 1-3

   Surface and subsurface soils.

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

   The contaminating substances would be detected in surface or subsurface soil samples in significant concentrations based on sampling knowledge from many other sites with very similar hazardous waste management/release to the environment practices.

3. **GROUNDWATER ROUTE**

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

Lead, TPH-gasoline, TPH-diesel, TPH-heavy oil, benzo(a)pyrene (PAH indicator), cadmium

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

These substances are believed to occur on-site in surface/subsurface soils in significant concentrations, and are potentially available to the route of concern.

c. List those management units to be considered for scoring: Source: 1-3

Surface and subsurface soils.

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

The contaminating substances would be detected in surface or subsurface soil samples in significant concentrations based on sampling knowledge from many other sites with very similar hazardous waste management/release to the environment practices.

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	Lead	15	6	ND	-	<0.001 (NOAEL)	10	ND	ND	-
2	TPH-gasoline (benzene)	5	8	3306 (rat)	3	ND	-	A=1	1.75 = 7	5
3	Benzo(a)pyrene	0.5	10	50 (rat)	10	ND	-	B2= 0.8	12=9	7
4	TPH-diesel	160	4	490 (rat)	5	0.004 (RfD)	3	ND	ND	-
5	TPH-Other (Heavy oil)	ND	-	ND	-	ND	-	ND	ND	-
6	Cadmium	5	8	225 (rat)	5	0.0005	5	ND	ND	-

* *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 (µg/L)	Value	Non-Human Mammalian Acute Toxicity (mg/kg)	Value
1	Lead	82	6	-	-
2	TPH-gasoline	5300	2	-	-
3	Benzo(a)pyrene	ND	-	50	10
4	TPH-diesel	2300	2	-	-
5	TPH-Other	ND	-	ND	-
6	Cadmium	3.9	8	-	-

Source: 1-4

Highest Value: 10
(Max = 10)

1.3 Substance Quantity	
Explain Basis: >10 acres	Source: 1,5 **Value: 10** (Max = 10)

2.0 Migration Potential

		Source	Value
2.1	**Containment:** Note: adjacent Mill Creek has intact berm all along north border of site property. **Explain basis:** Contaminated surface soil with maintained run-on/runoff	1,3	**2** (Max = 10)
2.2	**Surface Soil Permeability:** Silty sands/sandy gravels (Medium)	1,3	**3** (Max = 7)
2.3	**Total Annual Precipitation:** 14.1"	6	**2** (Max = 5)
2.4	**Max 2yr/24hr Precipitation:** 1.2"	5	**2** (Max = 5)
2.5	**Flood Plain:** Not in flood plain	3	**0** (Max = 2)
2.6	**Terrain Slope:** <2%	3	**1** (Max = 5)

3.0 Targets

		Source	Value
3.1	**Distance to Surface Water:** <1000 feet (adjacent to site)	3,9	**10** (Max = 10)
3.2	**Population Served within 2 miles (see WARM Scoring Manual Regarding Direction):** $\sqrt{150} = 12$	7,8	**12** (Max = 75)
3.3	**Area Irrigated by surface water within 2 miles : (0.75)*$\sqrt{}$ # acres =** $0.75 * \sqrt{332} = 13.66$	7	**14** (Max = 30)
3.4	**Distance to Nearest Fishery Resource:** <1000 feet	3,9	**12** (Max = 12)
3.5	**Distance to, and Name(s) of, Nearest Sensitive Environment(s):** fishery resource, <1000 feet	3,9	**12** (Max = 12)

4.0 Release

Explain Basis: None documented	Source: 1-3 **Value: 0** (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 WOE	Carcinogenicity PF*	Value
1	Lead	0.5	10	ND	-	ND	-	ND	ND	-
2	TPH-gas (benzene)	0.12	10	31,947	3	ND	-	ND	ND	5
3	Benzo(a)pyrene	0.0006	10	ND	-	ND	-	ND	ND	-
4	TPH-diesel	166.5	4	ND	-	ND	-	ND	ND	-
5	Cadmium	0.00056	10	25(rat)	10	ND	-	B1= 0.8	6.1= 7	6

* *Potency Factor*

Source: 1-4

Highest Value: 10
(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 12
(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	For particulate, use:	Silty sands, gravels	>30 – 80 (best fit range)	1-10
2	TPH-gas = 9.8E+01 = 4			
3	TPH-diesel = 8.3E-02 = 3			

Source: 5

Value: 3
(Max = 4)

Source: 1-4

Value: 1
(Max = 4)

1.4 Highest Human Health Toxicity/ Mobility Matrix Value (from Table A-7)
(Use highest of: 10/4 = 20; or 12/1 = 6)

Final Matrix Value: 20
(Max = 24)

1.5 Environmental Toxicity/Mobility –						
	Substance	**Non-human Mammalian Inhalation Toxicity (mg/m^3)**	**Acute Value**	**Mobility (mmHg)**	**Value**	**Matrix Value**
2	TPH-gas	31,947	3	9.8E+01	4	6
6	Cadmium	25	10	(Particulate)	1	5

Highest Environmental Toxicity/Mobility Matrix Value (Table A-7) = **Final Matrix Value: 6**
(Max = 24)

1.6 Substance Quantity	
Explain Basis: >7.8 – 39 acres (best fit range)	Source: 1-4 **Value: 8** (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment:** Contaminated soil, no cover	1,3,5	**10** (Max = 10)

3.0 TARGETS

		Source	Value
3.1	**Nearest Population:** < 1000'	1,3,9	**10** (Max = 10)
3.2	**Distance to [and name(s) of] nearest sensitive environment(s):** 1500', freshwater wetland	3,9	**6** (Max = 7)
3.3	**Population within 0.5 miles:** $\sqrt{625} = 25$ (estimate, likely low)	3,9	**25** (Max = 75)

4.0 RELEASE

Explain Basis for scoring a release to air:	Source: 1,3 **Value: 0** (Max = 5)
None documented.	

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	Lead	15	6	ND	-	<0.001 (NOAEL)	10	ND	ND	-
2	TPH-gasoline (benzene)	5	8	3306 (rat)	3	ND	-	A=1	1.75 = 7	5
3	Benzo(a)pyrene	0.5	10	50 (rat)	10	ND	-	B2= 0.8	12=9	7
4	TPH-diesel	160	4	490 (rat)	5	0.004 (RfD)	3	ND	ND	-
5	TPH-Other (Heavy oil)	ND	-	ND	-	ND	-	ND	ND	-
6	Cadmium	5	8	225 (rat)	5	0.0005	5	ND	ND	-

* *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 [Coefficient of Aqueous Migration (K)] OR	Solubility (mg/L)
1= K is 0.1 to 1.0 = 2	1=
2=	2= 1.8E+03 = 3
3=	3 = 1.2E-03 = 0
4=	4= 3.0E+01 = 1
5=	5= = 0
6= K is >1.0 = 3	6= 2.7E+03 = 3

Source: 1,5
Value: 3
(Max = 3)

1.3 Substance Quantity:	
Explain basis: (11 X 43560 X 3) divided by 27 = 53,240 cubic yards	Source: 1,3 **Value: 6** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Contaminated area scored as spill/discharge to surface soil, no cover/liner	1,3	**10** (Max = 10)
2.2	**Net precipitation:** 9.2" – 4.1" = 5.1"	6	**1** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** Silty sands/sandy gravels	1,3	**3** (Max = 4)
2.4	**Vertical depth to groundwater:** >500'	7,8	**1** (Max = 8)

2.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Public supply, unthreatened alts. avail.	7,8	**4** (Max = 10)
3.2	**Distance to nearest drinking water well:** 600 – 1300 feet	7,8	**4** (Max = 5)
3.3	**Population served within 2 miles:** √ >10,000 = max. value of 100	7,8	**100** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** **(0.75)*√2679 acres** = 51.75 X 0.75 = 38.8 = 39	7,8	**39** (Max = 50)

3.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: No groundwater sampling data available	1,3	**0** (Max = 5)

SOURCES USED IN SCORING

1. Washington Department of Ecology, Hazardous Waste & Toxics Reduction Program Compliance Report, January 10, 2007, based on an unannounced Dangerous Waste Compliance Inspection on October 19, 2006.
2. Washington Department of Ecology Toxics Cleanup Program Early Notice Letter to Mr. Emory Stubblefield, February 1, 2007.
3. Site hazard assessment site visit, April 24, 2007.
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, Water Rights Application System (WRATS) printout for two-mile radius of site.
8. Washington Department of Health, Sentry Internet Database printout for public water supplies.
9. U.S.G.S. Topo map for site area.