

CSID 5056

SITE HAZARD ASSESSMENT

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:

8801 E. Marginal Way S

8801 E. Marginal Way South
Tukwila, King County, WA 98108

Section/Township/Range: Sec 33/T24N/R04E

Latitude: 47° 31' 19.74" Longitude: 122° 18' 5.52"

Ecology Facility Site ID No.: 2072

Site scored/ranked for the August 20, 2008 update

July 11, 2008 (Correction made 08/14/08 to site name and other small edits, did not affect pathway scores or site ranking)

BACKGROUND/SITE DESCRIPTION

The 8801 E. Marginal Way S. (former PACCAR/Kenworth Truck) site is an approximately 25-acre industrial real estate property on the eastern bank of the Lower Duwamish Waterway (LDW), at 8801 East Marginal Way South in the City of Tukwila, King County, Washington. The LDW is a designated U.S. Environmental Protection Agency (EPA) Superfund site. The property, located on Parcel 5422600060, is bounded at the north by Boeing Thompson/Boeing Isaacson properties, to the east by a major boulevard (East Marginal Way South) and King County Airport, to the south by Containers Properties, LLC/former Rhone-Poulenc/Monsanto East Marginal Way Facility and approximately 200 feet or riprap shoreline, and to the west by the LDW at approximate river mile 3.9. Development surrounding the site vicinity historically was primarily industrial; however it is now becoming more "mixed-use" with residential, park, marina and other such public use.

PACCAR formerly owned and operated the site facility from 1946 to 2004. Merrill Creek Holdings LLC, the current owner, purchased the property in 2004 and has leased it to Insurance Auto Auctions Incorporated for storage and auction of damaged and wrecked vehicles. The site is within Tukwila's Manufacturing Industrial Center/Heavy zoning district and is currently zoned for heavy industrial use. The site is surrounded by industrial facilities to the north and south, and ship and yacht marinas to the west and mixed zoning to the northwest and southwest.

In approximately 1929, the Fisher Body Corporation, a General Motors Corporation subsidiary, built the Main Manufacturing Building at the site. The Fisher development excluded the southern third of the current site. The Boeing Corporation operated the site facility during World War II. In January of 1946, PACCAR purchased the site and acquired the Kenworth Trucking Company, which built trucks at the site from 1946 through April 1996. PACCAR also purchased the northern portion of property located south of the site facility formerly owned by the former Monsanto Industrial Chemical Company in 1966; and the property was annexed to the Kenworth site and now comprises one-third of the uplands facility. In 1997, truck building resumed at the uplands facility, and off-road trucks were built for PACCAR through 2002 when PACCAR ceased its operations.

The site is currently covered with asphalt, buildings, and building foundation slabs and is fenced on all four sides with chain-link and electrified barbed wire. The western boundary is the Lower Duwamish Waterway. A metal sheet piling bulkhead extending approximately 30 feet below ground surface was installed along the northern two-thirds of the western boundary, separating that portion of the uplands facility from the Lower Duwamish Waterway. The remaining southern third, approximately 240 feet of the western boundary is shoreline covered with rip rap and asphalt.

Environmental Sampling

The site has been the subject of numerous investigations and independent cleanup actions between 1986 and present.

Investigations at the site documented releases of petroleum hydrocarbons, organic and semi-organic compounds, and metals to soils at the uplands facility; releases of volatile organic compounds (VOCs - specifically, tetrachloroethene, trichloroethene, dichloroethenes and vinyl chloride), petroleum hydrocarbon compounds, organic and semi-organic compounds, total polychlorinated biphenyls (PCBs - Aroclor 1260, 1254 and 1248), metals (specifically arsenic, chromium, copper, nickel, and selenium) to groundwater beneath the Uplands Facility; and releases of VOCs, PCBs, arsenic, cadmium, copper, lead, nickel, zinc, and polycyclic aromatic hydrocarbons (PAHs) to stormwater at the Uplands Facility; and source control for releases of VOC, PCBs, petroleum hydrocarbons, PAHs (Poly-aromatic hydrocarbons), and metals.

PACCAR has previously implemented voluntary remedial measures at the site. These measures are described in the letter report entitled *Remedial Investigations Summary with Screening Criteria* (Earth & Environmental, Inc., March 2008) and *Phase 2 Data Gaps Investigation Summary Report - November 2004* (Kennedy/Jenks). Cleanup measures included closure and removal of 18 underground storage tanks (1988 through 2003), excavation and off-site disposal of petroleum contaminated soils (1990 through 2004), added oxygen releasing compound to excavated areas where petroleum soils had been removed, installation of a groundwater pump and treatment for volatile organic compounds (VOCs) at former paint area (1993-95), and air sparging/soil vapor extraction for VOCs in shallow groundwater and soils to intercept and minimize VOC groundwater plume (2004-present).

PACCAR's consultants AMEC Earth & Environmental, Inc. prepared a draft Uplands Cleanup Action Plan including a summary of the remedial investigation results and review of feasible cleanup alternatives that was made available in May 2008, as was the Draft Technical Memorandum, 8801 East Marginal Way South, Phase 2 SEWP Surface and Subsurface Sediment Results, by Anchor Environmental L.L.C.

Chemicals of concern (COCs) documented in soil and groundwater samples associated with the site in the AMEC report (based on their respective MTCA Method A Cleanup levels and/or Sediment Management Standards) included: bis(2-ethylhexyl)phthalate, dibenzofuran, several carcinogenic PAHs, lead, copper, PCBs, total petroleum hydrocarbons-diesel and gasoline (TPH-diesel, TPH-gasoline), and vinyl chloride. COCs in groundwater reportedly are: TPH-diesel, TPH-gasoline, vinyl chloride, tetrachloroethylene, trichloroethylene, and cis-1,2-dichloroethylene.

The May 2008 Anchor Environmental L.L.C. report identified COCs in near shore sediments, specifically: PCBs, lead, and zinc, which are also documented to occur in the upland portion of the site. Significant concentrations of cadmium, chromium and mercury were documented in a subsurface

soil sample at one site location; however these three contaminants will not be utilized in scoring the under the Washington Ranking Method (WARM), as there already are sufficient contaminants to maximize the toxicity value.

The site was listed on the Ecology Confirmed and Suspected Contaminated Sites List with an initial entry date of March 1, 1988, and currently has a site status of Awaiting SHA. A site visit was made on July 1, 2008, to confirm environmental features of the site regarding containment features such as paving and buildings. The location of the iron sheet piling separating the site from the LDW, beginning at the Jorgensen Forge site, was pointed out, as well as where the rip-rap wall began and ran down to the former Rhone-Polence site. The nearly complete coverage of the site property by buildings, pavement and asphalt was noted, although there was evidence of cracks and several small open areas through the site.

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):

In scoring this site under the WARM guidelines, a release to surface water will be scored, with a maximum scoring value given for containment in the surface route, even though the vast majority of the site is covered by pavement, asphalt, and buildings. This is based on the apparent hydraulic connection of contaminated groundwater under the site and the LDW, and documentation of COCs in near-shore sediments associated with COCs found on the upland portion of the site.

The minimum value for containment in the air route will be assigned, however, due to the extensive site cover, depth of contamination, and predominance of documented contamination in groundwater rather than soil.

ROUTE SCORES:

Surface Water/Human Health:	<u>38.4</u>	Surface Water/Environmental.:	<u>68.7</u>
Air/Human Health:	<u>4.5</u>	Air/Environmental:	<u>3.2</u>
Groundwater/Human Health:	<u>26.4</u>		

OVERALL RANK: 1

WORKSHEET 2
Route Documentation

1. SURFACE WATER ROUTE

- a. List those substances to be considered for scoring: Source: 1-5
Bis(2-ethylhexyl) phthalate (BEHP), carcinogenic polycyclic aromatic hydrocarbons (PAHs) – will score using benzo(a) pyrene, copper, lead, polychlorinated biphenyls (PCBs), tetrachloroethylene (perchloroethylene, or PCE), trichloroethylene (TCE), TPH-gasoline, TPH-diesel, zinc, and vinyl chloride.
- b. Explain basis for choice of substance(s) to be used in scoring.
These substances were detected on-site in either surface/subsurface soil and/or groundwater/seep samples in significant concentrations with respect to their MTCA Cleanup Levels and/or sediment screening levels and are potentially available to this route of concern.
- c. List those management units to be considered for scoring: Source 1-6
Surface and subsurface soils and groundwater.
- d. Explain basis for choice of unit to be used in scoring:
The contaminating substances were detected on-site in either surface or subsurface soil and groundwater samples in significant concentrations.

2. AIR ROUTE

- a. List those substances to be considered for scoring: Source: 1-5
Bis(2-ethylhexyl) phthalate (BEHP), carcinogenic polycyclic aromatic hydrocarbons (PAHs) – will score using benzo(a) pyrene, copper, lead, polychlorinated biphenyls (PCBs), tetrachloroethylene (perchloroethylene, or PCE), trichloroethylene (TCE), TPH-gasoline, TPH-diesel, zinc, and vinyl chloride.
- b. Explain basis for choice of substance(s) to be used in scoring:
These substances were detected on-site in either surface or shallow subsurface soil samples in significant concentrations with respect to their MTCA Cleanup Levels and are potentially available to this route of concern.
- c. List those management units to be considered for scoring: Source: 1-6
Surface and subsurface soils.
- d. Explain basis for choice of unit to be used in scoring:
The contaminating substances were detected on-site in surface and subsurface soil samples in significant concentrations.

3. GROUNDWATER ROUTE

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

Source: 1-5

Bis(2-ethylhexyl) phthalate (BEHP), carcinogenic polycyclic aromatic hydrocarbons (PAHs) – will score using benzo(a) pyrene, copper, lead, polychlorinated biphenyls (PCBs), tetrachloroethylene (perchloroethylene, or PCE), trichloroethylene (TCE), TPH-gasoline, TPH-diesel, and vinyl chloride.

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

These substances were detected on-site in either surface/subsurface soil and/or groundwater/seep samples in significant concentrations with respect to their MTCA Cleanup Levels and/or sediment screening levels and are potentially available to this route of concern.

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

Source: 1-6

Surface and subsurface soils and groundwater.

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

The contaminating substances were detected on-site in surface or subsurface soil and groundwater samples in significant concentrations.

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	BEHP	ND	-	30,600 (rat)	1	0.02	1	B2=0.8	.014=5	4
2	Benzo(a)pyrene	0.2	10	50 (rat)	10	ND	-	B2=0.8	12=9	7
3	Copper	1300	2	ND	-	0.037	1	ND	ND	-
4	Lead	15	6	ND	-	<0.001	10	B2=0.8	ND	-
5	PCBs	0.5	10	1315 (rat)	3	ND	-	B2=0.8	7.7=7	6
6	PCE	5	8	800 (rat)	5	0.01	3	B2=0.8	.051=5	4
7	TCE	5	8	2402 (mus)	3	ND	-	B2=0.8	.011=5	4
8	TPH-gasoline	5	8	3306(rat)	5	ND	-	A=1	.029=5	5
9	TPH-diesel	160	4	490 (rat)	5	0.004 (RfD)	3	ND	ND	-
10	Vinyl chloride	2	8	500 (rat)	5	ND	-	A=1	2.3=7	7
11	Zinc	4000	2	ND	-	0.2	1	ND	ND	-

* Potency Factor

Source: 1-5,7

Highest Value: 10

(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 12

(Max = 12)

1.2 Environmental Toxicity () Freshwater (X) Marine					
Substance		Acute Water Quality Criteria		Non-Human Mammalian Acute Toxicity	
		(µg/L)	Value	(mg/kg)	Value
1	BEHP	2944	2	-	-
2	Benzo(a)pyrene	300	4	-	-
3	Copper	2.9	8	-	-
4	Lead	140	4	-	-
5	PCBs	10	8	-	-
6	PCE	10,200	2	-	-
7	TCE	2000	2	-	-
8	TPH-gasoline	5100	2	-	-
9	TPH-diesel	2350	2	-	-
10	Vinyl chloride	ND	-	500	4
11	Zinc	95	6	-	-

Source: 1-5,7
Highest Value: 8
(Max = 10)

1.3 Substance Quantity	
Explain Basis: Unknown, use default value = 1	Source: 1-5,8 Value: 1 (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	Containment: Maximum value of 10 points scored. Explain basis: Site is adjacent, and most likely hydraulically connected, to surface water; adjacent sediments are contaminated with COCs associated with upland soils/groundwater	1-6,8	10 (Max = 10)
2.2	Surface Soil Permeability: Piped to, adjacent to surface water	1-5	7 (Max = 7)

2.3	Total Annual Precipitation: 34.8"	9	<u>3</u> (Max = 5)
2.4	Max 2yr/24hr Precipitation: 2.0" – 2.5"	8	<u>3</u> (Max = 5)
2.5	Flood Plain: Not in flood plain	1-6,12	<u>0</u> (Max = 2)
2.6	Terrain Slope: Ditched/piped/culverted (stormwater drains) = 3	1-4,8	<u>3</u> (Max = 5)

3.0 TARGETS

		Source	Value
3.1	Distance to Surface Water: <1000 feet (adjacent to site)	1-6,12	<u>10</u> (Max = 10)
3.2	Population Served within 2 miles (see WARM Scoring Manual Regarding Direction): 0	10,11	<u>0</u> (Max = 75)
3.3	Area Irrigated by surface water within 2 miles : $(0.75) * \sqrt{\# \text{ acres}} = 0.75 * \sqrt{0} = 0$	10,11	<u>0</u> (Max = 30)
3.4	Distance to Nearest Fishery Resource: <1000 feet (adjacent to site)	1-6,12	<u>12</u> (Max = 12)
3.5	Distance to, and Name(s) of, Nearest Sensitive Environment(s): fishery resource, <1000 feet	1-6,12	<u>12</u> (Max = 12)

4.0 RELEASE

Explain Basis: Documented by analytical evidence: sediment contamination attributable to the upland component of the site.	Source: <u>1-5</u> Value: <u>5</u> (Max = 5)
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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 (µg/m ³)	Value	Acute Toxicity (mg/ m ³)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	Benzo(a)pyrene	0.006	10	ND	-	ND	-	B2=0.8	ND	-
2	Copper	3.3	9	ND	-	ND	-	ND	ND	-
3	Lead	0.5	10	ND	-	ND	-	B2=0.8	ND	-
4	PCBs	ND	-	ND	-	ND	-	B2=0.8	ND	-
5	PCE	1.1	9	ND	-	ND	-	B2=0.8	ND	-
6	TCE	0.8	4	15585(h)	3	ND	-	ND	ND	-
7	TPH-gasoline	0.12	10	31947(r)	3	ND	-	A=1	.029=5	5
8	TPH-diesel	166.5	4	ND	-	ND	-	ND	ND	-
9	Vinyl chloride	0.023	10	460123(r)	1	ND	-	A=1	ND	-
10	Zinc	ND	-	ND	-	ND	-	ND	ND	-

* Potency Factor

Source: 1-5,7

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	BAP = Particulate	Sands, silty gravels	>30 – 80 (best fit range)	1-10
2	Cu = Particulate			
3	Pb = Particulate			
4	PCBs = Particulate			
5	PCE = 1.8E+01 = 4			
6	TCE = 5.8E+01 = 4			
7	TPH-gasoline = 9.5E+01 = 4			
8	TPH-diesel = 8.2E-02 = 3			
9	Vinyl chloride = 2.7E+03 = 4			
10	Zinc = Particulate			

Source: 1-5,7

Value: 4
(Max = 4)

Source: 1-5,8

Value: 1
(Max = 4)

1.4 Highest Human Health Toxicity/Mobility Matrix Value (from Table A-7)
(Use highest of: 12/4 = 24 or 12/1 = 6)

Final Matrix Value: 24
(Max = 24)

1.5 Environmental Toxicity/Mobility –						
Substance	Non-human Mammalian Inhalation Toxicity (mg/m ³)	Acute Value	Mobility (mmHg)	Value	Matrix Value	
1	Cadmium	25	10	Partic. = 1	5	
2	TPH-gasoline	31947	3	9.5E+01	6	
3	Vinyl chloride	460123	1	2.7E+03	2	

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

1.6 Substance Quantity	
Explain Basis: Unknown, use default value = 1	Source: <u>1-4,8</u> Value: <u>1</u> (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	Containment: Documented contamination is primarily subsurface soil and groundwater, with extensive site cover	1-6	<u>0</u> (Max = 10)

3.0 TARGETS

		Source	Value
3.1	Nearest Population: < 1000'	6,12,13	<u>10</u> (Max = 10)
3.2	Distance to [and name(s) of] nearest sensitive environment(s): <1000 feet – estuarine/marine wetlands	1-6,12	<u>7</u> (Max = 7)
3.3	Population within 0.5 miles: $\sqrt{1421} = 37.7 = 38$	13	<u>38</u> (Max = 75)

4.0 RELEASE

Explain Basis for scoring a release to air: None documented.	Source: <u>1-4,6</u> Value: <u>0</u> (Max = 5)
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WORKSHEET 6
Groundwater Route

1. 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	BEHP	ND	-	30,600 (rat)	1	0.02	1	B2=0.8	0.14=5	4
2	Benzo(a)pyrene	0.2	10	50 (rat)	10	ND	-	B2=0.8	12=9	7
3	Copper	1300	2	ND	-	0.037	1	ND	ND	-
4	Lead	15	6	ND	-	<0.001	10	B2=0.8	ND	-
5	PCBs	0.5	10	1315 (rat)	3	ND	-	B2=0.8	7.7=7	6
6	PCE	5	8	800 (rat)	5	0.01	3	B2=0.8	.051=5	4
7	TCE	5	8	2402 (mus)	3	ND	-	B2=0.8	.011=5	4
8	TPH-gasoline	5	8	3306(rat)	5	ND	-	A=1	.029=5	5
9	TPH-diesel	160	4	490(rat)	5	0.004 (RfD)	3	ND	ND	-
10	Vinyl chloride	2	8	500 (rat)	5	ND	-	A=1	2.3=7	7
11	Zinc	4000	2	ND	-	0.2	1	ND	ND	-

* Potency Factor

Source: 1-5,7

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=	1 = 4.0E-01 = 0
2=	2 = 1.2E-03 = 0
3= K is 0.1 – 1.0 = 2	
4= K is 0.1 – 1.0 = 2	
5=	5 = 3.1E-02 = 0
6=	6 = 1.5E+02 = 2
7=	7 = 1.1E+03 = 3
8=	8 = 1.8E+03 = 3
9=	9 = 3.0E+01 = 1
10=	10 = 2.7E+03 = 3
11= K > 1.0 = 3	

Source: 1-5,7,8
Value: 3
(Max = 3)

1.3 Substance Quantity:	
Explain basis: : Unknown, use default value = 1	Source: 1-5,7 Value: 1 (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	Containment (explain basis): Contaminated area capped, scored as a landfill: i) No liner (3); ii) Low permeability cover (1); No leachate collection system (2)	1-6,8	6 (Max = 10)
2.2	Net precipitation: 24.6" – 5.9" = 18.7"	9	2 (Max = 5)
2.3	Subsurface hydraulic conductivity: Sands/sandy gravels	1-5	4 (Max = 4)
2.4	Vertical depth to groundwater: Obs. release to groundwater = 0'	1-4,8	8 (Max = 8)

3.0 TARGETS

		Source	Value
3.1	Groundwater usage: Groundwater not used, but usable	10,11	<u>2</u> (Max = 10)
3.2	Distance to nearest drinking water well: >10,000 feet	10,11	<u>0</u> (Max = 5)
3.3	Population served within 2 miles: √ 0	10,11	<u>0</u> (Max = 100)
3.4	Area irrigated by (groundwater) wells within 2 miles: (0.75)*√0 acres = 0	10,11	<u>0</u> (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Confirmed by presence of many contaminants in groundwater.	1-4	<u>5</u> (Max = 5)

SOURCES USED IN SCORING

1. Phase 2 Data Gaps Investigation Summary Report, Kennedy/Jenks, November 2004.
2. Draft Dry Season Groundwater Study Report, 8801 East Marginal Way South, Tukwila, Washington, February 23, 2007.
3. Remedial Investigations Summary with Screening Criteria, Earth & Environmental, Inc., March 2008.
4. Draft Cleanup Action Plan with Remedial Investigation and Feasibility Study, 8801 East Marginal Way South, Tukwila, Washington, AMEC Earth & Environmental, Inc., May 16, 2008.
5. Draft Technical Memorandum, 8801 East Marginal Way South, Phase 2 SEWP Surface and Subsurface Sediment Results, Anchor Environmental L.L.C., May 12, 2008.
6. SHA Site Visit, Michael Spencer, Maura O'Brien, WA Ecology, July 1, 2008.
7. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
8. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
9. Washington Climate – Net Rainfall Table
10. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
11. Washington Department of Health, Sentry Internet Database printout for public water supplies.
12. U.S.G.S. Topo map for site area.
13. Personal memo, Peter Isaksen, Public Health – Seattle & King County, March 7, 2008.