SITE HAZARD ASSESSMENT
WORKSHEET 1
SUMMARY SCORE SHEET

Site Name/Location (Street, City, County, Section/Township/Range, Facility Site ID Number):

Seattle Barrel & Cooperage
4520 7th Avenue South
Seattle, WA 98108
King County
T-24N, R-4E, Sec-20
Facility Site ID: 2307
Longitude: 122° 19' 26.54"
Latitude: 47° 33' 42.91"
Site assessed for August 28, 2001 update

Site Description (Include management areas, substances of concern, and quantities):

Seattle Barrel and Cooperage is located at 4520 7th Avenue South, in Seattle, WA. The property is one forth of an acre in size and is bordered on the south by South Snoqualmie Street, to the west by 7th Avenue South, to the north by a commercial trucking company and to the east by a vacant lot and a commercial truck repair business. The surrounding area is a mix of commercial and industrial properties. The area is served by municipal water and sewer systems.

The property contains one single story building. The building is used exclusively for storage of barrels. Seattle Barrel and Cooperage began business in 1913 across the street from this site at 4716 Airport Way South and has used the property for the business continuously since that time. Seattle Barrel and Cooperage re-conditions fifty-five gallon drums by washing them in a hot, heavy detergent solution and then repainting the drums before storing them on the site. The property at 4520 7th Avenue South is used to store drums before they have gone through the re-conditioning process.

During the summer of 1990 the Washington State Department of Ecology (Ecology) received a complaint that Seattle Barrel and Cooperage was draining petroleum products and waste materials from the used drums on their property. An Ecology investigator visited the site on October 2, 1990 to investigate the complaint. During the investigation it was noted that some fluids were on the ground leaving stains on the soil and sidewalk. The Seattle Barrel and Cooperage property was then added to Ecology's Integrated Site Information Systems (ISIS) list January 4, 1991.

Carsten Thomsen and Yolanda King of Public Health-Seattle & King County (PHSKC) conducted a site hazard assessment (SHA) visit on March 23, 2001. PHSKC met with the property owner to gain information on Seattle Barrel & Cooperage business practices and site history. During the SHA visit several areas of stained soil were noted on the property. It was then decided to obtain soil samples on the site and have them analyzed for possible contaminants.

On May 24, 2001, Carsten Thomsen and Yolanda King of PHSKC took three soil samples on the Seattle Barrel & Cooperage property. All three samples were collected at depths ranging from six to eight inches. The first sample was taken near the loading dock on the west side of the building. The second sample was taken on the south side of the building between the barrel pile and the sidewalk. Finally, the third sample was taken at the south east corner of the building. All three samples were analyzed for Northwest Total Petroleum Hydrocarbons Diesel Extended (NWTPH-Dx), Total Metals, Halogenated Volatiles and Semi-volatiles.

There were no halogenated volatiles detected in any of the three soil samples. As shown in the table below, heavy oil and semi-volatiles (benzo(a)pyrene) were present in sample #2 with levels that exceed the Model Toxics Control Act (MTCA) Method A cleanup levels for unrestricted land uses. Sample #1 contained benzo(a)pyrene levels that exceeded the MTCA cleanup levels. Finally, sample #3 contained lead levels that also exceeded the MTCA cleanup levels.

	Heavy Oil (ppm)	Benzo(a)pyrene (ppm)	Lead (ppm)
Sample #1 ,	270	0.13	55
Sample #2	6700	0.5	130
Sample #3	1300	----	590
MTCA Method A Cleanup Level	2000	0.1	250

On the basis of this SHA, completed by the PHSKC's Environmental Health Division, this site will be scored for the surface water, air and groundwater routes under the MTCA regulations.

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): N/A

ROUTE SCORES:

Surface Water/Human Health: 18.3 Surface Water/Environ.: 27.3

Air/Human Health: 7.4 Air/Environmental: NS

Ground Water/Human Health: 29.4

OVERALL RANK: 4

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

List those substances to be considered for scoring: Source:2

Benzo(a)pyrene, Lead, NWTPH-Heavy Oil

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

All of the above substance concentrations are above MTCA Method A cleanup standards.

List those management units to be considered for scoring: Source:3

Surface soil contamination.

Explain basis for choice of unit to be used in scoring. Source:3

Surface soil is exposed to weather with no containment.

2. AIR ROUTE

List those substances to be considered for scoring: Source:2

Benzo(a)pyrene, Lead

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

All of the above substance concentrations are above MTCA Method A cleanup standards.

List those management units to be considered for scoring: Source:3

Surface soil contamination.

Explain basis for choice of unit to be used in scoring. Source:3

Surface soil is exposed to weather with no containment.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source:2

Benzo(a)pyrene, Lead, NWTPH-Heavy Oil

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

All of the above substance concentrations are above MTCA Method A cleanup standards.

List those management units to be considered for scoring: Source:3

Surface soil contamination.

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

Surface soil is exposed to weather with no containment.

WORKSHEET 3
SURFACE WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard (ug/l)	Val.	Acute Toxicity (mg/kg-bw)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-genicity WOE	PF*	Val.
1.Benzo(a)pyrene	0.2	10	50	10	ND	-	B2	12	7
2.Lead	5.0	8	ND	-	ND	-	B2	ND	-
3.NWTPH-Heavy Oil	ND	-	ND	-	2	1	ND	ND	-

*Potency Factor

Source:1,2
Highest Value:10
(Max.=10)

+2 Bonus Points? Yes
Final Toxicity Value:12
(Max.=12)

1.2 Environmental Toxicity

( ) Freshwater
(X) Marine

Substance	Acute Water Quality Criteria (ug/l)	Value
1.Benzo(a)pyrene	300	4
2.Lead	82	6
3.NWTPH-Heavy Oil	ND	-
4.		
5.		
6.		

Non-human Mammalian Acute Toxicity (mg/kg) Value

Source: 1,2 **Value:6**
(Max.=10)

1.3 Substance Quantity: 1000 sq ft Source: 3 **Value:3**
(Max.=10)
Explain basis: unpaved soil area

2.0 MIGRATION POTENTIAL

2.1 Containment: spill/dischargeto soilw/no Source: 3 **Value:10**
(Max.=10)
Explain basis: runoff control

2.2 Surface Soil Permeability: clay/sand/gravel mix Source: 3 **Value:5**
(Max.=7)

2.3 Total Annual Precipitation: 24.6 inches Source: 5 **Value:2**
(Max.=5)

2.4 Max. 2-Yr/24-hour Precipitation: 1-2 inches Source: 5 **Value:2**
(Max.=5)

2.5 Flood Plain: not in flood plain Source: 6 **Value:0**
(Max.=2)

2.6 Terrain Slope: <2 % Source: 3 **Value:1**
(Max.=5)

WORKSHEET 4
AIR ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction (WARM Scoring Manual) - Please review before scoring

1.2 Human Toxicity

Substance	Air Standard (ug/m^3)	Val.	Acute Toxicity (mg/m^3)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-genicity WOE	PF*	Val.
1.Benzo(a)pyrene	0.0006	10	ND	-	ND	-	B2	ND	-
2.Lead	0.05	10	ND	-	ND	-	B2	ND	-
3.									
4.									
5.									

*Potency Factor

Source:1,2
Highest Value:10
(Max.=10)

+2 Bonus Points? Yes
Final Toxicity Value:12
(Max.=12)

1.3 Mobility (Use numbers to refer to above listed substances)

1.3.1 Gaseous Mobility
Vapor Pressure(s) (mmHg): 1=5.6e-9 2= ; 3= ; 4= ; 5= ; 6= Source:3
Value:1
(Max.=4)

1.3.2 Particulate Mobility
Soil type: sandy clay loam Source:3
Erodibility: 56 Value:1
Climatic Factor: 1-10 (Max.=4)

1.4 Highest Human Health Toxicity/Mobility Matrix Value (from Table A-7) equals **Final Matrix Value:6**
(Max.=24)

1.5 Environmental Toxicity/Mobility Source:1

Substance	Non-human Mammalian Acute Inhal. Toxicity (mg/m^3)	Value	Mobility (mmHg)	Value	(Table A-7) Matrix Value
1.Benzo(a)pyrene	ND				
2.Lead	ND				
3.					
4.					
5.					

Highest Environmental Toxicity/Mobility Matrix Value (From Table A-7) equals **Final Matrix Value:NS**
(Max.=24)

1.6 Substance Quantity: 1000 sq ft Source: 3 **Value:4**
Explain basis: (Max.=10)

2.0 MIGRATION POTENTIAL

2.1 Containment: no cover spill/discharge directly to ground Source: 3 **Value:10** (Max.=10)

3.0 TARGETS

3.1 Nearest Population: 1700 ft Source: 3 **Value:8** (Max.=10)

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) 1700 ft/Maple Wood Park Source: 3 **Value:6** (Max.=7)

3.3 Population within 0.5 miles: pop.=120 =sq root=11 Source: 3 **Value:11** (Max.=75)

4.0 RELEASE

Explain basis for scoring a release to air: None confirmed Source: 3 **Value:0** (Max.=5)

WORKSHEET 5
GROUND WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard (ug/l)	Val.	Acute Toxicity (mg/kg-bw)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcino-genicity WOE	PF*	Val.
1.Benzo(a)pyrene	0.2	10	50	10	ND	-	B2	12	7
2.Lead	5.0	8	ND	-	ND	-	B2	ND	-
3.NWTPH-Heavy Oil	ND	-	ND	-	2	1	ND	ND	-

*Potency Factor

Source:1,2
Highest Value:10 (Max.=10)
+2 Bonus Points? Yes
Final Toxicity Value:12 (Max.=12)

1.2 Mobility (Use numbers to refer to above listed substances)
Cations/Anions: 1= ; 2= 2; 3= ; 4= ; 5= ; 6= . Source: 1 **Value:2** (Max.=3)

OR
Solubility(mg/l): 1=1.2e-3; 2= ; 3= ; 4= ; 5= ; 6= .

1.3 Substance Quantity: 111 cubic yds Source: 3 **Value:3** (Max.=10)
Explain basis: 1000 sq ftx3=3000/27=111 cu yds

2.0 MIGRATION POTENTIAL

2.1 Containment: spill discharge to ground Source: 3 **Value:10** (Max.=10)
Explain basis:

2.2 Net Precipitation: 18.7 inches Source: 5 **Value:2** (Max.=5)

2.3 Subsurface Hydraulic Conductivity: silty sand Source: 3 **Value:3** (Max.=4)

2.4 Vertical Depth to Ground Water: 6 feet Source: 3 **Value:8** (Max.=8)

3.0 TARGETS

3.1 Ground Water Usage: not usable Source: 3 **Value:1** (Max.=10)

3.2 Distance to Nearest Drinking Water Well: >10,000ft Source: 8 **Value:0** (Max.=5)

3.3 Population Served within 2 Miles: pop.= = 0 Source: 8 **Value:0** (Max.=50)

3.0 TARGETS

3.1 Distance to Surface Water: 5,000 ft Source: 3 **Value: 4** (Max.=10)

3.2 Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): pop.= = 0 Source: 8 **Value: 0** (Max.=75)

3.3 Area Irrigated within 2 miles 0.75 no. acres= (Refer to note in 3.2.): 0.75 =0.75( )= 0 Source: 8 **Value: 0** (Max.=30)

3.4 Distance to Nearest Fishery Resource: 5,000 ft Source: 3 **Value: 6** (Max.=12)

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) 5,000 ft Duwamish Waterway Source: 3 **Value: 6** (Max.=12)

4.0 RELEASE

Explain basis for scoring a release to surface water: none confirmed Source: 3 **Value: 0** (Max.=5)

3.4 Area Irrigated by (Groundwater) Wells
within 2 miles: 0.75 no.acres= Source: 7 **Value:0**
0.75 =0.75 ( )= 0 (Max.=100)

4.0 RELEASE
Explain basis for scoring a release to ground water: none confirmed Source: 3 **Value:0** (Max.=5)

SOURCES USED IN SCORING

1. Washington Ranking Method Toxicological Database
2. Analytical results for Seattle Barrel & Cooperage, OnSite Environmental Inc., June 11, 2001
3. Site Hazard Assessment, Public Health - Seattle & King County, March 23, 2001
4. National Weather Service Data
5. Isopluvials of 2-YR, 24-HR precipitation, NOAA Atlas 2, Vol.IX
6. Sensitive Areas Coverage, King County Geographic Information System Data
7. Washington State Department of Health Public Water Supply Listing
8. Washington State Water Use Data