CSID 3020

WASHINGTON RANKING METHOD

ROUTE SCORES SUMMARY AND RANKING CALCULATION SHEET

Site name: Pacific Wood Treating Region: Southwest

Street, city, county: 111 West Division, Ridgefield, CLARK

Ecology TCP ID: S-06-0013-000

This site was (X) ranked, ( ) re-ranked, on _____ based on quintile values from a total of ___ assessed/scored sites.

Pathway	Route Score(s)	Quintile Group number(s)
SW-HH	46.7	5
Air-HH	21.2	3
GW-HH	60.8	5
SW-En	89.0	5
Air-En	39.9	5

Priority scores:

$\frac{H^a + 2M + L}{8} = \frac{25+10+3}{8} = \frac{38}{8} = 4.75 = (5)$

$\frac{H^a + 2L}{7} = \frac{25+10}{7} = \frac{35}{7} = (5)$

Use the matrix presented to the right, along with the two priority scores, to determine the site ranking. N/A refers to where there is no applicable pathway.

Human Health \ Environment	(6)	4	3	2	1	N/A
(6)	[1]	1	1	1	1	1
4	1	2	2	2	3	2
3	1	2	3	4	4	3
2	2	3	4	4	6	3
1	2	3	4	6	6	6
N/A	3	4	6	6	6	NFA

DRAFT / FINAL

Matrix ("bin") Ranking: 1, or _____ No Further Action

CONFIDENCE LEVEL: The relative position of this site within this bin is:

X almost into the next higher bin.
_____ right in the middle, unlikely to ever change.
_____ almost into the next lower bin.

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Rev. 6/30/94

WORKSHEET 1
SUMMARY SCORE SHEET

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

SHA # 96-01
PACIFIC WOOD TREATING, INC.
111 West Division, Ridgefield, 98642
CLARK COUNTY T4N, R1W, Sec24,NW,NE
TCP ID: S-06-0013-000 EPA ID: WAD 009422411
Assessed by Thomas H. White, Southwest Washington Health District
April, 1996

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

Pacific Wood Treating (PWT) is a former wood treating facility that pressure treated wood with pentachlorophenol (PCP), copper chrome arsenic solutions, and creosote. The site, which occupies about 46 acres, was leased from the Port of Ridgefield, and operated from 1964 until 1993.[1,2,3] The site is divided into 11 areas of concern. With the exception of Lake River/Carty Lake, the boundaries of the areas are based on historic activities within the area that may be potential sources of contamination.[1] The 11 areas are:

- North Pole Yard
- South Pole Yard
- Pentachlorophenol Spill
- Dry Well
- Surface Impoundment/ Solidification Unit
- Drainway//Storage Unit
- Retort/Drip Pad
- Tank Farm (Creosote)/ Retorts
- Drainage System
- Tank Farm Drain
- Lake River/Carty Lake

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):

Numerous chemicals were found throughout the site above levels of concern in surface and subsurface soil, ground water and surface water.[1,2] All the chemicals used in this assessment were found at levels above MTCA Method B values for the respective sample matrix.[1]

The **Surface Water Route** was scored using the **Lake River/Carty Lake** area since data was obtained there from direct discharges (outfalls).
The **Air Route** was scored using the **Drainage System** area since it had the most soil data from samples less than 2 feet deep.

The **Ground Water Route** was scored using the data from the **Tank Farm/ Retort/Drip Pad** areas monitoring wells since these wells had the widest variety of different chemicals above the method B value.

ROUTE SCORES / (QUINTILES):

Surface Water/Human Health:	46.7	(5)	Surface Water/Environ.:	89.0	(5)
Air/Human Health:	21.2	(3)	Air/Environmental:	39.9	(5)
Ground Water/Human Health:	60.8	(5)			

OVERALL RANK: 1

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

List those substances to be considered for scoring: Source: 1
Too numerous (9) to list.

Explain basis for choice of substance(s) to be used in scoring.
See Special Considerations, page 1.

List those management units to be considered for scoring: Source: 1
See Special Considerations, page 1.

Explain basis for choice of unit to be used in scoring. Source: 1
See Special Considerations, page 1.

2. AIR ROUTE

List those substances to be considered for scoring: Source: 1
PCP, Arsenic, Berylium.

Explain basis for choice of substance(s) to be used in scoring.
Lab results above Method B values from soil less than 2 ft. deep.

List those management units to be considered for scoring: Source: 1
See Special Considerations, page 1.

Explain basis for choice of unit to be used in scoring. Source: 1
See Special Considerations, page 1.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 1
Too numeroius (15) to list.

Explain basis for choice of substance(s) to be used in scoring.
Those with most complete and highest toxicity values.

List those management units to be considered for scoring: Source: 1
Too numeroius (10) to list.

Explain basis for choice of unit to be used in scoring. Source: 1
See Special Considerations, page 2.

Note: Worksheet 3 not used; see Special Considerations, pages 1 & 2.

WORKSHEET 4
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.
(15)	1. Arsenic		6		5		5			7
(22)	2. Benzo(a)pyrene		10		10 rcd		ND			7
(23)	3. Benzo(b)fluoranthene		10		ND		ND			7
(60)	4. Chrysene		10		ND		ND			7
(120)	5. Fluoranthene		ND		3		1			ND
(171)	6. Pentachlorophenol (PCP)		10		ND		1			4

*Potency Factor

Source: 4
Highest Value: 10 (Max.=10)

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

1.2 Environmental Toxicity

(X) Freshwater
( ) Marine

	Substance	Acute Water Quality Criteria (ug/l)	Value	Non-human Mammalian Acute Toxicity (mg/kg)	Value
(15)	1. Arsenic		4		
(22)	2. B(a)p		ND	LD_{50} Rat = 50	10
(23)	3. B(b)f		ND		X
(60)	4. Chrysene		ND		X
(120)	5. Fluoranthene		2		
(171)	6. PCP		6		

Source: 4 **Value:** 10 (Max.=10)

1.3 Substance Quantity: estimated approx. 313,678 sq. ft. Source: 2 **Value:** 9 (Max.=10)
Explain basis:
ct. EPA Pacific Wood Treating Site Assessment Report, March 29, 1996, page 40, 4.14 Source Area.

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

2.0 MIGRATION POTENTIAL

2.1 Containment — Source: 1 — **Value:** 10 (Max.=10)
Explain basis: Outfall samples with analytical laboratory results above MTCA Method B values were collected from direct discharges into Lake River.

2.2 Surface Soil Permeability: piped b/ adjacent to SW. — Source: 1,6,16 — **Value:** 7 (Max.=7)

2.3 Total Annual Precipitation: 60.36 (3yr ave.) inches — Source: 7 — **Value:** 4 (Max.=5)

2.4 Max. 2-Yr/24-hour Precipitation: 1.5-2.0 inches — Source: 6 — **Value:** 2 (Max.=5)

2.5 Flood Plain: Class A - within 100 year — Source: 8 — **Value:** 2 (Max.=2)

2.6 Terrain Slope: piped / culverted — Source: 1,6,16 — **Value:** 3 (Max.=5)

3.0 TARGETS

3.1 Distance to Surface Water: Adjacent — Source: 1 — **Value:** 10 (Max.=10)

3.2 Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): √pop.=√ = 0 — Source: 9 — **Value:** 0 (Max.=75)

3.3 Area Irrigated within 2 miles 0.75√no. acres= 78
(Refer to note in 3.2.): 0.75√ =0.75(8.8)= 6.6 — Source: 9 — **Value:** 7 (Max.=30)

3.4 Distance to Nearest Fishery Resource: Adjacent — Source: 10 — **Value:** 12 (Max.=12)

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) Lake River - Adjacent
Carty Lake - Adjacent
Ridgefield National Wildlife Refuge - Adjacent — Source: 11 — **Value:** 12 (Max.=12)

4.0 RELEASE

Explain basis for scoring a release to surface water: Outfall samples with analytical laboratory results above MTCA Method B values for Surface Water were collected from direct discharges into Lake River. — Source: 1 — **Value:** 5 (Max.=5)

SW HH Route Score/Quintile: 46.7/5
SW Env. Route Score/Quintile: 89.0/5

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 (ug/m³)	Val.	Acute Toxicity (mg/m³)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcinogenicity WOE	PF*	Val.
(15) 1. Arsenic		10		ND		ND			9
(30) 2. Beryllium		10		ND		ND			6
(171) 3. Pentachlorophenol (PCP)		9		ND		ND			ND
4.									
5.									
6.									

*Potency Factor

Source: 1,4
Highest Value: 10 (Max.=10)

+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
Vapor Pressure(s) (mmHg): 1= ; 2= ; 3=1.1e⁻⁴; 4= ; 5= ; 6=
Source: 4
Value: 2 (Max.=4)

1.3.2 Particulate Mobility
Soil type: Sauvie silt loam
Erodibility: 47 t/a/yr
Climatic Factor: 1-10
Source: 6,12
Value: 1 (Max.=4)

1.4 Highest Human Health Toxicity/Mobility Matrix Value (from Table A-7) equals **Final Matrix Value:** 12 (Max.=24)
12x2 = 12

1.5 Environmental Toxicity/Mobility
Source: 5,6

Substance	Non-human Mammalian Acute Inhal. Toxicity (mg/m³)		Value	Mobility (mmHg)	Value	(Table A-7) Matrix Value
1. Arsenic			ND		X	X
2. Beryllium			ND		X	X
3. Pentachlorophenol	LC_{50} Rat	355	8	$1.1e^{-4}$	2	8
4.						
5.						

Highest Environmental Toxicity/Mobility Matrix Value (From Table A-7) equals **Final Matrix Value:** 8 (Max.=24)

WORKSHEET 5 (CONTINUED)
AIR ROUTE

1.6 Substance Quantity: estimated approx. 313,678 square feet Source: 2 **Value:** 7 (Max.=10)
Explain basis: c.f. EPA Pacific Wood Treating Site Assessment Report, March 29, 1996, page 40, 4.14 Source Area.

2.0 MIGRATION POTENTIAL

2.1 Containment: Drainage System discharge; surface soil contamination confirmed with analytical laboratory results. The surface overlying the drainage system is both paved and unpaved." No vapor collection system. Source: 1 **Value:** 10 (Max.=10)

3.0 TARGETS

3.1 Nearest Population: approx. 600 ft. Source: 13 **Value:** 10 (Max.=10)

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) Ridgefield Wildlife Refuge-Adjacent National Source: 11 **Value:** 7 (Max.=7)

3.3 Population within 0.5 miles: √pop.=√606= 24.6 Source: 2 **Value:** 25 (Max.=75)

4.0 RELEASE

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

Air HH Route Score/Quintile: 21.2/3

Air Env. Route Score/Quintile: 39.9/5

WORKSHEET 6
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.	WOE	PF*	Carcino-genicity Val.
(15)	1. Arsenic		6		5		5			7
(19)	2. Benzene		8		3		ND			5
(22)	3. Benzo(a)pyrene		10		10		ND			7
(151)	4. Naphthalene		6		5		3			ND
(171)	5. Pentachlorophenol (PCP)		10		ND		1			4
(184)	6. Tetrachloroethene (PCE)		8		5		3			4

*Potency Factor

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

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

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

Cations/Anions: 1=3; 2=X; 3=X; 4=X; 5=X; 6=X. (values) Source: 4,6 **Value:** 3 (Max.=3)

OR

Solubility (mg/l): 1=X; 2=3; 3=0; 4=1; 5=1; 6=2. (values)

1.3 Substance Quantity:

approx. 290,443 cubic yards contam. soil Source: 2 **Value:** 8 (Max.=10)

Explain basis: Ch. EPA Assessment calculation in PWT Site Assessments Report, March 29, 1996, page 40, 4.14, Source Area.

2.0 MIGRATION POTENTIAL

2.1 Containment

Source: 1 **Value:** 10 (Max.=10)

Explain basis: Soil and Ground Water Contamination confirmed with analytical laboratory results.

2.2 Net Precipitation: 23.2 - 26.4 inches

Source: 14 **Value:** 3 (Max.=5)

2.3 Subsurface Hydraulic Conductivity: Moderately well

Source: 6,12 **Value:** 3 (Max.=4)

2.4 Vertical Depth to Ground Water: 0 feet

Source: 1 **Value:** 8 (Max.=8)

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

3.1 Ground Water Usage: Public, No alternative available Source: 9, 15 **Value:** 9 (Max.=10)

3.2 Distance to Nearest Drinking Water Well: ~2,700 ft Source: 11, 16 **Value:** 2 (Max.=5)

3.3 Population Served within 2 Miles: √pop.=√1905=43.6 Source: 2 **Value:** 44 (Max.=100)

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 0.75√no.acres= 0.75√82.5=0.75 (9.1)=6.8 Source: 9 **Value:** 7 (Max.=50)

4.0 RELEASE

Explain basis for scoring a release to ground water: Confirmed by analytical laboratory results. Source: 1 **Value:** 5 (Max.=5)

SOURCES USED IN SCORING

1. Data Summary Report, RFI Site Characterization, Pacific Wood Treating, Ridgefield, WA, prepared by Kleinfelder, Inc., Portland, OR, May 10, 1993.

2. Pacific Wood Treating Site Assessment Report, TDD: 96-02-0024, March 29, 1996, prepared for EPA, Office of Environmental Cleanup, Region X, prepared by Ecology and Environment, Inc., Seattle, WA.

3. The Columbian newspaper, "EPA testing to start soon at polluted wood-treating site" by Loretta Callahan, Friday, June 23, 1995, page A5.

4. Toxicology Database for Use in Washington Ranking Method Scoring, Washington State Department of Ecology, Toxics Cleanup Program, Publication #92-37, January 1992.

5. Sax's Dangerous Properties of Industrial Materials, 8th Edition, Richard J. Lewis, Sr., Van Nostrand Reinhold, New York, 1992.

6. Scoring Manual, Washington Ranking Method (WARM) Washington State Department of Ecology, Toxics Cleanup Program, Publication #90-14, April 1990, Revised April 1992.

7. City of Ridgefield, Public Works Office, phone call, January 16, 1996.

8. Flood Plain Map, panel #530298-0001B, effective May 19, 1996.

9. (WRIS) Washington Water Rights Information System, WA Department of Ecology.

10. Steve Manlow, WA Dept. of Fish & Wildlife, phone conversation, January 16, 1996.

11. Clark County Road Atlas, 1994, Department of Assessment and GIS, pg. 33.

12. Clark County Soil Survey, USDA-SCS, November 1972. Sheet 21; page 40.

13. USGS Maps, Ridgefield, WA and St. Helens, OR, 1954, photorevised 1970, photoinspected 1975.

14. Estimated Evapotranspiration Table, EM 2462, page 42, table 16.

15. Public Well Database print-out, WA Department of Health.

16. Tom Newman, Environmental Manager, Port of Ridgefield, phone conversations, March 29, and April 16, 1996.