WORKSHEET 1
SUMMARY SCORE SHEET

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

Twin City Metals
455 East Bruneau
Kennewick, Benton County, WA 99336
Longitude: 119.00° 6′ 41″
Latitude: 46.00° 12′ 38″

Sec 6/T8N/R30E
Ecology Facility Site ID 79167777

Site scored/ranked for 02/26/02 update

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

This site was listed on the Washington State Department of Ecology's (Ecology) Site Information System list on May 3, 2000. A metals salvage yard has been at this location since the early 1950's. Materials received are sorted and shipped to various recyclers. A site visit conducted on October 12, 2001, revealed obvious areas of remedial action consistent with a report by Shannon and Wilson, Inc. (October 13, 2001). As the site is still active there were numerous areas where stockpiled metal materials were sorted and stored prior to shipping.

Site Remediation

This site was brought to Ecology's attention when a complaint was filed regarding an area where metal is cut up to be covered with oil from motors, transmissions, and electric motors. On April 24, 2000, Dick Bassett of Ecology's Central Office conducted an initial investigation and on May 3rd sent out an "Early Notice Letter" to inform Twin City Metals that they would be added to Ecology's List of Suspected or Confirmed Contaminated Sites awaiting site hazard assessment. Twin City Metal then contacted Shannon & Wilson, Inc. to conduct soil evaluation, testing, and remediation oversight.

On June 7′ 2000, representatives from Shannon & Wilson, Inc. observed areas of stained soil throughout the Twin City Metal's property. Two samples were taken at this time and tested for petroleum hydrocarbon revealing no contamination. On June 11th soil was excavated in the north area where the crane has historically operated. Two composite soil samples were taken from the excavated soil and tested for petroleum hydrocarbons, poly chlorinated biphenyls (PCBs), total metals, and volatile organics. The total results indicated concentrations of PCBs, arsenic, cadmium, chromium, lead, and mercury exceeding Washington State Model Toxic Control Act (MCTA) Method A Cleanup Levels for soil. The excavation was 40-ft. by 40-ft to a depth of 3-ft. Soil samples taken from the base of the excavation resulted in levels below MTCA clean-up levels for all contaminants tested.

On August 2, 2000, the stock piled contaminated soil was removed and disposed at the Finley Buttes Landfill. Additional soil was excavated at this time in areas around the initial excavation where there was visible staining, making the total excavation 65-ft in the east-west direction by 60-ft in the north-south direction. The initial excavation was approximately 3-ft. deep, but the surrounding areas were only 1 to 1.5 ft. deep. A total of 372.7 tons of contaminated soil was removed. Additional samples were taken from the expanded excavation and revealed contaminants present higher than the applicable clean-up levels.

On August 24th more soil was excavated at the site and the base was again sample and revealed contamination below clean-up levels. A total of 548.3 tons of soil was removed from the site.

The area was then back filled and lined with a 30-mil geomembrane liner to guard against potential leakage from the crane. The crane was then placed back onto its original site of operation.

Due to the fact the report supplied by Shannon & Wilson described small areas of stained soil through out the property with no remediation attempt or testing, before scoring other stained areas within the property were tested. On December 21, 2001 Michael Spencer, Clifford Bates, and Kay Rottell took two soil samples from stained soil in areas other than those tested in the remediation process. These soil samples were taken from approximately 6-inches from surface grade. These samples were sent to Anatek Laboratories in Spokane, Washington for testing. These results revealed contamination of soil with total PCBs at 12.9 mg/Kg, cadmium at 23.2 mg/Kg, lead at 41100mg/Kg, and lube oil 107000mg/Kg. These test results were above the MTCA Method A clean-up levels.

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):

The contaminants used in scoring were only those found in the soil samples collected on December 21st. It is possible that in other areas of the property may have other contaminants found in the remediation process such as arsenic, chromium, and mercury could be found in levels above applicable clean-up levels in other parts of the property.

ROUTE SCORES:

Surface Water/Human Health:	**N/A**	**Surface Water/Environ:**	**N/A**
Air/Human Health:	**47.1**	**Air/Environmental:**	**52.4**
Ground Water/Human Health:	**66.1**		

OVERALL RANK: 1

WORKSHEET 2 - ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE - N/A

2. AIR ROUTE

List those substances to be considered for scoring: Source:1,2

PCB's, Cadmium, Lead, and Lube Oil

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

Analytical results from soil samples showed concentrations greater than their respective Method A MTCA cleanup levels for all of the above. Only cadmium and lead are scored because no toxicology data is available for PCBs and lube oil in the air route.

List those management units to be considered for scoring: Source:1,2

Contaminated on-site surface and subsurface soils.

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

Chemical analyses of on-site surface soils indicated concentrations of contaminants above clean-up levels with no cover or vapor collection system.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source:1,2

PCB's. Cadmium, Lead, and Lube Oil

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

Analytical results from soil samples showed concentrations greater than their respective Method A MTCA cleanup levels for all of the above.

List those management units to be considered for scoring: Source:1,2

Contaminated on-site surface and subsurface soils.

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

Chemical analyses of on-site surface soils indicated concentrations of contaminants above clean-up level.

WORKSHEET 3 (If Required)
SUBSTANCE CHARACTERISTICS WORKSHEET
FOR MULTIPLE UNIT/SUBSTANCE SITES

	Combination 1	Combination 2	Combination 3

Unit: Section Not Applicable.

1. SURFACE WATER ROUTE

Substance(s):
Human Toxicity Value:
Environ. Toxicity Value:
Containment Value:
Rationale:

Surface Water Human Subscore:	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) =
Surface Water Environ. Subscore:	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) =

2. AIR ROUTE

Substance(s):
Human Toxicity/Mobility Value:
Environ. Toxicity/ Mobility Value:
Containment Value:
Rationale:

Air Human Subscore:	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) =
Air Environ. Subscore:	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) =

3. GROUND WATER ROUTE

Substance(s):
Human Toxicity Value:
Containment Value:
Rationale:

Ground Water Subscore:	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) = ___	(+3)(+1)= ( )( ) =

Based on their respective highest scoring toxicity/containment combinations, the following management units will be used for route scoring:

Surface Water -
Air -
Ground Water -

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/m^3)	Val.	Acute Toxicity (mg/m^3)	Val.	Chronic Toxicity (mg/kg/day)	Val.	Carcinogenicity WOE	PF*	Val.
1. Cadmium	.00056	10	25(rat)	10	-	ND	B1	6.1	6
2. Lead	.5	10	-	ND	-	ND	B2	-	ND

*Potency Factor

Source: 1,2,4,5
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): N/A Source:
Value: (Max.=4)

1.3.2 Particulate Mobility
Soil type: Medium Sand Source: 1,2,5,9
Erodibility: 220 ton/acre/yr Value: 4 (Max.=4)
Climatic Factor: 10-30

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

1.5 Environmental Toxicity/Mobility Source: 2,4,5

Substance	Non-human Mammalian Acute Inhal. Toxicity (mg/m^3)	Value	Mobility (mmHg)	Value	(Table A-7) Matrix Value
1. Cadmium	25(rat)	10	Particulate	4	20

Highest Environmental Toxicity/Mobility Matrix Value (From Table A-7) equals **Final Matrix Value: 20** (Max.=24)

WORKSHEET 5 (CONTINUED)
AIR ROUTE

1.6 Substance Quantity: unknown = 1 Source: 5 **Value: 1** (Max.=10)
Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment: Soil Contamination no cover Source: 1-3,5 **Value: 10** (Max.=10)

3.0 TARGETS

3.1 Nearest Population: < 1000 feet Source: 5,10 **Value: 10** (Max.=10)

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) Keewaydin Park, 2000-3000 feet Source: 5,10 **Value: 5** (Max.=7)

3.3 Population within 0.5 miles: $\sqrt{pop.} = \sqrt{1335} = 37$ Source: 5,10 **Value: 37** (Max.=75)
Population found by counted homes on GIS 7.5 min. Map and multiplying by 3.

4.0 RELEASE

Explain basis for scoring a release to air: None documented. Source: 1,5 **Value: 0** (Max.=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.	Carcino-genicity WOE	PF*	Val.
1. PCB	0.5	10	1315	3	-	ND	B2	7.7	6
2. Cadmium	5	8	225	5	.0005	5	B1	-	ND
3. Lead	5	8	-	ND	-	ND	B2	-	ND
4. Lube Oil	-	ND	-	ND	2	1	-	-	ND

*Potency Factor

Source: 2,4,5
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: 2) Cadmium = 3 3.) Lead = 2 Source: 1,2,5 Value: 3 (Max.=3)

Or

Solubility(mg/l): 1) 3.1E-02+0 4) 3.0E+1=1

1.3 Substance Quantity: Unknown = 1 Source: 5 Value: 1 (Max.=10)
Explain basis:

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 1,2,5 Value: 10 (Max.=10)
Explain basis: Contaminated soil = 10

2.2 Net Precipitation: 0.90 inches Source: 5,8 Value: 1 (Max.=5)

2.3 Subsurf.Hydraul.Conduct.: sand and gravel Source: 2,5,9 Value: 4 (Max.=4)

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

2.4 Vertical Depth to Ground Water: <25 feet Source: 2,5 Value: 8 (Max.=8)

3.0 TARGETS

3.1 Ground Water Usage: There is one public water supply, Eaton Park Subdivision, within 2 miles which has no alternate unthreatened sources available with minimal hookups. Source: 5,6,7 Value: 9 (Max.=10)

3.2 Dist. to Nearest Drinking Water Well: 5000'-10000' Source: 5,6 Value: 1 (Max.=5)

3.3 Population Served within 2 Miles: 43787 >10,000 Source: 5,6 Value: 100 (Max.=100)
Maximum score of 100

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 291 acres Source: 5,7 Value: 13 (Max.=50)
$0.75(291)^{1/2} = 12.79$;
When determining # of acres Irrigate included all of Sec. 5, excluding only obvious wells not within 2 miles. Excluding Sec. 5 entirely did Not dramatically change score.

4.0 RELEASE

Explain basis for scoring a release to ground water: None documented by analytical data Source: 1,5 Value: 0 (Max.=5)

SOURCES USED IN SCORING

1. Twin City Metals, Shannon & Wilson, Inc, for Twin City Metals,544 East Brunea Avenue, Kennewick, Washington.

2. Analytical test results, Anatek Labs, Inc, Samples taken by Michael Spencer, Clifford Bates, and Kay Rottell, December 21, 2001.

3. Site Hazard Assessment Site Visit by Michael Spencer, Clifford Bates and Kay Rottell, October 12, 2001.

4. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.

5. Washington Department of Ecology, WARM Scoring Manual, April 1992.

6. U.S. EPA SITEINFO GIS Query for lat./long. of site.

7. Ecology Water Rights Information System (WRIS).

8. Washington Climate for Benton, Franklin Counties, Cooperative Extension Services, College of Agriculture, Washington State University.

9. Phone Interview with City of Kennewick Engineering Department, Bruce Beauchene, December 19, 2001.

10. City of Kennewick GIS maps: 209, 308, 309, 310, and 409, located on pages 34,48,49,50 and 66.

WASHINGTON RANKING METHOD

ROUTE SCORES SUMMARY AND RANKING CALCULATION SHEET

Site Name: Twin City Metals Region: Central

Street, City, County: 455 E. Bruneau, Kennewick, Benton County

Facility ID: 79167777

This site was(x) ranked,( ) re-ranked, on February 26,2002 based on the August 28, 2001 quintile values from a total of 771 assessed/scored sites.

Pathway	Route Scores	Quintile Group number(s)	Priority scores:
			$\frac{5^2 + 2(5)}{8} = 4.37$
SW-HH	N/A		$\frac{H^2 + 2M + L}{8} = 5$
Air - HH	47.1	5	
GW-HH	66.1	5	$5^2/7 = 3.57$
SW-En	N/A		$\frac{H^2 + 2L}{7} = 4$
Air-En	52.4	5	*Round to the nearest Whole number

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 (e.g. typically with ground water route-only sites).

Human Health ↓	Environment 5	4	3	2	1	N/A
5	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	5	3
1	2	3	4	5	5	5
N/A	3	4	5	5	5	NFA

(DRAFT) / FINAL

Matrix ("bin") Ranking: 1

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

_____almost into the next higher bin.
_____right in the middle, unlikely to ever change.
_____almost into the next lower bin.