CSID 3338

WORKSHEET 1
SUMMARY SCORE SHEET

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

WA DNR Triangle Pit
1111 Washington Street
Olympia, WA 98501

Thurston County - S21/T17/R3W
Tax Parcel #: 13721000000
Facility ID: 6280479

Latitude 46°56'37"N
Longitude 123°04'20"W.

Site scored/ranked for August 17,2004 publication.

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

The Department of Natural Resources (DNR) Triangle Pit is located in southwest Thurston County off Waddell Creek road in the Capital Forest. This site is approximately 4.37 acres. This is a gravel pit that the locals have used as a shooting range for approximately 25 years.

The Department of Ecology received a complaint on October 30, 2003 from a neighbor concerned about soil contamination. Ecology assigned ERTS # 537162 to the information provided by the caller. The caller indicated that he took a soil sample and submitted it to a private laboratory. The sample results showed lead at 5800 parts per million (ppm) and copper at 3200 ppm. The exact area where the complaint sampled is unclear.

The Model Toxic Control Act (MTCA) Cleanup Guidelines Method A for Unrestricted Land Uses for **Lead is 250 mg/kg**. MTCA Standard Method B for Soil, unrestricted land use - ingestion only and leaching pathway for **Copper is 2960 mg/kg.** There is no Method A cleanup guideline for Copper.

On April 25th, 2004, additional sampling was conducted by Thurston County Health Department. The following information describes the sampling event.

Location 1 - *This location is in an area where the shooters stand to fire into the pit.*

Sample 1-1:	Copper - **322** mg/kg	Depth 0-1"
	Lead - **825** mg/kg	
Sample 1-6:	Copper - **53.3** mg/kg	Depth 6"
	Lead - **31.8** mg/kg	

Location 2 - *This location is around the scrap iron pile in the middle of the pit.*

Sample 2-1:	Copper - **590** mg/kg	Depth 0-1"
	Lead - **9290** mg/kg	
Sample 2-6	Copper - **52.9** mg/kg	Depth 6"
	Lead - **1510** mg/kg	

Location 3 - *This location is at the toe of the back of the pit.*

Sample 3-1:	Copper - **106** mg/kg	Depth 0-1"
	Lead - **8800** mg/kg	
Sample 3-18:	Copper - **132** mg/kg	Depth 18"
	Lead - **11,700** mg/kg	

The sampling shows that the elevated levels of Lead exceed the Method A cleanup level.

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): NONE

ROUTE SCORES:

Surface Water/Human Health: 17.3 Surface Water/Environ.: 32.5

Air/Human Health: 7.3 Air/Environmental: NS

Ground Water/Human Health: 24.7 **OVERALL RANK: 4**

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

List those substances to be considered for scoring. Source: 4

Lead

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

The above contaminant was detected at elevated concentration in excess of MTCA clean-up levels.

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

Contaminated Soils

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

Analytical results

2. AIR ROUTE

List those substances to be considered for scoring. Source: 4

Lead

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

The above contaminant was detected at elevated concentration in excess of MTCA clean-up levels.

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

Contaminated Soils

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

Analytical results

3. GROUND WATER ROUTE

List those substances to be considered for scoring. Source: 4

Lead

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

The above contaminant was detected at elevated concentration in excess of MTCA clean-up levels.

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

Contaminated soils

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

Analytical Results

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

Unit:

	Combination 1	Combination 2	Combination 3
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:			
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 4
SURFACE WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

	Drinking Water Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity		
Substance	µg/L	Val.	mg/kg-bw	Val.	Mg/kg/day	Val.	WOE	PF*	Val.
1. Lead	5.0	8	ND	-	ND	-	ND	-	-
2.									
3.									
4.									
5.									

PF*= Potency Factor Source: 1,4

Highest Value: 8 _(Max.=10) +2 Bonus Points? _____ **Final Toxicity Value: 8**

1.2 Environmental Toxicity

Substance	(x) Freshwater ( ) Marine Acute Water Quality Criteria		Non-human Mammalian Acute Toxicity	
	(ug/1)	Value	(mg/kg)	Value
1. Lead	82	6		
2.				
3.				
4.				
5.				

Source: 1,4 **Value: 6** (Max. =10)

1.3 Substance Quantity: Source: 1,4 **Value: 1** (Max. =10)

Explain basis: unkown

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 4 **Value: 10** (Max. =10)
Explain basis: Contaminated soil at surface, no run-on/off control

2.2 Surface Soil Permeability Source: 4 **Value: 1** (Max. =7)
Everett very gravelly sandy loam

2.3 Total Annual Precipitation (inches) Source: 6 **Value: 4** (Max. =5)
51 inches

2.4 Max. 2-yr/24-hr precipitation (inches) Source: 1 **Value: 3** (Max. =5)

2.5 Flood Plain NO Source: 1,3 **Value: 0** (Max. =2)

2.6 Terrain Slope (%) >2% Source: 4 **Value: 2** (Max. =5)
x=757 feet, y=34 feet y/x*100=4.4%

3.0 TARGETS

3.1 Distance to Surface Water Source: 3 **Value: 10** (Max. =10)
Waddell Creek - 900 feet

3.2 Population Served within 2 miles Source: 3,5 **Value: 6** (Max. =75)
See WARM Scoring Manual Regarding Direction
$\sqrt{pop.} = \sqrt{33} = n$ 11 parcels with springs of unnamed creeks: 11x3=33

3.3 Area Irrigated within 2 miles Source: 5 **Value: 1** (Max. =30)
See WARM Scoring Manual Regarding Direction
$0.75\sqrt{}$ # of acres = n
$0.75\sqrt{3} = 0.75(1.7) = 1.29$

3.4 Distance to Nearest Fishery Resource Source: 3 **Value: 12** (Max. =12)
Waddell Creek - 900 feet

3.5 Distance to and Names of Nearest Sensitive Environments
Waddell Creek - 900 feet Source: 3 **Value: 12** (Max. =12)

3.0 RELEASE
Explain the basis for scoring a release to surface water
None documented Source: 4 **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		Acute Toxicity		Chronic Toxicity		Carcinogenicity		
	(ug/m^3)	Val.	(mg/m^3)	Val.	(mg/kg/day)	Val.	WOE	PF	Val.
1. Lead	0.5	10	ND	-	ND	-	-	-	-
2.									
3.									
4.									
5.									

Source: 2,4 Value: 10 (Max. =10)
+2 Bonus Points?
Final Toxicity Value: 10

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

1.3.1 Gaseous Mobility
Vapor Pressures (mmHg) Source:_____ Value: ____ (Max. =4)
1.
2.
3.
4.
5.

1.3.2 Particulate Mobility Source: 1,3 **Value: 1** (Max. =4)
Soil Type: gravelly sandy loam
Erodibility: 86
Climactic Factor: <1 = 1

1.4 Highest Human Health Toxicity/Mobility Matrix Value (from Table A-7)
Equals Final Matrix Value Source: 1 **Value: 5** (Max. =24)

1.5 Environmental Toxicity/Mobility Source: NA **Value: NS** (Max. =24)

Non-human Mammalian Acute (Table A-7)

Substance	Inhalation Toxicity (mg/m^3)	Value	Mobility (mmHg)	Value	Matrix Value
1. No Data					
2.					
3.					
4.					
5.					

Highest Environmental Toxicity/Mobility Matrix Value (From Table A-7) equals
Final Matrix Value: NS

1.6 Substance Quantity: Source: 4 **Value: 1** (Max. =10)

Explain basis: unknown

2.0 MIGRATION POTENTIAL

2.1 Containment: No cover Source: 4 **Value: 10** (Max. =10)

3.0 TARGETS

3.1 Nearest Population Source: 3 **Value: 2** (Max. =10)
4500 feet

3.2 Distance to and Names of Nearest Sensitive Environments
Wetlands 1200 feet Source: 3 **Value: 6** (Max. =7)

3.3 Population within 0.5 miles: Source: 3 **Value: 19** (Max. =75)
√pop. = √367 = n

4.0 RELEASE
Explain basis for scoring a release to air:
No release Source: 4 **Value: 0** (Max. =75)

WORKSHEET 6
GROUND WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity		
	(ug/m^3)	Val	(mg/kg/bw)	Val	(mg/kg/day)	Val	WOE	PF	Val
1. Lead	5	8	ND	-	ND	-	ND	-	-
2.									
3.									
4.									
5.									

Source: 2,4 Value: 8 (Max. =10)
+2 Bonus Points?
Final Toxicity Value: 8

1.2 Mobility
(Use numbers to refer to above listed substances)
Cations/Anions Source: 2 **Value: 2** (Max. =12)
1. 0.1 to 1.0
2.
3.
4.
5.

OR Solubility Source: Value:____ (Max. =3)
1.
2.
3.
4.
5.

1.3 Substance Quantity Source: 4 **Value: 1** (Max. =10)
Explain basis: Unknown

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 3,4 **Value: 10** (Max. =10)
Explain Basis: contaminated soils

2.2 Net Precipitation (inches): Source: 6,7 **Value: 3** (Max. =5)
Nov-April = 38.8 Total Precip.
Evaptran = 11.74
38.8-11.74= 27.06 Net

2.3 Subsurface Hydraulic Conductivity: Source: 3 **Value: 3** (Max. =4)
$1.4x10^{-3}$

2.4 Vertical Depth to Ground Water: Source: 3 **Value: 4** (Max. =8)
Approximately 70 feet

3.0 Targets

3.1 Ground Water Usage: Source: 5 **Value: 4** (Max. =10)
Public Supply, alt source available

3.2 Distance to Nearest Drinking Well (ft): Source: 3 **Value: 2** (Max. =5)
4500 feet

3.3 Population Served within 2 miles: Source: 3 **Value: 30** (Max. =100)
900 people
$\sqrt{pop.} = \sqrt{x} = n$

3.4 Area irrigated by Wells within 2 miles: Source: 4 **Value: 1** (Max. =50)
3 acres
$0.75\sqrt{x} = 0.75(y) = n$

4.0 RELEASE Source: 4 **Value: 0** (Max. =5)
Explain basis for scoring a release to ground water:
No release

SOURCES USED IN SCORING

1. Washington Ranking Method Scoring Manual, April 1990, revised 1992.
2. Toxicology Database for Use in WARM scoring, January 1992.
3. Thurston County GeoData production of WA DNR Triangle Pit Area Analysis Map, 5-19-04.
4. Thurston County Sampling event at the Triangle Pit, 4-25-04.
5. Washington Department of Ecology, SWRO, Water Rights Application Tracking System 6-14-04.
6. Thurston County climatic Data, National Weather Service 1993-2000.
7. "Table 16- Estimated Evapotranspiration (Inches of Water0 EM p.42" for Thurston County at Olympia airport. Sum of months from November through April inclusive.