CSID 4056

WORKSHEET 1
SUMMARY SCORE SHEET

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

Hicks Road Dump
S.W. Corner of Hicks
Road and Johnson Road
Grandview, Benton County, WA 98930
Longitude: 119° 51′ 47″
Latitude: 46° 13′ 43″

Sec 31/T9N/R24E
Ecology Facility Site ID: 316

Site scored/ranked for August 17, 2004 update.

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

The Hicks Road Dump site was listed on the Washington State Department of Ecology's (Ecology) Integrated Site Information System list on March 1, 1988 as a no further action referral from the Environmental Protection Agency superfund program, and updated on August 18, 1992.

The property known as the Hicks Road Dump is located on the southwest corner of Johnson Road and Hicks Road in Benton County near Prosser, Washington. It is a 20 acre parcel legally described as follows:

> The N ½ of the NE ¼ of the NW ¼ Section 31,
> Township 9, Range 24, Benton County.
> Parcel Number 1-3194-200-0001-000

Initially, the site was a borrow pit for road construction in the mid 1940's. Citizens then used the pit as a waste disposal site during the 1950's and 1960's. The county did not officially operate the site as a landfill facility; therefore,no records were maintained on waste types or volumes disposed. The only operative measure taken at the facility was the periodic placement of cover soil over the wastes. A caretaker was assigned to the facility by the county for the last several months that the site was used as a landfill before it was finally closed in 1970. When the landfill was active, standing water was present in some of the excavated areas indicating that wastes may have been placed below the water table. Closure consisted of placing a layer of soil over the exposed waste and grading the site.

In 1988, Mrs. Dorothy Miller submitted a statement to Benton County Planning Commission and Washington State Department of Ecology that pesticides, pesticide containers, a ''truck load of lead arsenic'' and paint wastes had been disposed at the landfill. In addition, Mrs. Miller and Mr. Henry Brown have stated that the remaining inventory of Elliot's Hardware in Grandview, Washington was placed in the landfill when the firm went out of business. In a story published by The Yakima Herald-Republic on April 25, 1988 Mr. Brown is quoted with the following statement, ''We know there's lead arsenic, DDT, paint cans, and old spray cans in that dump...''

As a part of an investigation of dinoseb contamination at the Alexander Farms (located about one mile north of this site) toxic cleanup site, the Hicks Road Dump was identified as a potential source for dinoseb contamination. However, the

Washington State Department of Ecology determined that this potential was very low since the dump had been closed in 1970 and dinoseb was not registered for use by the EPA until 1976.

Overall, the slope of the surrounding land is to the south toward the Yakima River. However, very little surface drainage is expected from this site as it is in a depression. The site's geology is comprised of surficial sand and gravel deposits approximately 25 feet thick underlain by fractured and competent basalt with associated sedimentary interbeds. The water table is shallow, being four to eight feet below the ground surface at the site. In the past, the site has been used for irrigation overflow providing some recharge of the groundwater through the landfill. In addition, the surrounding areas use of irrigation water has probably altered the natural groundwater flow patterns. The nearest well is less than 500 feet away with approximately 103 wells within a two mile radius of the site.

During a site visit on November 25, 2003, there were no areas that obviously appeared to have deposited solid wastes. The eastern side of the property had been leveled and this area is being used by the current owner to store large pipes used for the construction and maintenance of the local irrigation system.

A complete Site Hazard Assessment of the property was conducted to determine all contaminants and media affected. In preparation for the Site Hazard Assessment the Health District reviewed the files detailing the various site visits, used the personal knowledge of staff and local residents, and obtained soil and groundwater samples for analysis of suspected contaminates.

Contaminants of concern at the Hicks Road Dump were suspected to be anything related to an unlined municipal landfill operating prior to 1970; however, there is specific information on file to indicate that lead, arsenic, DDT, and VOC's are of primary concern. In a phone interview with Mr. Henry Brown on January 8, 2004, Mr. Brown described an area on the property where he was sure hazardous wastes had been deposited. On January 28, 2004, we met with Mr. Brown who was able to physically confirm the area of concern. In addition, photographs of the site on file at the Washington State Department of Ecology Central Regional office identify this same general area as the area of concern. With this information, the areas that were sampled were reduced to increase the chance of meeting the sampling objectives. Generally, Mr. Brown described this area as being rectangular in shape running north to south approximately 40 feet off of Hicks Road and 100 feet off of the South property line (fence). The rectangular shaped area extends north from this point about 250 feet and is about 60 feet wide (see attached plot maps). Mr. Brown did not remember any burning of wastes at this site.

The sampling event was designed to determine if there are contaminants in the soil and groundwater that exceeded the MTCA cleanup levels, but was not designed to characterize the site as a whole. Samples were taken on April 27, 2004, placed in a cooler with ice packs, and picked up by Energy Northwest Laboratory that same day. The sampling objectives included the following:

a. Obtain representative soil and water samples as needed to establish, or confirm, identification of specific hazardous constituents (RCRA metals - arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver; volatile organic compounds (VOC's) and pesticide scan).
b. Document contamination release, as applicable;
c. Use data to assign WARM scoring values; or

d. Document the absence of significant contaminant concentrations and make a recommendation of ''No further Action'' (NFA) for the site, as applicable.

Six sample locations were identified on the site (see figures 1 and 2). The actual sampling locations differed from the areas depicted on the original site plan, Figure 2. Field observations at the time of sampling indicated that waste may have been in a slightly different location than originally thought. So, two more site locations were identified (7 & 8), and three original sites were not tested (1,2,and 4). Buried wastes was encountered at sites 7 and 8, but no evidence of buried wastes was found at sites 3, 5, and 6 as shown on figure 2. Table 1 summarizes the proposed site identifications and tests that were planned for this event.

Table 1.
Proposed Sampling Locations and Test Parameters

Sample ID	Location	Media	Analysis
HRDS1	Site Number 1 See plot maps(Figures 1 and Figure 2)	Soil	RCRA Metals (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver)
HRDS2	Site Number 2 See plot maps	Soil	RCRA Metals
HRDS3	Site Number 3 See plot maps	Soil	RCRA Metals
HRDS4	Site Number 4 See plot maps	Soil	RCRA Metals
HRDS5	Site Number 5 See plot maps	Soil	RCRA Metals
HRDS6	Site Number 6 See plot maps	Soil	RCRA Metals
HRDVOC4	Site Number 4 See plot maps	Soil	VOC's
HRDVOC5	Site Number 5 See plot maps	Soil	VOC's
HRDVOC6	Site Number 6 See plot maps	Soil	VOC's
HRDPES4	Site Number 4 See plot maps	Soil	Pesticide Scan (Chlorinated Pesticides and Organophosphates)
HRDPES5	Site Number 5 See plot maps	Soil	Pesticide Scan
HRDPES6	Site Number 6 See plot maps	Soil	Pesticide Scan
HRDW4	Site Number 4 See plot maps	Water*	RCRA Metals
HRDW5	Site Number 5 See plot maps	Water*	RCRA Metals
HRDW6	Site Number 6 See plot maps	Water*	RCRA Metals
HRDWVOC4	Site Number 4 See plot maps	Water*	VOC's
HRDWVOC5	Site Number 5 See plot maps	Water*	VOC's
HRDWVOC6	Site Number 6 See plot maps	Water*	VOC's
HRDWVOC4D	Site Number 4 See plot maps	Water*	VOC's (Duplicate)
HRDWVOC5D	Site Number 5 See plot maps	Water*	VOC's (Duplicate)
HRDWVOC6D	Site Number 6 See plot maps	Water*	VOC's (Duplicate)
HRDWPES4	Site Number 4 See plot maps	Water*	Pesticide Scan (Chlorinated Pesticides and Organophosphates)
HRDWPES5	Site Number 5 See plot maps	Water*	Pesticide Scan
HRDWPES6	Site Number 6 See plot maps	Water*	Pesticide Scan

** Water samples were taken only where groundwater was encountered during the excavation of a testing site. Sample numbers correspond to the test site number.*

Figure 1
Proposed Sampling Area Site Map

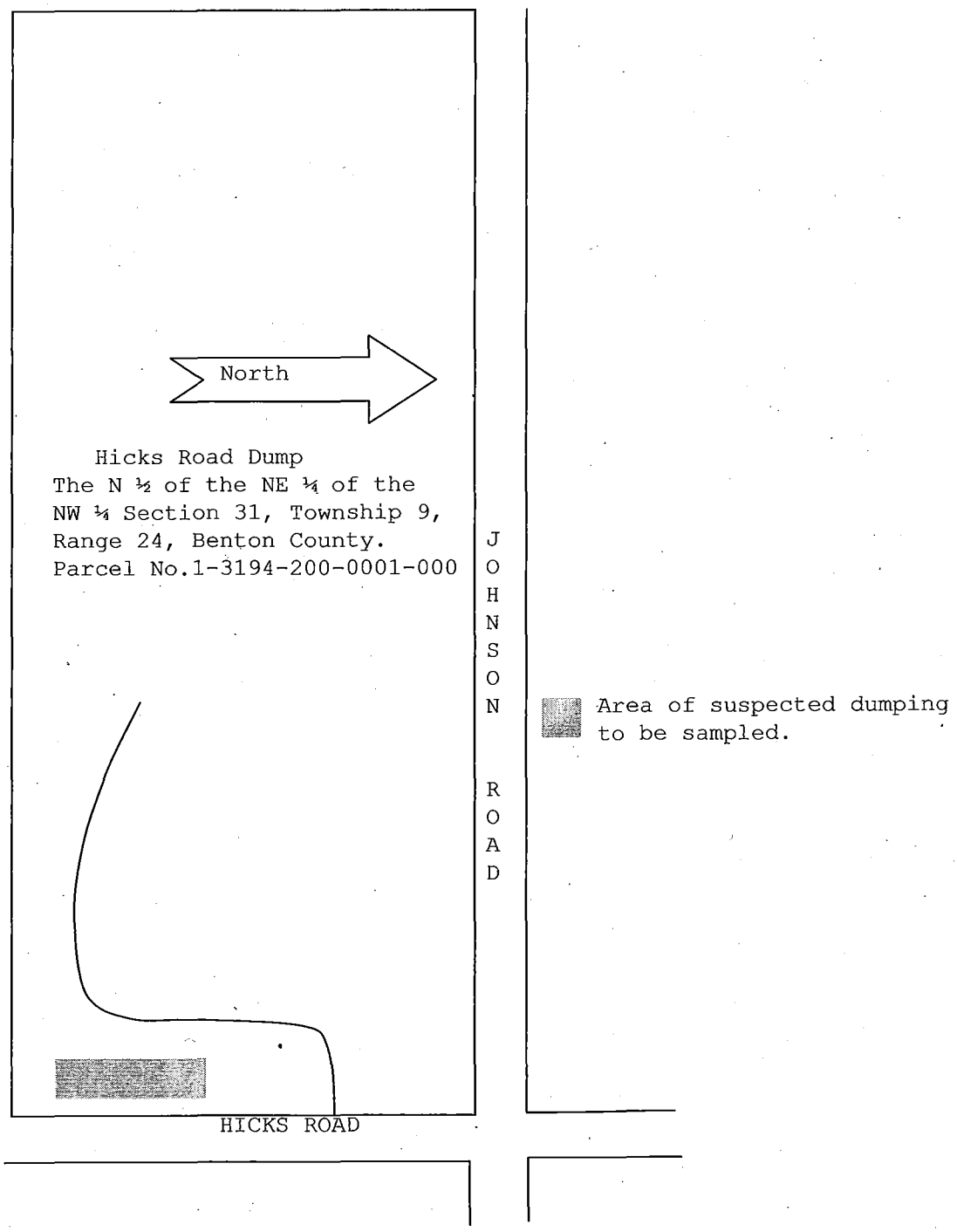
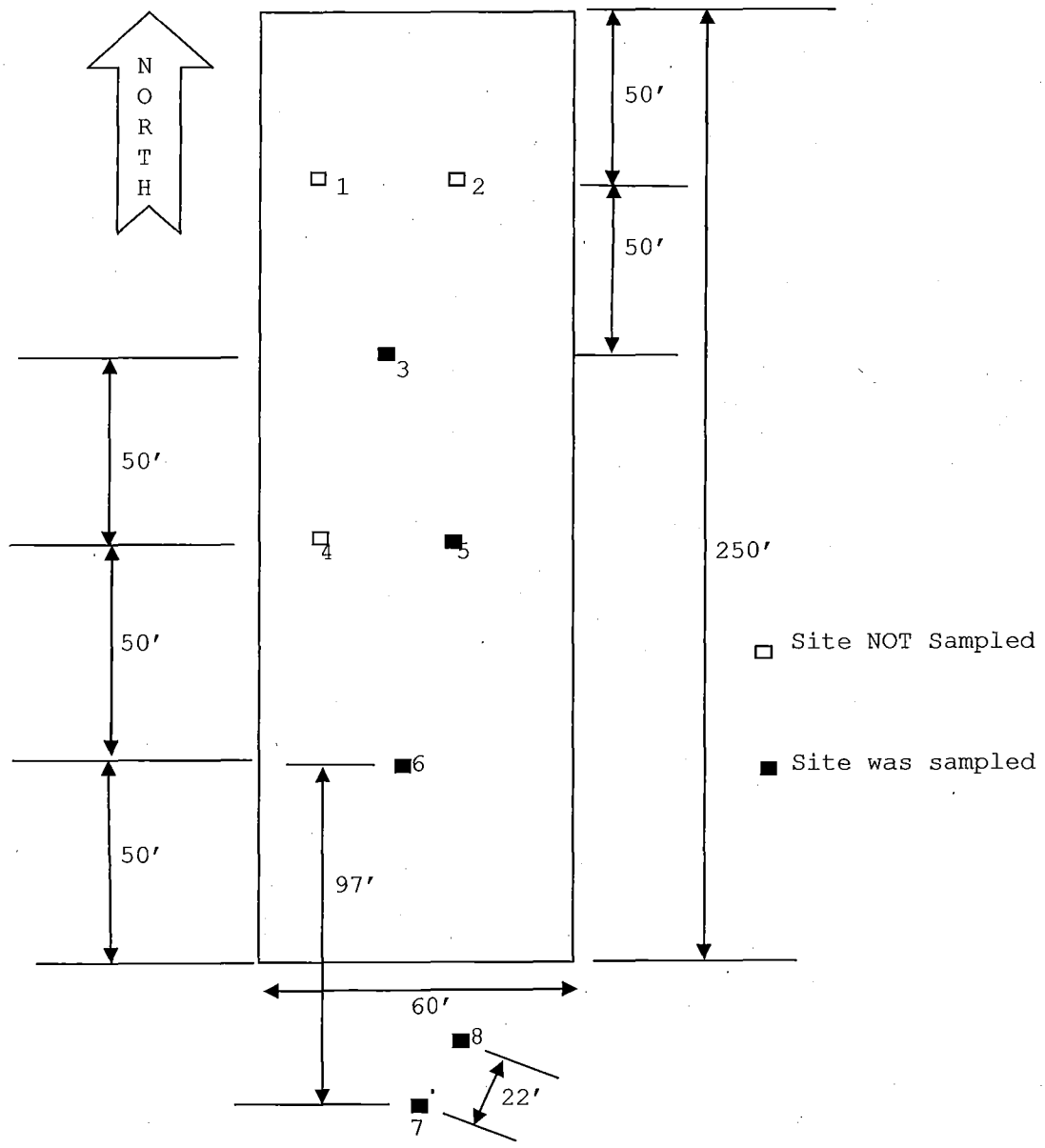


Figure 2
Specific sampling locations (proposed 1-6; actual 3,5,6-8)



A backhoe was utilized to excavate a hole into the ground at each sampling location. Field observations were made while the test sites were being excavated. A Photo Ionizing Detector did not reveal any evidence of VOC's. Visual observations were made to ascertain soil contamination by color changes, texture, free liquids, and buried material. Decontamination of the backhoe was performed between each excavation using a biodegradable detergent/pressure wash and a clean water rinse. Hand held sampling equipment (i.e. spoons, pans, dipper, etc.) were also decontaminated using a biodegradable soap and distilled water rinse.

Test methods and standards for the analytes are listed in table 2.

Table 2

Analyte	Method	MTCA Soil Standard*	MTCA Groundwater/Drinking Water MCL
Arsenic	6020	20 ppm	5 ppb/50 ppb
Barium	6010B	5600 ppm	560 ppb/2000 ppb
Cadmium	6020	2 ppm	5 ppb/5 ppb
Chromium	6010B	2000 ppm	50 ppb/100 ppb
Lead	6020	250 ppm	15 ppb/NA
Mercury	7470/7471	2 ppm	2 ppb/2 ppb
Selenium	7740	400 ppm	50 ppb/50 ppb
Silver	6010B	400 ppm	100 ppb/100 ppb
VOC's	8260B	various	various
Chlorinated Pesticides/PCB's	8081A/8082	various	various
Organophosphate	8141	various	various

*unrestricted land use soil cleanup standard

Table 3 summarizes the sample matrices and test parameters from each of the actual sample locations.

Table 3

SAMPLE LOCATION	SAMPLE ID	MATRIX	REQUESTED TEST	Depth of Soil Sample	Depth to Groundwater
3	HRDWPES3	Water	Pesticide/PCB Scan	N/A	7'8''
3	HRDW3	Water	RCRA Metals	N/A	7'8''
5	HRDS5	Soil	RCRA Metals	5'-7'	7'8''
5	HRDPES5	Soil	Pesticide/PCB Scan	5'-7'	7'8''
5	HRDVOC5	Soil	VOC's	5'-7'	7'8''
5	HRDWPES5	Water	Pesticide/PCB Scan	N/A	7'8''
5	HRDWVOC5	Water	VOC's	N/A	7'8''
5	HRDVOC5D	Water	VOC's (duplicate)	N/A	7'8''
5	HRDW5	Water	RCRA Metals	N/A	7'8''
6	HRDS6	Soil	RCRA Metals	5'-7'	7'3''
6	HRDPES6	Soil	Pesticide/PCB Scan	5'-7'	7'3''
6	HRDVOC6	Soil	VOC's	5'-7'	7'3''
6	HRDWPES6	Water	Pesticide/PCB Scan	N/A	7'3''
6	HRDWVOC6	Water	VOC's	N/A	7'3''
6	HRDS6	Soil	RCRA Metals	5'-7'	7'3''
6	HRDPES6	Soil	Pesticide/PCB Scan	5'-7'	7'3''
6	HRDWVOC6D	Water	VOC's (duplicate)	N/A	7'3''
7	HRDS7	Soil	RCRA Metals	3.5'-5.5'	6'
7	HRDPES7	Soil	Pesticide/PCB Scan	3.5'-5.5'	6'
7	HRDVOC7	Soil	VOC's	3.5'-5.5'	6'
7	HRDW7	Water	RCRA Metals	N/A	6'
7	HRDWPES7	Water	Pesticide/PCB Scan	N/A	6'
7	HRDWVOC7	Water	VOC's	N/A	6'
7	HRDWVOC7D	Water	VOC's (duplicate)	N/A	6'
8	HRDS8	Soil	RCRA Metals	3.5'-5.5'	6'
8	HRDPES8	Soil	Pesticide/PCB Scan	3.5'-5.5'	6'
8	HRDVOC8	Soil	VOC's	3.5'-5.5'	6'
8	HRDW8	Water	RCRA Metals	N/A	6'
8	HRDWPES8	Water	Pesticide/PCB Scan	N/A	6'

Results and Discussion:

Neither PCB's nor VOC's were detected in any of the samples. Soil sample results from sites 7 and 8 detected minute levels (below MTCA cleanup levels) of 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, and Dieldrin, but were not detected in the groundwater at these sites. Dieldrin, however, was detected in groundwater at site 3 above MTCA Method B Cleanup Levels.

RCRA metals were not detected above cleanup levels in any of the soil samples; however, several sites had water samples with RCRA metals greater than MTCA Cleanup levels (Table 4).

Table 4. Sample results above MTCA Cleanup Levels.

Sample Site	Analyte	Matrix	MTCA Cleanup Level	MTCA Method	Sample Results
3	Arsenic	Groundwater	5 ppb	A	17 ppb
3	Barium	Groundwater	560 ppb	B	1000 ppb
3	Lead	Groundwater	15 ppb	A	26 ppb
3	Dieldrin	Groundwater	.00547 ppb	B	.02 ppb
5	Arsenic	Groundwater	5 ppb	A	7 ppb
7	Arsenic	Groundwater	5 ppb	A	12 ppb
7	Lead	Groundwater	15 ppb	A	50 ppb
8	Arsenic	Groundwater	5 ppb	A	8.2 ppb

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):

Due to the significant contamination documented on-site being primarily subsurface, the surface water and air routes are not applicable for WARM scoring for this site, thus only the ground water route will be scored. DDT and its daughter products will not be scored, as sample results did not reveal levels above MTCA Cleanup levels. Barium will not be scored as there is no toxicity data listed in the Toxicology Database for Use in Washington Ranking Method Scoring. The omission of DDT and Barium from the scoring process does not affect the final score as the remaining contaminants produce the maximum toxicity value and mobility factor used within the model.

ROUTE SCORES:

Surface Water/Human Health: NS* Surface Water/Environ.: NS

Air/Human Health: NS Air/Environmental: NS

Ground Water/Human Health: 58.8

OVERALL RANK: 2

*Not scored

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE - Not Applicable/Not Scored.

2. AIR ROUTE - Not Applicable/Not Scored.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 1-3,13,14

Arsenic, Lead, and Dieldrin.

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

All of these have been documented to occur in significant concentrations in the groundwater samples and are attributable to the site.

List those management units to be considered for scoring: Source: 2,3

Contaminated groundwater.

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

Landfill caused contaminated groundwater.

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 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. Arsenic	50	6	763	5	.001	5	A	1.75	7
2. Lead	2000	8	-	ND	-	ND	B2	ND	ND
3. Dieldrin	-	ND	38.3	10	$5X10^{-5}$	8	B2	16	7

Source: 1-3

*Potency Factor

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) Lead = 2 2) Arsenic = 3 Source: 2,3 **Value: 3** (Max.=3)

Or

Solubility(mg/l): 3) 2E-01 = 0;

1.3 Substance Quantity: 3.4 - 16.7 cu.yds. Source: 2,3,9 **Value: 4** (Max.=10)
Explain basis: Historical information indicates that a ''truck load of lead arsenate'' was dumped at the site. Said dumping may actually have been placed in the water that was exposed at that time of dumping. Using a value of 4 is consistent with estimating the quantity by the area extent described in the WARM manual.

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 2,3 **Value: 7** (Max.=10)
Explain basis: Landfill- No Liner (3), Compacted Cover Soil (1), No Leachate Collection System (2), and Possible Free Liquids were disposed (1).

2.2 Net Precipitation: Nov - April = 4.7 inches -3.2 inches = 1.5 inches
Source: 11 **Value: 1** (Max.=5)

2.3 Subsurface Hydraulic Conductivity: Sand and Gravel Source: 2,3,10 **Value: 4** (Max.=4)

2.4 Vertical Depth to Ground Water: Confirmed Release = 0 feet
Source: 2,3 **Value: 8** (Max.=8)

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

3.1 Ground Water Usage: Public supply no alternate un-threatened sources available with minimal hookups. Source: 3,5,15 **Value: 9** (Max.=10)

3.2 Dist. to Nearest Drinking Water Well: ≤600' Source: 3,5 **Value: 5** (Max.=5)

3.3 Population Served within 2 Miles: √pop.=√8961= Source: 3,15 **Value: 95** (Max.=100)

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 0.75√no.acres= Source: 3,4 **Value: 31** (Max.=50)

0.75√1713 = 31

4.0 RELEASE

Explain basis for scoring a release to ground water: Documented by analytical data of synthetic organic compound. Source: 2,3 **Value: 5** (Max.=5)

SOURCES USED IN SCORING

1. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
2. Analytical Test Results, Energy Northwest Environmental Services, Samples taken by Clifford Bates and Kay Rottell, April 27, 2004.
3. Washington Department of Ecology, WARM Scoring Manual, April 1992.
4. Ecology Water Rights Information System (WRIS).
5. Site Hazard Assessment Site Visit by Michael Spencer and Clifford Bates, December 4, 2003.
6. Hicks Road Dump Sampling Analysis Plan, Benton-Franklin Health District, Clifford Bates, April 7, 2004.
7. U.S. EPA SITEINFO GIS Query for lat./long. of site.
8. Interview with Henry Brown, Hicks Road Dump Neighbor, January 28, 2004.
9. ''Dumping Leaves Lingering Legacy,'' Yakima Herald Republic, April 25, 1988.
10. Preliminary Assessment Report - Benton County Abandoned Landfill, Science Applications International Corporation, September 1988.
11. Washington Climate for Benton, Franklin Counties, Cooperative Extension Service, College of Agriculture, Washington State University.
12. Washington State Department of Ecology Well Logs, http://apps.ecy.wa.gov/welllog/MapSearch/viewer.htm
13. Model Toxics Control Act Cleanup Regulations, Chapter 173-340, Amended February 12, 2001.
14. Cleanup Levels and Risk Calculations under the Model Toxics Control Act, Version 3.1.
15. Washington State Department of Ecology Facility/Site Atlas, http://apps.ecy.wa.gov/websie/facsite/viewer.htm.