

CSID 3831

WFA

WORKSHEET 1 SUMMARY SCORE SHEET

Note: This document currently has no provision for sediment route scoring.

Site Name/Location (City, County, Section/Township/Range):

Alseth Auto Parts, 618 105th St. S.W., Everett, Snohomish County,
24/28N/04E

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

House was built on the property in 1930. An auto repair business has operated on the property since around 1950. An initial investigation was conducted by the Department of Ecology on October 6, 1992. Heavy petroleum contamination was observed around the gate area, auto parts storage areas, and near the office area. Site was listed as confirmed soil and surface water contamination for petroleum products and suspected for surface water, soil, groundwater, and sediment contamination for metals, petroleum products, and non-halogenated solvents. The business is located in a residential area. A Site Hazard Assessment was conducted by the Snohomish Health District on March 21, 1996. Soil samples were collected from 5 different locations. Lead, cadmium, polychlorinated biphenols, and total petroleum hydrocarbons were found in levels that exceeded Model Toxics Control Act cleanup standards. Surrounding residences are served by public water (City of Everett) not supplied by the underlying aquifer. Drainage ditch eventually empties to North Creek.

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):

ROUTE SCORES:

Surface Water/Human Health:	<u>13.2</u>	Surface Water/Environ.:	<u>28.5</u>
Air/Human Health:	<u>21</u>	Air/Environmental:	<u>4.2</u>
Ground Water/Human Health:	<u>16.7</u>		

OVERALL RANK: 4

Rev. 4/3/92

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

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

Cadmium, Lead, and Polychlorinated Biphenols

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

Cadmium, lead, and polychlorinated biphenols will be used in scoring the surface water route, as their measured concentrations exceed MTCA cleanup levels and are available due to less than perfect containment.

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

Contaminated surface soils

Explain basis for choice of unit to be used in scoring. Source: 2,3

Contaminated surface soil will be used in scoring as the measured concentrations of cadmium, lead, and polychlorinated biphenols were from this management unit. No containment was observed of this unit allowing contaminants to be available to the surface water pathway.

2. AIR ROUTE

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

Cadmium, Lead, and Polychlorinated Biphenols

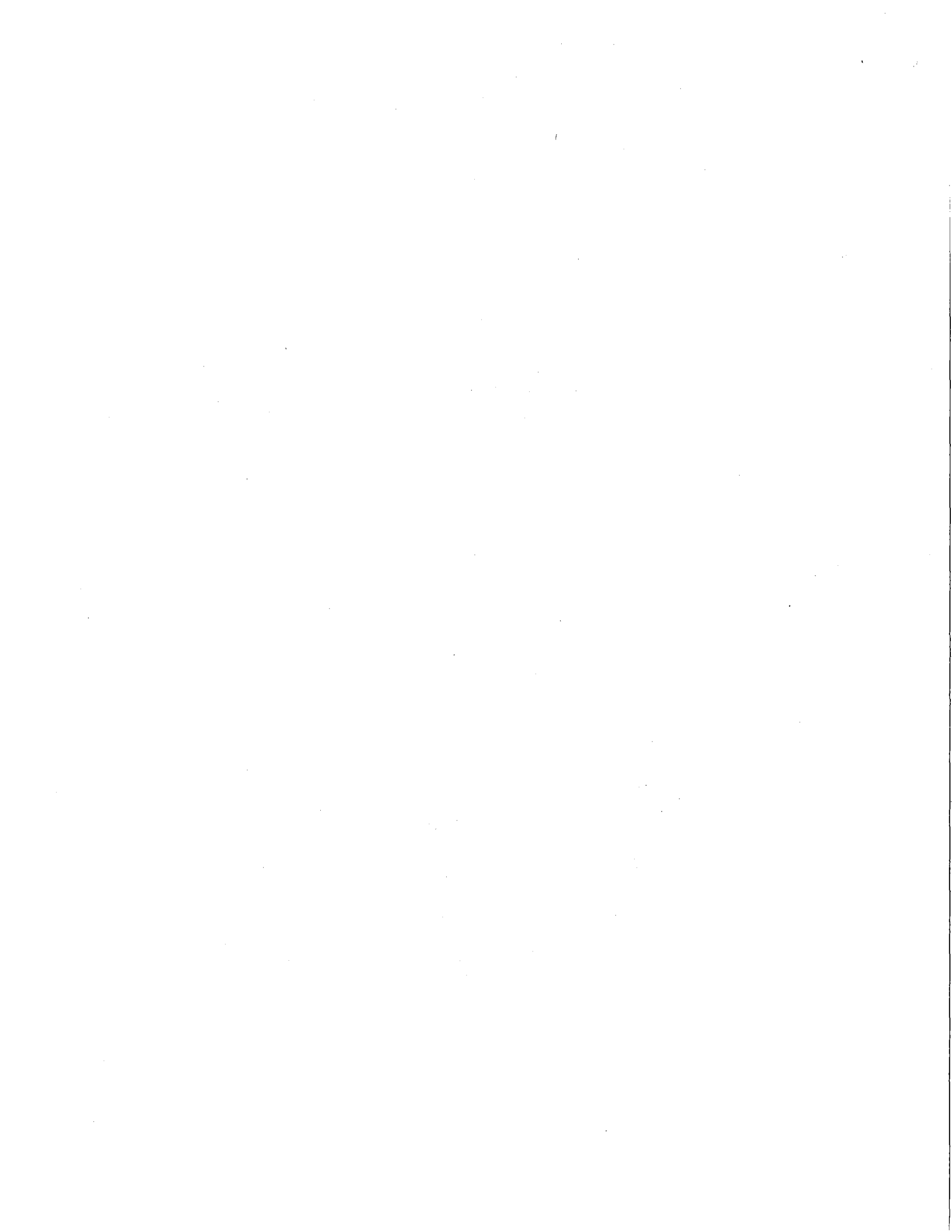
Explain basis for choice of substance(s) to be used in scoring.

Cadmium, lead, and polychlorinated biphenols will be used in scoring the air route, as their measured concentrations exceed MTCA cleanup levels and are available due to less than perfect containment.

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

Contaminated surface soils

Explain basis for choice of unit to be used in scoring. Source: 2,3



Contaminated surface soil will be used in scoring as the measured concentrations of cadmium, lead, and polychlorinated biphenols were from this management unit. No containment was observed of this unit allowing contaminants to be available to the air pathway.

3. GROUND WATER ROUTE

List substances to be considered for scoring: Source: 2,3

Cadmium, Lead, and Polychlorinated Biphenols

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

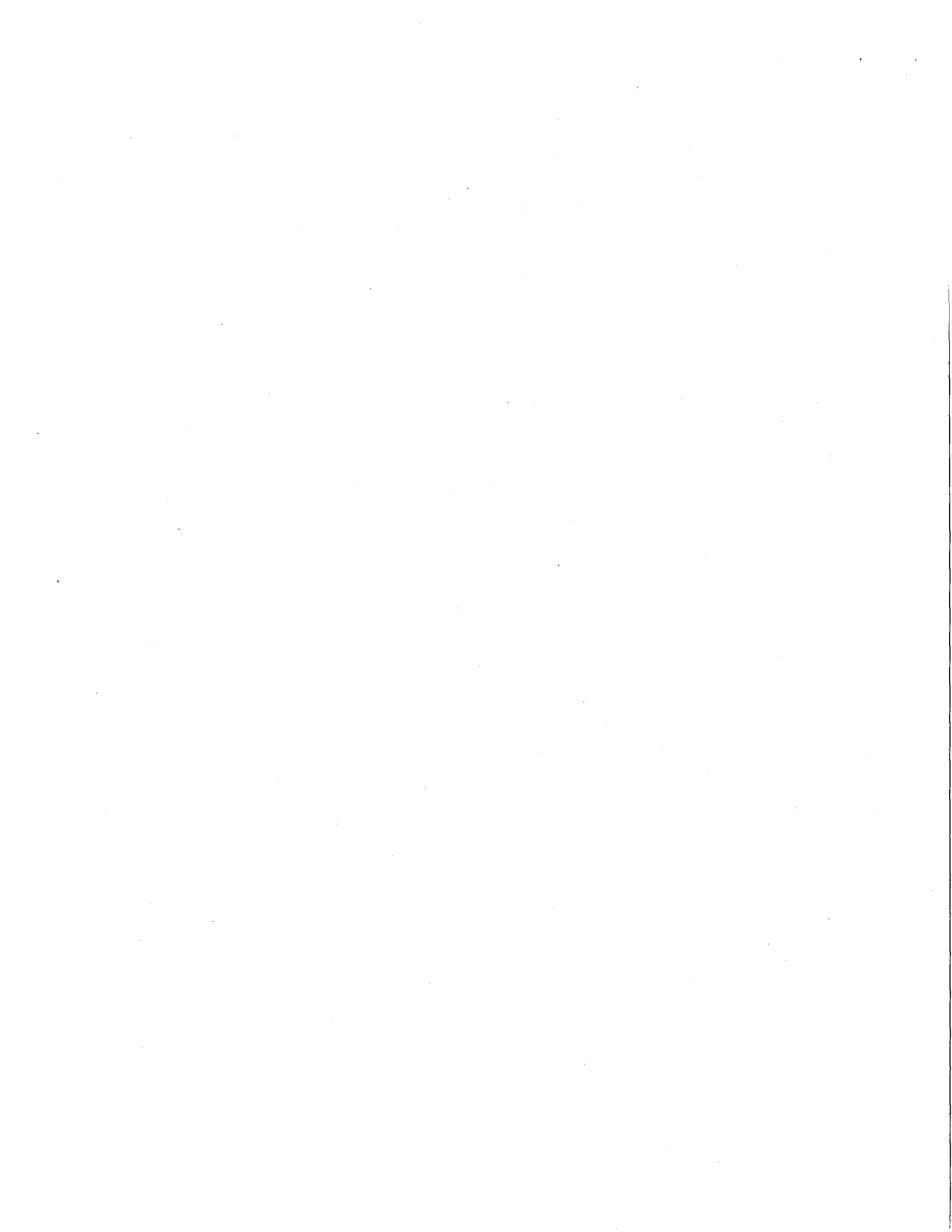
Cadmium, lead, and polychlorinated biphenols will be used in scoring the ground water route, as their measured concentrations exceed MTCA cleanup levels and are available due to less than perfect containment.

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

Contaminated surface soil

Explain basis for choice of unit used in scoring. Source: 2,3

Contaminated surface soil will be used in scoring as the measured concentrations of cadmium, lead, and polychlorinated biphenols were from this management unit. No containment was observed of this unit allowing contaminants to be available to the ground water pathway.



**WORKSHEET 4
SURFACE WATER ROUTE**

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard	Val.	Acute Toxicity	Val.	Chronic Toxicity	Val.	Carcinogenicity		
	(ug/l)		(mg/kg-bw)		(mg/kg/day)		WOE	PF	Val.
Lead	5	8	X	X	X	X	X	X	X
Cadmium	5	8	225	5	0.0005	5	B1	X	X
Polychlorinated Biphenols	0.5	10	1315	3	X	X	B2	7.7	6

Source: 2,4
 Highest Value: 10
 2 Bonus Points? 2
 Final Toxicity Value 12

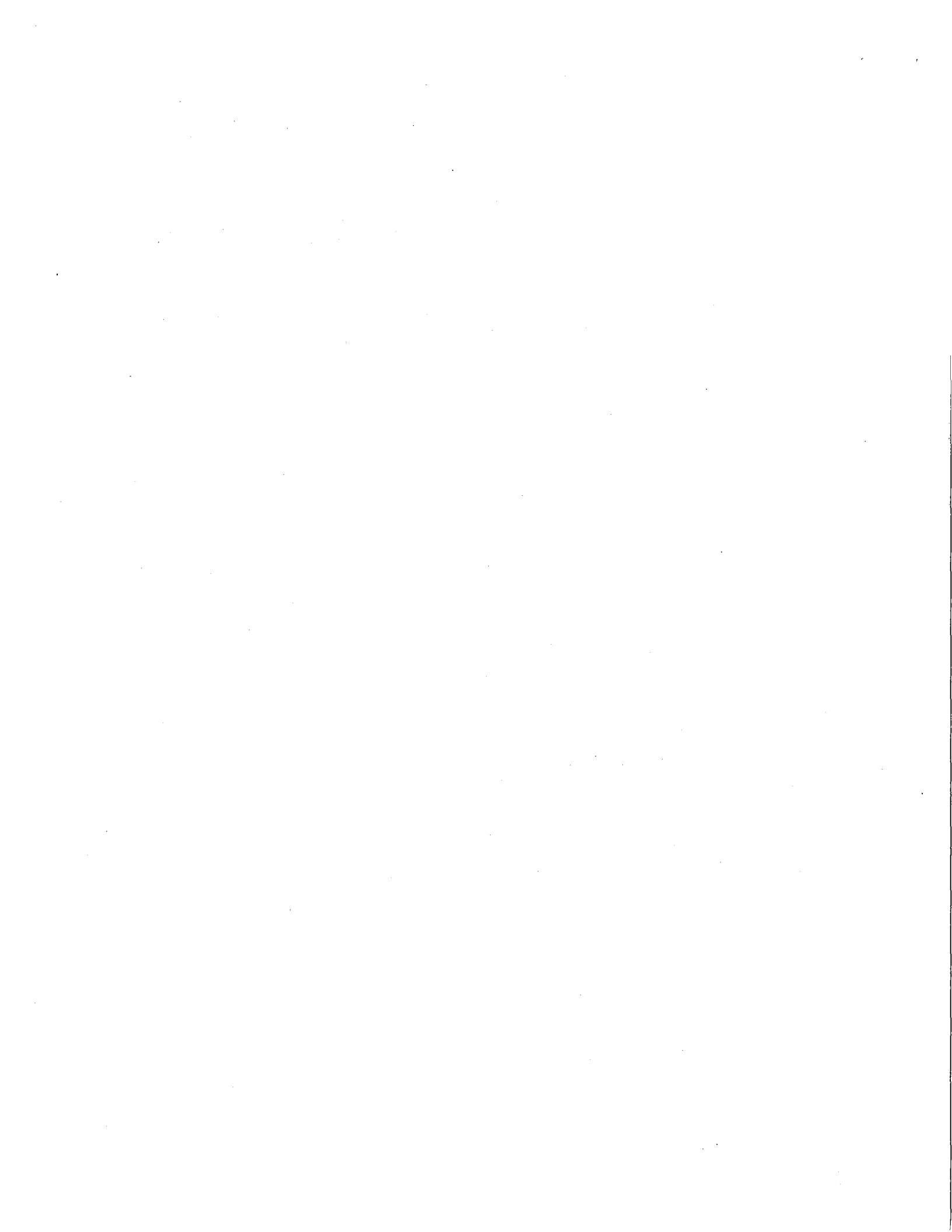
1.2 Environmental Toxicity

Substance	(X) Freshwater () Marine		Non-human Mammalian		Source: <u>2,4</u>	Value: <u>8</u>
	Acute Criteria	Val.	Acute Toxicity	Val.		
Cadmium	3.9	8	225	5		
Polychlorinated Biphenols	2	8	1315	3		
Lead	82	6				

1.3 Substance quantity

Source: 2,3 Value: 1

Explain basis: Unknown quantity



**WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE**

2.0 MIGRATION POTENTIAL

2.1	Containment		Source: <u> 2,3 </u> Value: <u> 10 </u>
	Explain basis:	Spill with run-on control, no run-off controls	
2.2	Surface Soil Permeability:	Gravelly sand loam	Source: <u> 2,3,10 </u> Value: <u> 1 </u>
2.3	Total Annual Precipitation	34.7 inches	Source: <u> 3,5 </u> Value: <u> 3 </u>
2.4	Max. 2-Yr/24-hour Precipitation	1.5 inches	Source: <u> 3,6 </u> Value: <u> 2 </u>
2.5	Flood Plain:	Not in floodplain	Source: <u> 2,3 </u> Value: <u> 0 </u>
2.6	Terrain Slope:	1.90%	Source: <u> 2,3,7 </u> Value: <u> 1 </u>

3.0 TARGETS

3.1	Distance to Surface Water:	about 4300 feet to North Creek	Source: <u> 2,3,7 </u> Value: <u> 4 </u>
3.2	Population Served within 2 miles:	None	Source: <u> 3,8 </u> Value: <u> 0 </u>
3.3	Area Irrigated within 2 miles:	None	Source: <u> 3,8 </u> Value: <u> 0 </u>
3.4	Distance to Nearest Fishery Resource:	4300 feet	Source: <u> 2,3,7,13 </u> Value: <u> 6 </u>
3.5	Distance to, and Name (s) of, nearest Sensitive Environment (s)	4300 feet	Source: <u> 3,7,13 </u> Value: <u> 6 </u>
		North Creek	

4.0 RELEASE

Explain basis for scoring a release to surface water:	Source: <u> 2,3 </u> Value: <u> 0 </u>
No release of any hazardous substance was documented.	



**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/m3)	Val.	(mg/kg)	Val.	(mg/kg/day)	Val.	WOE	PF	Val.
Lead	0.5	10	X	X	X	X	X	X	X
Cadmium	25	10	0.00056	10	X	X	X	X	X
Polychlorinated biphenols	X	X	X	X	X	X	X	X	X

Source: 2,3,4
 Highest Value: 10
 2 Bonus Points? 2
Final Toxicity Value 12

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

1.3.1 Gaseous Mobility

Vapor Pressure (s):

Source: _____ Value: _____

1.3.2 Particulate Mobility

Soil type: Sandy loam

Erodibility: 86 tons/acre/yr

Climactic Factor: 1 to 10

Source: 2,3,4 Value: 1

1.4 Highest Human Health Toxicity/Mobility Matrix Value (from Table A-7)

equals **Final Matrix Value:** 6

1.5 Environmental Toxicity/Mobility

Source: 2,3,4

Non-human Mammalian

Substance	Inhal. Toxicity (ug/m3)	Value	Mobility	Value	Matrix Value
Lead	X	X			
Cadmium	0.00056	10	1	1	5
Polychlorinated biphenols	X	X			

1.4 Highest Environmental Toxicity/Mobility Matrix Value (from Table A-7) equals **Final Matrix Value** 5



WORKSHEET 5 (CONTINUED)
AIR ROUTE

1.6 Substance Quantity: . Source: 2,3 Value: 1
Explain basis Unknown

2.0 MIGRATION POTENTIAL

2.1 Containment: Particulates no cover Source: 2,3 Value: 10

3.0 TARGETS

3.1 Nearest Population: 500 feet Source: 3,14 Value: 10

3.2 Distance to, and Name (s) of, Nearest Sensitive Environment (s) Source: 2,3,7, Value: 1
4300 feet to North Creek

3.3 Population within 0.5 miles: Source: 3,14 Value: 45
Sq. root of 2028 = 45

4.0 RELEASE

Explain basis for scoring a release to air: Source: 2,3 Value: 0
No confirmed release was documented





**WORKSHEET 6
GROUND WATER ROUTE**

3.0 TARGETS

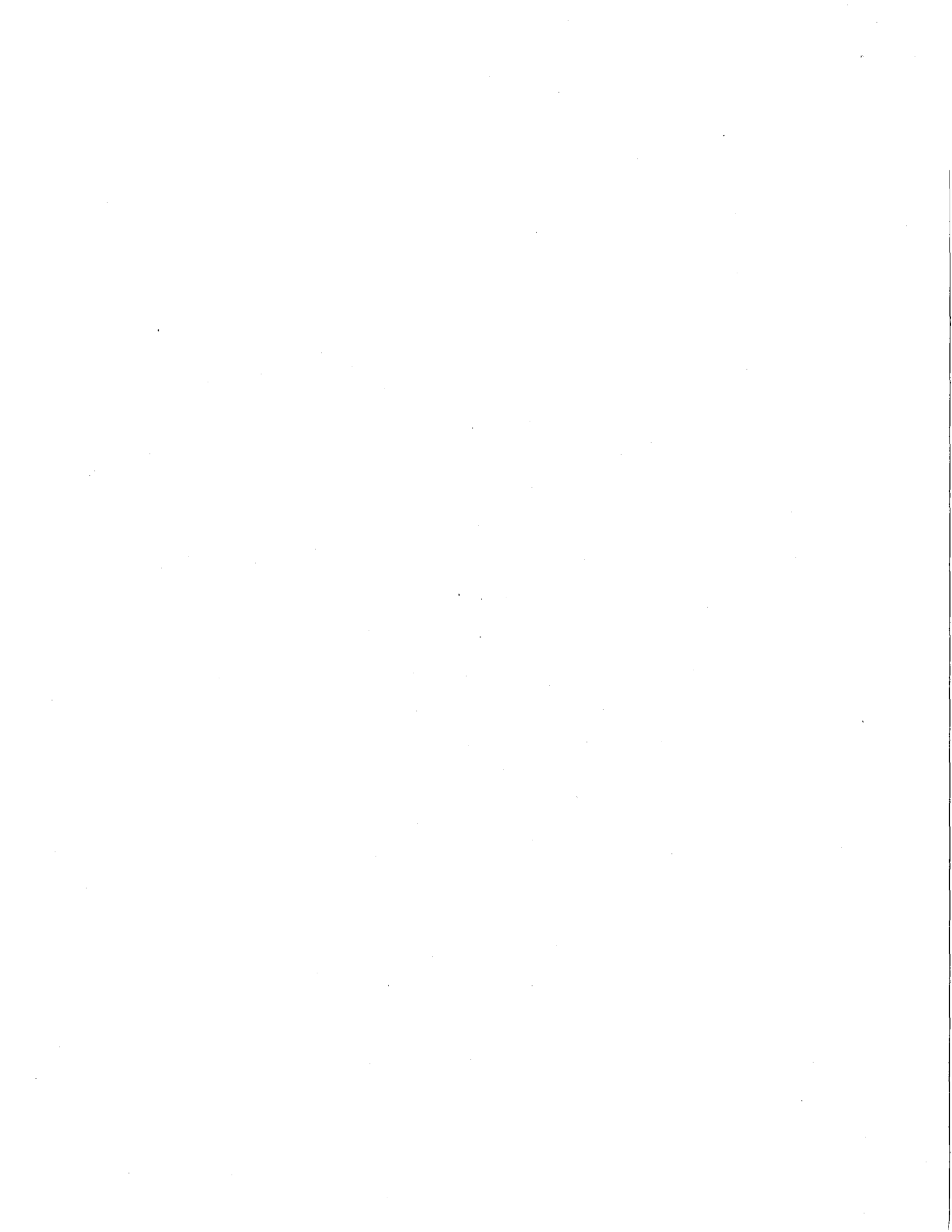
- 3.1 Ground Water Usage: Private supply, alternative supply available Source: 3,8 Value: 4
- 3.2 Distance to Nearest Drinking Water Well: 10000 feet Source: 3,14 Value: 2
- 3.3 Population Served within 2 Miles: $\text{pop.} = \text{sq. root of } 3 \text{ (pop. served)} = 2$ Source: 3,8,9 Value: 2
- 3.4 Area Irrigated by (Groundwater) Wells Source: 3,8 Value: 1
within 2 miles: $.75 \times \text{Sq. root of acreage} = 1$

4.0 RELEASE

- Explain basis for scoring a release to ground water: Source: 2,3 Value: 0
No release of any hazardous substance was documented

Sources Used in Scoring

1. Washington Department of Ecology, Initial Investigation Alseth Auto Parts, #N8869, Everett, WA, March, 1996.
2. Snohomish Health District, Site Hazard Assessment, Alseth Auto Parts, Everett, WA, March 21, 1996.
3. Washington Department of Ecology, WARM Scoring Manual, April, 1992.
4. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
5. National Weather Service, Washington Climate Data, Snohomish County
6. NOAA Atlas 2, Volume IX - Washington Precipitation Frequency Atlas of the Western United States, 1973
7. U.S.G.S. Topo. Map, Everett Quad., 7.5 Min. Series, Photorev. 1973.
8. Washington Department of Ecology, Water Rights Information System (WRIS), November 4, 1992.
9. Washington Department of Health, Public Water System List, April 26, 1993.
10. Soil Conservation Service, Soil Survey of Snohomish County Area, July 1983.
11. Washington Department of Ecology, Well Logs
12. U.S. Dept. of Interior, Groundwater Resources of Snohomish County, 1952.
13. U.S.E.P.A., Site Information Query System, March, 1996.
14. Metroscan, Transatlantic Company, 1996



**PATHWAY SCORING FORMULAE WITH WEIGHTING AND
NORMALIZATION FACTORS**

Air Route - Human Health Pathway

$$\text{AIR} = (\text{SUB} \times 60/329) \times \{ \text{REL} + (\text{TAR} \times 35/85) \} / 24 = \quad \underline{\mathbf{20.99}}$$

where

AIR =	Pathway score for Air-Human Health =	
SUB =	(Human Toxicity Value + 5) X (Containment +1) + Substance Quantity =	
	<u>122</u>	
REL =	Release to Air =	<u>0</u>
TAR =	Nearest population + Population within 1/2 mile =	<u>55</u>

Air Route - Environmental Pathway

$$\text{AIR} = (\text{SUB} \times 60/329) \times \{ \text{REL} + (\text{TAR} \times 35/85) \} / 24 = \quad \underline{\mathbf{4.22}}$$

where

AIR =	Pathway score for Air-Environmental =	
SUB =	(Env. Toxicity Value + 5) X (Containment +1) + Substance Quantity =	
	<u>111</u>	
REL =	Release to Air =	<u>0</u>
TAR =	Nearest Sensitive Environment =	<u>1</u>

Surface Water Route - Human Health Pathway

$$\text{SW} = (\text{SUB} \times 40/175) \times \{ (\text{MIG} \times 25/24) + \text{REL} + (\text{TAR} \times 30/115) \} / 24 = \quad \underline{\mathbf{13.18}}$$

where

SW =	Pathway Score for Surface Water-Human Health =	
SUB =	(Human Toxicity + 3) X (Containment + 1) + Substance Quantity =	
	<u>166</u>	
MIG =	Soil Permability + Annual Precip. + Rainfall Frequency + Floodplain + Slope =	<u>7</u>
REL =	Release to the Surface Water =	<u>0</u>
TAR =	Distance to Surface Water + Population Served by Surface Water + Area Irrigated =	<u>4</u>



Table 2 (Continued)

Surface Water Route - Environmental Pathway

$$SW = (SUB \times 40/175) \times \{(MIG \times 25/24) + REL + (TAR \times 30/115)\} / 24 = \underline{28.45}$$

where

SW =	Pathway Score for Surface Water-Environmental =	
SUB =	(Env. Toxicity + 3) X (Containment + 1) + Substance Quantity =	
	<u>122</u>	
MIG =	Soil Permeability + Annual Precip. + Rainfall Frequency +	
	Floodplain + Slope =	<u>7</u>
REL =	Release to the Surface Water =	<u>0</u>
TAR =	Distance to Nearest Surface Water + Distance to Fisheries	
	Resource + Distance to Sensitive Environment =	<u>16</u>

Ground Water Route - Human Health Pathway

$$GW = (SUB \times 40/208) \times \{(MIG \times 25/17) + REL + (TAR \times 30/165)\} / 24 = \underline{16.68}$$

GW =	Pathway Score For Ground Water-Human Health =	
SUB =	(Human Toxicity + Mobility + 3) X (Containment + 1) +	
	Substance Quantity =	<u>199</u>
MIG =	Depth to Aquifer + Net Precipitation + Hydraulic Conductivity =	
	<u>6</u>	
REL =	Release to the Ground Water =	<u>0</u>
TAR =	Aquifer Use + Well Distance + Population Served +	
	Area Irrigated =	<u>9</u>

