WASHINGTON RANKING METHOD

ROUTE SCORES SUMMARY AND RANKING CALCULATION SHEET

Site name: CMX Corporation Region: CRO

City, county: Yakima, Yakima

This site was ranked on August 12, 1991, based on quintile values from 259 assessed/scored sites.

Pathway	Route Score(s)	Quintile Group number(s)
SW-HH	0.9	1
Air-HH	17.8	3
GW-HH	64.4	5
Sed-HH	–	
SW-En	2.2	1
Air-En	0	1
Sed-En		

Priority scores:

$\frac{H^2 + 2M + L}{8}$ = $\frac{25 + 6 + 1}{8} = 3\frac{4}{8} = 4$

$\frac{H^2 + 2L}{7}$ = $\frac{1 + 2}{7} = \frac{3}{7} \geq 1$

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	5	4	3	2	1	N/A
5	1	1	1	1	1	1
4	1	2	2	2	(3)	4
3	1	2	3	4	4	5
2	2	3	4	4	5	5
1	2	3	4	5	5	5
N/A	3	4	5	5	5	5

DRAFT / (FINAL)

Matrix ("bin") Ranking: 3, or _____ No Further Action

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

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

rev. 8/91

WORKSHEET 1
SUMMARY SCORE SHEET

Site Name: CMX CORPORATION

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

206 West Mead Avenue
Yakima, Washington (Yakima County)

NW¼ NW¼ of Section 31, T. 13 N., R. 19 EWM

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

The site is an active facility that mixes and distributes photographic fixers and developers to hospitals and medical clinics for x-ray units. The facility has been active since 1984. Container rinsates with acetic acid, sulfuric acid and ammonium thiosulfate have been disposed in floor drains that discharge to a drainfield located south of the facility building. Soil contamination has been detected at the facility, but no release to groundwater was detected during a site inspection in June, 1989.

Special Considerations: (Include limitations in site file data, data which cannot be accomodated in the model, but which are important in evaluating the risk associated with the site)

ROUTE SCORES:

Ground Water/Human:	64.4	**Overall Rank:**	
Surface Water/Human:	0.9		
Air/Human:	17.8		
Air/Environmental:	0.0		
Surface Water/Environmental:	2.2		

WORKSHEET 2
ROUTE DOCUMENTATION

SURFACE WATER ROUTE

List substances to be considered for scoring. Source: 1, 2, 6, 7

1. SILVER
2. SULFURIC ACID
3. ACETIC ACID
4. AMMONIUM THIOSULFATE
5. SODIUM SULFITE
6. POTASSIUM SULFITE
7. SODIUM DICHROMATE
8. HYDROQUINONE
9. TETRACHLOROETHENE (PCE)
10. CHROMIUM
11. LEAD
12. COPPER
13. NICKEL
14. CADMIUM
15. ZINC
16. DIELDRIN

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

CHROMIUM, CADMIUM, SILVER, SODIUM DICHROMATE, HYDROQUINONE, AND PCE WERE USED IN SCORING BASED ON ENVIRONMENTAL THREAT POSED AND LIKELIHOOD OF PRESENCE.

List management units to be considered in scoring: Source: 1, 2, 6, 7

1. DRAINFIELD

Explain basis for choice of unit used in scoring.

A SUMP DISCHARGING TO A DRAINFIELD HAS BEEN USED FOR DISPOSAL.

AIR ROUTE

List substances to be considered for scoring. Source: 1, 2, 6, 7

1. SILVER
2. SULFURIC ACID
3. ACETIC ACID
4. AMMONIUM THIOSULFATE
5. SODIUM SULFITE
6. POTASSIUM SULFITE
7. SODIUM DICHROMATE
8. HYDROQUINONE
9. TETRACHLOROETHENE (PCE)
10. CHROMIUM
11. LEAD
12. COPPER
13. NICKEL
14. CADMIUM
15. ZINC
16. DIELDRIN

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

CHROMIUM, CADMIUM, SILVER, SODIUM DICHROMATE, HYDROQUINONE, AND PCE WERE USED IN SCORING BASED ON ENVIRONMENTAL THREAT POSED AND LIKELIHOOD OF PRESENCE.

List management units to be considered in scoring: Source: 1, 2, 6, 7

1. DRAINFIELD

Explain basis for choice of unit used in scoring.

A SUMP DISCHARGING TO A DRAINFIELD HAS BEEN USED FOR DISPOSAL.

GROUND WATER ROUTE

List substances to be considered for scoring. Source: 1, 2, 6, 7

1. SILVER
2. SULFURIC ACID
3. ACETIC ACID
4. AMMONIUM THIOSULFATE
5. SODIUM SULFITE
6. POTASSIUM SULFITE
7. SODIUM DICHROMATE
8. HYDROQUINONE
9. TETRACHLOROETHENE (PCE)
10. CHROMIUM
11. LEAD
12. COPPER
13. NICKEL
14. CADMIUM
15. ZINC
16. DIELDRIN

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

CHROMIUM, CADMIUM, SILVER, SODIUM DICHROMATE, HYDROQUINONE, AND PCE WERE USED IN SCORING BASED ON ENVIRONMENTAL THREAT POSED AND LIKELIHOOD OF PRESENCE.

List management units to be considered in scoring: Source: 1, 2, 6, 7

1. DRAINFIELD

Explain basis for choice of unit used in scoring.

A SUMP DISCHARGING TO A DRAINFIELD HAS BEEN USED FOR DISPOSAL.

WORKSHEET 3
SUBSTANCE CHARACTERISTIC WORKSHEET
FOR MULTIPLE UNIT/SUBSTANCE SITES

	Combination 1	Combination 2	Combination 3
Unit: Substance: <u>AIR ROUTE</u> Human Toxicity/Mobility Value: Environmental Toxicity/ Mobility Value: Containment Value:			
Air Human Subscore: Air Environmental Score:			
<u>SURFACE WATER ROUTE</u> Human Toxicity Value: Environmental Toxicity Value: Containment Value:			
Surface Water Human Subscore: Surface Water Environmental Subscore:			
<u>GROUND WATER ROUTE</u> Human Toxicity/Mobility Value: Containment Value:			
Ground Water Subscore:			

WORKSHEET 4
SURFACE WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Std. (µg/l)	Value	Chronic Toxicity mg/kg/day	Value	Acute Toxicity mg/kg-bw	Value	Carcinogencity Potency WOE	Factor	Value
1. SILVER	1. X	—	1. .003 RfD	3	1. X	—	1. D	—	—
2. CHROMIUM	2. 100 PMCL	6	2. .005 RfD	3	2. X	—	2. A	Inh. only	—
3. CADMIUM	3. 5 PMCL	8	3. .0005 RfD	5	3. 225 LD_{50} ORAL RAT	5	3. B1	Inh. only	—
4. SODIUM DICHROMATE	4. X	—	4. X	—	4. 50 LD_{50} ORAL RAT	10	4. X	—	—
5. HYDROQUINONE	5. X	—	5. .4 RfD	1	5. 320 LD_{50} ORAL RAT	5	5. X	—	—
6. TETRACHLOROETHYLENE (PCE)	6. 5 MCL	8	6. .01 RfD	3	6. 269 LD_{50} ORAL RAT	5	6. B2	.051	4

Source: 8, 9, 10
Highest Value: 10
+2 Bonus Points?: 2
Value: 12

1.2 Environmental Toxicity

Source: 8, 9, 11 Value: 10

Substance	Acute Criteria (µg/L)	Non-human mammalian acute toxicity (mg/kg)	Value
1. SILVER	1. 4.1	1. X	8
2. CHROMIUM	2. 16 (1700) [1]	2. X	6 (2)
3. CADMIUM	3. 3.9	3. 225 LD_{50} ORAL RAT	8
4. SODIUM DICHROMATE	4. X	4. 50 LD_{50} ORAL RAT	10
5. HYDROQUINONE	5. X	5. 320 LD_{50} ORAL RAT	5
6. PCE	6. 5280	6. 269 LD_{50} ORAL RAT	2

[1] HEXAVALENT CHROMIUM = 16, TRIVALENT CHROMIUM = 1700

1.3 Substance Quantity

Source: ___ Value: 5

Explain basis: AREA OF DRAINFIELD ESTIMATE: (70 FEET)(2 FEET) 140 FT2
BEST PROFESSIONAL JUDGEMENT BY SCORER

2.0 MIGRATION POTENTIAL

2.1 Containment

Source: ___ Value: 0

Explain basis: CONTAMINATED SOIL ONLY IN SUBSURFACE (DRAINFIELD)

2.2 Surface Soil Permeability: HIGH, SAND, GRAVEL

PAGE 11 Source: 1 Value: 1

2.3 Total Annual Precipitation: 7.2 INCHES

PAGE 11 Source: 1 Value: 1

2.4 Maximum 2-Year 24-Hr Precipitation: 1.0 INCH

PAGE 11 Source: 1 Value: 1

2.5 Flood Plain: NOT IN FLOOD PLAIN

PAGE 11 Source: 1 Value: 0

2.6 Terrain Slope: LESS THAN 2 %

PAGE 11 Source: 1 Value: 1

WORKSHEET 4 (CONTINUED)
SURFACE WATER ROUTE

3.0 TARGETS

3.1 Distance to Surface Water: 1 MILE, SHANO DITCH — Source: 4,5 Value: 2

3.2 Population Served within 2 miles: 0 — Source: 12,13 Value: 0

3.3 Area Irrigated by Sources within 2 miles: 0 — Source: 12 Value: 0

3.4 Distance to Fishery Resource: 1.5 MILES, WIDE HOLLOW CREEK PAGE 13 Source: 1 Value: 3

3.5 Distance to Sensitive Environment: 1.5 MILES PAGE 13 Source: 1 Value: 3

List: WIDE HOLLOW CREEK (FISHERY RESOURCE) 1.5 MILE
CAHALAN PARK 1.75 MILE
YAKIMA RIVER 2 MILES

4.0 RELEASE

Explain basis: NONE DOCUMENTED — Source: ___ Value: 0

WORKSHEET 5
AIR ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction - please review before scoring

1.2 Human Toxicity

Substance	Air Std. µg/m³	Value	Chronic Toxicity mg/kg/day	Value	Acute Toxicity mg/kg-bw-m³	Value	Carcinogencity WOE	Potency Factor	Value
1. SILVER	1. .03	10	1. X	—	1. X	—	1. D	—	—
2. CHROMIUM	2. .000083 - 1.7	10	2. .000006	10	2. X	—	2. A	41	9
3. CADMIUM	3. .00056	10	3. ND	—	3. 25 LC_{50} Inh. RAT	10	3. B1	6.1	6
4. SODIUM DICHROMATE	4. X	—	4. X	—	4. X	—	4. X	—	—
5. HYDROQUINONE	5. 6.7	9	5. X	—	5. X	—	5. X	—	—
6. PCE	6. X		6. ND	—	6. 34,200 LC_{50} Inh. RAT	3	6. B2	.0033	2

Source: 8, 14
Highest Value: 10
+2 Bonus Points?: 2
Toxicity Value: 12

1.3 Mobility

1.3.1 Gaseous Mobility
Vapor Pressure: PCE 19 mm Hg — Source: 8
Value: 4

1.3.2 Particulate Mobility
Soil Type: NACHES LOAM — Source: 15
Erodibility: 56 TONS/ACRE / YEAR
Climatic Factor: 10-30
Particulate Mobility Potential Value: 1

1.4 Final Human Health Toxicity/Mobility Matrix: MOBILITY — 1, TOXICITY — 12 — Value: 6

1.5 Environmental Toxicity/Mobility

Substance	Non-human mammalian Acute Toxicity	Value	Mobility	Value
1. SILVER	X			
2. CHROMIUM	X			
3. CADMIUM	25 LC_{50} Inh. RAT	10	1	5
4. SODIUM DICHROMATE	X			
5. HYDROQUINONE	X			
6. PCE	34,200 LC_{50} Inh. RAT	3	4	6

Environmental Toxicity Mobility Matrix: Source: 8 Value: 6

1.6 Substance Quantity: AREA OF DRAINFIELD ESTIMATE: (70 FEET)(2 FEET) = 140 FT²
BEST PROFESSIONAL JUDGEMENT BY SCORER — Source: — Value: 2

WORKSHEET 5 (CONTINUED)
AIR ROUTE

2.0 MIGRATION POTENTIAL

2.1 Containment: E. VAPORS, SPILL IN SUBSURFACE ONLY WITH NO VAPOR RECOVERY SYSTEM. Source: 6 Value: 6

3.0 TARGETS

3.1 Nearest Population: ESTIMATE! LESS THAN 1000 FEET RESIDENCE "IMMEDIATELY SOUTH OF SITE." PAGE 8 Source: 6 Value: 10

3.2 Nearest Sensitive Environment: 1.5 MILES. 7920 FEET PAGE 13 Source: 1 Value: 0

List: WIDE HOLLOW CREEK (FISHERY RESOURCE) 1.5 MILES
CAHALAN PARK 1.75 MILES
YAKIMA RIVER 2 MILES

3.3 Population within 1/2 mile: 3,870 PAGE 13 Source: 1 Value: 62

4.0 RELEASE: NONE DOCUMENTED Source: ___ Value: 0

WORKSHEET 6
GROUND WATER ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Std. (µg/l)	Value	Chronic Toxicity mg/kg/day	Value	Acute Toxicity mg/kg-bw	Value	Carcinogenicity WOE	Potency Factor	Value
1. SILVER	1. X	—	1. .003 RfD	3	1. X	—	1. D	—	—
2. CHROMIUM	2. 100 PMCL	6	2. .005 RfD	3	2. X	—	2. A	Inh. ONLY	—
3. CADMIUM	3. 5 PMCL	8	3. .0005 RfD	5	3. 225 LD_{50} ORAL RAT	5	3. B1	Inh. ONLY	—
4. SODIUM DICHROMATE	4. X	—	4. X	—	4. 50 LD_{50} ORAL RAT	10	4. X	—	—
5. HYDROQUINONE	5. X	—	5. .4 RfD	1	5. 320 LD_{50} ORAL RAT	5	5. X	—	—
6. TETRACHLOROETHYLENE (PCE)	6. 5 MCL	8	6. .01 RfD	3	6. 269 LD_{50} ORAL RAT	5	6. B2	.051	4

Source: 8, 9, 10
Highest Value: 10
+2 Bonus Points?: 2
Value: 12

1.2 Mobility

SOLUBILITY mg/L
Substance: 1, 2, 3. INSOLUBLE 4. NF 5.7% 6. 150
VALUE: 1-3.0 4 – 5.3 6. 2

Source: 8, 16 Value: 3

1.3 Substance Quantity

Source: ___ Value: 2

Explain basis: BEST PROFESSIONAL JUDGEMENT BY SCORER

$$(70 \text{ FEET})(2 \text{ FEET})(3 \text{ FEET})\left(\frac{1 \text{ YD}^3}{27 \text{ FT}^3}\right) = 15.6 \text{ YD}^3$$

(ASSUMED DEPTH)

2.0 MIGRATION POTENTIAL

2.1 Containment

Source: ___ Value: 10

Explain basis: DRAINFIELD = 10 CONTAINMENT VALUE

2.2 Net Precipitation: 1.7 INCHES

Source: 3 Value: 1

2.3 Subsurface Hydraulic Conductivity: GREATER THAN 10^{-3} CM/SEC

PAGE 11 Source: 1 Value: 4

2.4 Vertical Depth to Ground Water: 10 TO 20 FEET

PAGE 11 Source: 1 Value: 8

3.0 TARGETS

3.1 Ground Water Usage: PUBLIC, NO ALTERNATE

Source: 13 Value: 9

3.2 Distance to Nearest Drinking Water Well: LESS THAN 600 FEET

RESIDENCE "IMMEDIATELY SOUTH" OF SITE
PAGE 8 Source: 6 Value: 5

3.3 Population Served with 2 miles: 4,471 PUBLIC + 18 DOMESTIC

Source: 12, 13 Value: 67

3.4 Area Irrigated by Wells within 2 miles: 2167 ACRES .75 $\sqrt{2167}$

Source: 12 Value: 35

4.0 RELEASE

Explain basis: NOT DOCUMENTED, ALTHOUGH LIKELY.

Source: ___ Value: 0

WORKSHEET 7
SOURCES USED IN SCORING

1. SITE HAZARD ASSESSMENT DATA COLLECTION SUMMARY SHEETS, SAIC, FERUARY, 1991
2. DATA GAP IDENTIFICATION REPORT, SAIC, FEBRUARY, 1991.
3. WASHINGTON CLIMATE, COOPERATIVE EXTENSION SERVICE, WASHINGTON STATE UNIVERSITY.
4. YAKIMA EAST QUADRANGLE MAP, USGS 7.5 MINUTE TOPOGRAPHIC SERIES
5. YAKIMA WEST QUADRANGLE MAP, USGS 7.5 MINUTE TOPOGRAPHIC SERIES
6. SCREENING SITE INSPECTION, ECOLOGY AND ENVIRONMENT, 3/15/90.
7. PRELIMINARY ASSESSMENT, ECOLOGY AND ENVIRONMENT, 8/15/88
8. PHYSICAL, CHEMICAL, TOXICOLOGICAL AND REGULATORY VALUES FOR PRIORITY POLLUTANTS, WASHINGTON DEPARTMENT OF HEALTH, MARCH, 1991.
9. RTECS, NIOSH, APRIL, 1987
10. HEALTH EFFECTS ASSESSMENT SUMMARY TABLES, US EPA, JANUARY/APRIL 1990.
11. QUALITY CRITERIA FOR WATER, 1986, US EPA.
12. RECORDED WATER RIGHTS OF THE DEPARTMENT OF ECOLOGY REGION 4, 6/21/90.
13. STATE OF WASHINGTON PUBLIC WATER SUPPLY SYSTEM LISTING, DEPARTMENT OF HEALTH, 2/16/89.
14. CHAPTER 173-460 WAC, DRAFT, DEPT. OF ECOLOGY, 1990.
15. SOIL SURVEY OF YAKIMA COUNTY AREA, WASHINGTON, USDA SOIL CONSERVATION SERVICE.
16. POCKET GUIDE TO CHEMICAL HAZARDS, NIOSH.