

CSID 4341

**WORKSHEET 1  
SUMMARY SCORE SHEET**

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

Site Name/Location (City, County, Section/Township/Range, Ecology Site No, Lat./Long):

Ed's Transmission, 10226 Smokey Pt. Blvd. Marysville, WA  
Snohomish County, Ecology I.D. No. ~~N-31-5088-000~~ **29985184**  
Latitude 48° 05' 15.5", Longitude 122° 10' 25.6"  
Site scored/ranked: Feb. 29, 2000 update

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

The tax assessor's records indicate that a service garage was built in 1969, torn down and replaced in 1980. The current owner, Ed's Transmission, purchased the property in September of 1979. A complaint was filed on February 7, 1992 with the Department of Ecology (Ecology) concerning improper management of waste oil. It was being dumped on the ground underneath an old abandoned station wagon on the property. An initial investigation conducted by Ecology on April 10, 1992 verified significant oil staining behind the on-site building. An early notice letter from the Department of Ecology (Ecology) was sent to Ed's Transmission on April 6, 1993 indicating the property was being added to Ecology's database of confirmed and suspected contaminated sites. It was listed as confirmed for petroleum products in soil, suspected for halogenated organic compounds, metals, in soil, groundwater, surface water, air, and sediments. Also listed as suspected for petroleum products in all except soil. A Site Hazard Assessment was conducted by the Snohomish Health District on October 26, 1999. Soil samples were collected in three locations on the west side of the building. Petroleum hydrocarbons (heavy oils), lead, cadmium and chromium were found at levels that exceeded Model Toxics Control Act cleanup levels. Lead and heavy oil were found to exceed MTCA in three samples and cadmium and chromium in one sample.

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 air pathway was not believed to be significant and was not scored. The contaminants are metals and petroleum products (heavy oil) not generally

available to the air pathway unless airborne dust is created. The area is not subject to disturbance by equipment or vehicles.

### **PATHWAY SCORES:**

Surface Water/Human Health: 14.3

Surface Water/Environ.: 49.6

Air/Human Health: NS

Air/Environmental: NS

Ground Water/Human Health: 37.2

**OVERALL RANK:** 4

## **WORKSHEET 2 ROUTE DOCUMENTATION**

### **1. SURFACE WATER ROUTE**

List those substances to be considered for scoring:

Source: 2,3

Lead, Cadmium and Chromium

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

Lead, cadmium and chromium will be used in scoring the surface water route, as their measured concentrations exceed MTCA cleanup levels and are available to this pathway 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 lead, cadmium and chromium 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: \_\_\_\_\_

**Not applicable to site/not scored.**

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

List those management units to be considered for scoring: Source: \_\_\_\_\_

Explain basis for choice of unit to be used in scoring. Source: \_\_\_\_\_

### 3. GROUND WATER ROUTE

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

Lead, Cadmium and Chromium

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

Lead, cadmium and chromium will be used in scoring the ground water route, as their measured concentrations exceed MTCA cleanup levels and are available to the pathway due to less than perfect containment.

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

Contaminated subsurface soil

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

Contaminated subsurface soil will be used in scoring as the measured concentrations of lead, cadmium and chromium 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<br>Water<br>Standard | Val. | Acute<br>Toxicity | Val. | Chronic<br>Toxicity | Val. | Carcinogenicity |    |      |
|-----------|-------------------------------|------|-------------------|------|---------------------|------|-----------------|----|------|
|           | (ug/l)                        |      |                   |      |                     |      | WOE             | PF | Val. |
| Lead      | 5                             | 8    | X                 | ND   | X                   | ND   | X               | X  | ND   |
| Cadmium   | 5                             | 8    | 225               | 5    | 0.0005              | 5    | X               | X  | ND   |
| Chromium  | 100                           | 6    | X                 | ND   | 0.005               | 3    | X               | X  | ND   |

Source: 1,2,3,4Highest Value: 82 Bonus Points? 2Final Toxicity Value 10

##### 1.2 Environmental Toxicity

| Substance | (X) Freshwater<br>( ) Marine<br>Acute<br>Criteria | Val. | Non-human Mammalian<br>Acute Toxicity |      | Source: <u>1,2,3,4</u> | Value: <u>8</u> |
|-----------|---------------------------------------------------|------|---------------------------------------|------|------------------------|-----------------|
|           | (ug/l)                                            |      | (mg/kg)                               | Val. |                        |                 |
| Lead      | 82                                                | 6    | X                                     | ND   |                        |                 |
| Cadmium   | 3.9                                               | 8    | 225                                   | 5    |                        |                 |
| Chromium  | 16                                                | 6    | X                                     | ND   |                        |                 |

##### 1.3 Substance quantity

Explain basis: Unknown quantity

Source: 2,3 Value: 1

**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 and contaminated soil |                                       |
| 2.2 | Surface Soil Permeability:      | Silty sandy loam            | Source: <u>2,3,9</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</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:                  | 1.00%                       | Source: <u>2,6,12</u> Value: <u>1</u> |

**3.0 TARGETS**

|     |                                                                 |                                                  |                                      |
|-----|-----------------------------------------------------------------|--------------------------------------------------|--------------------------------------|
| 3.1 | Distance to Surface Water:                                      | 700 feet                                         | Source: <u>3,12</u> Value: <u>10</u> |
| 3.2 | Population Served within 2 miles:                               | 0                                                | Source: <u>7</u> Value: <u>0</u>     |
| 3.3 | Area Irrigated within 2 miles:                                  | 4                                                | Source: <u>3,7</u> Value: <u>2</u>   |
| 3.4 | Distance to Nearest Fishery Resource:                           | 700 feet                                         | Source: <u>3,12</u> Value: <u>12</u> |
| 3.5 | Distance to, and Name (s) of, nearest Sensitive Environment (s) | 700 feet to fishery resource<br>Quilliceda Creek | Source: <u>3,12</u> Value: <u>12</u> |

**4.0 RELEASE**

Explain basis for scoring a release to surface water:  
 No release of any hazardous substance was documented.

Source: 1,2,3 Value: 0

## WORKSHEET 6 GROUND WATER ROUTE

### 1.0 SUBSTANCE CHARACTERISTICS

#### 1.1 Human Toxicity

| Substance | Drinking<br>Water<br>Standard<br>(ug/l) | Val. | Acute<br>Toxicity<br>(mg/kg-bw) | Val. | Chronic<br>Toxicity<br>(mg/kg/day) | Val. | Carcinogenicity |    |      |
|-----------|-----------------------------------------|------|---------------------------------|------|------------------------------------|------|-----------------|----|------|
|           |                                         |      |                                 |      |                                    |      | WOE             | PF | Val. |
| Lead      | 5                                       | 8    | X                               | ND   | X                                  | ND   | X               | X  | ND   |
| Cadmium   | 5                                       | 8    | 225                             | 5    | 0.0005                             | 5    | X               | X  | ND   |
| Chromium  | 100                                     | 6    | X                               | ND   | 0.005                              | 3    | X               | X  | ND   |

Source: 1,2,3,4  
Highest Value: 8  
2 Bonus Points? 2  
**Final Toxicity Value:** 10

- 1.2 Mobility (Use numbers to refer to above listed substances)  
Cations/Anions      K value for cadmium is greater than 1

Source: 2,3,4 Value: 3

OR  
Solubility (mg/l)

- 1.3 Substance Quantity  
Explain basis:      Unknown quantity - default value

Source: 2,3 Value: 1

### 2.0 MIGRATION POTENTIAL

- 2.1 Containment  
Explain basis:      Discharge and contaminated soil

Source: 1,2,3,4 Value: 10

- 2.2 Net Precipitation:      16.9

Source: 3,5 Value: 2

- 2.3 Subsurface Hydraulic Conductivity: Sands and gravels

Source: 1,2,3,4 Value: 4

- 2.4 Vertical Depth to Ground Water:      45 feet      Page 6

Source: 3,10 Value: 6

## WORKSHEET 6 GROUND WATER ROUTE

### 3.0 TARGETS

- 3.1 Ground Water Usage: Private supply, but alternative sources available with min hookup requirements Source: 2,3,8,10 Value: 4
- 3.2 Distance to Nearest Drinking Water Well: Approx. 1600 feet Source: 3,6,10 Value: 3
- 3.3 Population Served within 2 Miles: 763 population Source: 3,7,8,10 Value: 28
- 3.4 Area Irrigated by (Groundwater) Wells 273 acres within 2 miles: Source: 3,7 Value: 12

### 4.0 RELEASE

- Explain basis for scoring a release to ground water: Source: 1,2,3 Value: 0  
No confirmed release documented

### Sources Used in Scoring

1. Washington Department of Ecology, Initial Investigation, Ed's Transmission, Marysville, WA, February, 1992.
2. Snohomish Health District, Site Hazard Assessment, Ed's Transmission, Marysville, WA, October 26, 1999.
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. U.S.G.S. Topo. Map, Marysvilles Quad., 7.5 Min. Series, Photorev. 1973.
7. Washington Department of Ecology, Water Rights Information System (WRIS), November 4, 1992.
8. Washington Department of Health, Public Water System List, April 26, 1993.
9. Soil Conservation Service, Soil Survey of Snohomish County Area, July 1983.
10. Washington Department of Ecology, Well Logs
11. U.S. Dept. of Interior, Groundwater Resources of Snohomish County, 1952.
12. Snohomish County, Wetlands/Stream Maps.

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

## **Air Route - Human Health Pathway**

$$\text{AIR} = (\text{SUB} \times 60/329) \times \{ \text{REL} + (\text{TAR} \times 35/85) \} / 24 = \quad \underline{\underline{0.00}}$$

where

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

## **Air Route - Environmental Pathway**

$$\text{AIR} = (\text{SUB} \times 60/329) \times \{ \text{REL} + (\text{TAR} \times 35/85) \} / 24 = \quad \underline{\underline{0.00}}$$

where

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

## **Surface Water Route - Human Health Pathway**

$$\text{SW} = (\text{SUB} \times 40/175) \times \{ (\text{MIG} \times 25/24) + \text{REL} + (\text{TAR} \times 30/115) \} / 24 = \quad \underline{\underline{14.29}}$$

where

|       |                                                                                      |           |
|-------|--------------------------------------------------------------------------------------|-----------|
| SW =  | Pathway Score for Surface Water-Human Health =                                       |           |
| SUB = | (Human Toxicity + 3) X (Containment + 1) + Substance Quantity =                      |           |
|       | <u>144</u>                                                                           |           |
| MIG = | Soil Permeability + Annual Precip. + Rainfall Frequency +<br>Floodplain + Slope =    | <u>7</u>  |
| REL = | Release to the Surface Water =                                                       | <u>0</u>  |
| TAR = | Distance to Surface Water + Population Served by Surface Water +<br>Area Irrigated = | <u>12</u> |



Table 2 (Continued)

Surface Water Route - Environmental Pathway

$$SW = (SUB \times 40/175) \times \{(MIG \times 25/24) + REL + (TAR \times 30/115)\} / 24 = \underline{49.56}$$

where

SW = Pathway Score for Surface Water-Environmental =

SUB = (Env. Toxicity + 3) X (Containment + 1) + Substance Quantity =  
122

MIG = Soil Permeability + Annual Precip. + Rainfall Frequency +  
 Floodplain + Slope = 7

REL = Release to the Surface Water = 0

TAR = Distance to Nearest Surface Water + Distance to Fisheries  
 Resource + Distance to Sensitive Environment = 34

Ground Water Route - Human Health Pathway

$$GW = (SUB \times 40/208) \times \{(MIG \times 25/17) + REL + (TAR \times 30/165)\} / 24 = \underline{37.15}$$

GW = Pathway Score For Ground Water-Human Health =

SUB = (Human Toxicity + Mobility + 3) X (Containment + 1) +  
 Substance Quantity = 177

MIG = Depth to Aquifer + Net Precipitation + Hydraulic Conductivity =  
12

REL = Release to the Ground Water = 0

TAR = Aquifer Use + Well Distance + Population Served +  
 Area Irrigated = 47

