CSID 2074

**SITE HAZARD ASSESSMENT**
**WORKSHEET 1**
**SUMMARY SCORE SHEET**

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

Plastic Sales & Service, Inc.
Ruben and Patricia Rael
Karkrie LLC
6870 Woodlawn Ave NE
Seattle, WA 98115
T-25N, R-4E, Sec-05
FSID#: 1948927
Tax Parcel #: 952810 -4735, -4725, & -4695
Longitude: 122°, 19', 34.85"
Latitude: 47°, 40', 39.31"
Site Assessed for the February 22, 2006 Update

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

The Plastic Sales & Service site is a 14,720 square foot commercial property located in the Greenlake neighborhood of the City of Seattle. The neighborhood is mixed commercial and residential in nature. Greenlake Park is located about 400 feet to the North of the site. The Greenlake shoreline itself is located about 900 feet to the northwest. The site is composed of three separate tax parcels. There are two two-story buildings on the site. One of the buildings covers two of the tax parcels, and the other building covers the third parcel. An alley separates the two buildings.

The soils of the site are covered entirely by the buildings and by concrete covered parking area, alley and roadway. The site is served by the city sewer and water systems. Surface water from this site and the surrounding neighborhood is collected in surface drains in the street. All of the drainage then discharges to a combined sewer in the street to the north and east of the site. The combined sewer main discharges at a sewage treatment plant where it is treated before finally discharging to Puget Sound. The soils below the surface at the site are mainly glacial in nature, consisting of silt and sand mixtures. Groundwater has been measured at six feet below ground surface level.

A February 6, 2004, certified letter from Riddell Williams P.S. reported contamination by a hazardous substance. Neither the type of hazardous substance, nor the contamination amount was reported in the letter. Apparently a Phase II Environmental Site Assessment event had occurred. It is not mentioned in the letter who conducted the assessment, what media was sampled, nor any other details.

Site contamination by the dry cleaning solvent tetrachloroethylene and its associated breakdown products was reported to the Washington Department of Ecology (Ecology) through a Site Characterization report produced by Farallon Consulting, Issaquah WA. The report was dated January 28, 2005; however Ecology did not receive the report until June 6, 2005. The site was listed on Ecology's Confirmed and Suspected Contaminated Sites List on June 6, 2005, for Halogenated Organic Compounds in soil and groundwater, confirmed. The contamination had occurred during dry cleaning operations at the site that were conducted from 1948 to 1977.

The most recent sampling event at this site was conducted in 2004 by Farallon, as was reported in the January 28, 2005, Site Characterization Report. Analysis of numerous groundwater samples showed levels of Tetrachloroethylene at up to 160,000 ppb, Cis 1,2-Dichloroethylene at up to 250 ppb, Trichloroethylene at up to 1,200 ppb, and Vinyl Chloride at up to 68 ppb. These levels exceed MTCA Cleanup Levels

for ground water. The Method A Cleanup Level for Groundwater = 5.0 ppb for Tetrachloroethylene, 5.0 ppb for Trichloroethylene, and 0.2 ppb for Vinyl Chloride. The Method B Cleanup Level for Groundwater = 80.0 ppb for Cis 1,2-Dichloroethylene. In addition, in the opinion of Farallon Consultants, the contamination had migrated beyond the property line of the site.

Cleanup activities have not been conducted at this site. The current owners of the property are aware of the contamination. Since they were not in control of the property when the contamination occurred, they are interested in recovering the cleanup costs from the former owners. A Remedial Investigation and Feasibility Study is underway to estimate the methods and costs that will lead to a cleanup of this contamination.

On the basis of this Site Hazard Assessment, completed by SKCDPH's Environmental Health Division, this site will be scored for the air, ground water and surface water routes.

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): NA

**PATHWAY SCORES:**

| | | | |
|---|---|---|---|
| Surface Water/Human Health: | 6.5 | Surface Water/Environ.: | 4.7 |
| Air/Human Health: | 85.1 | Air/Environmental: | 32.4 |
| Ground Water/Human Health: | 22.2 | | |

**OVERALL RANK: 2**

**WORKSHEET 2**
**ROUTE DOCUMENTATION**

**1. SURFACE WATER ROUTE**

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

Cis 1,2-Dichloroethylene
Tetrachloroethylene
Trichloroethylene
Vinyl Chloride

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

The above substance concentrations are above MTCA Method A cleanup standards.

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

Suspected Surface soil contamination.

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

Surface soil may be exposed to weather with limited containment.

**2. AIR ROUTE**

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

Cis 1,2-Dichloroethylene
Tetrachloroethylene
Trichloroethylene
Vinyl Chloride

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

The above substance concentrations are above MTCA Method A cleanup standards.

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

Surface soil contamination.

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

Surface soil may be exposed to weather with limited containment.

**WORKSHEET 2 (CONTINUED)**
**ROUTE DOCUMENTATION**

**3. GROUND WATER ROUTE**

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

Cis 1,2-Dichloroethylene
Tetrachloroethylene
Trichloroethylene
Vinyl Chloride

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

The above substance concentrations are above MTCA Method A cleanup standards.

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

Documented soil and groundwater contamination.

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

Contamination appears to have migrated beyond the property line.

**WORKSHEET 4**
**SURFACE 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.Cis1,2Dichloroethylene | 70 | 6 | - | ND | 0.01 | 3 | - | - | ND |
| 2.Tetrachloroethylene | 5.0 | 8 | 800 | 5 | 0.01 | 3 | B2 | 0.051 | 4 |
| 3.Trichloroethylene | 5.0 | 8 | 2402 | 3 | - | ND | B2 | 0.011 | 4 |
| 4.Vinyl Chloride | 780.0 | 8 | 500 | 5 | - | ND | A | 2.3 | 7 |
| 5. | | | | | | | | | |
| 6. | | | | | | | | | |

*Potency Factor

Source: 1
Highest Value: 8 (Max.=10)

+2 Bonus Points? Yes
**Final Toxicity Value 10** (Max.=12)

### 1.2 Environmental Toxicity

(X) Freshwater
( ) Marine

| Substance | Acute Water Quality Criteria (ug/l) | Value | Non-human Mammalian Acute Toxicity (mg/kg) | Value |
|---|---|---|---|---|
| 1.Cis1,2Dichloroethylene | 11600 | 2 | | |
| 2.Tetrachloroethylene | 5280 | 2 | | |
| 3.Trichloroethylene | 45000 | 2 | | |
| 4.Vinyl Chloride | - | ND | 500(rat) | 5 |
| 5. | | | | |
| 6. | | | | |

Source: 1 **Value: 5** (Max.=10)

1.3 Substance Quantity: Unknown Source: 3 **Value: 1** (Max.=10)
Explain basis: Use Default.

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

## 2.0 MIGRATION POTENTIAL

2.1 Containment — Source: 3,9 — **Value: 4** (Max.=10)
Explain basis: spill/discharge with unmaintained containment

2.2 Surface Soil Permeability: Sand & silt mix — Source: 9 — **Value: 3** (Max.=7)

2.3 Total Annual Precipitation: 30.0 inches — Source: 4 — **Value: 2** (Max.=5)

2.4 Max. 2-Yr/24-hour Precipitation: 1-2 inches — Source: 5 — **Value: 2** (Max.=5)

2.5 Flood Plain: Not in a flood plain. — Source: 8 — **Value: 0** (Max.=2)

2.6 Terrain Slope: piped — Source: 9 — **Value: 3** (Max.=5)

## 3.0 TARGETS

3.1 Distance to Surface Water: >10,000 feet — Source: 8,9 — **Value: 0** (Max.=10)

3.2 Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): $\sqrt{pop.} = \sqrt{0} = 0$ — Source: 6 — **Value: 0** (Max.=75)

3.3 Area Irrigated within 2 miles no. acres= 0
(Refer to note in 3.2.): $0.75\sqrt{0} = 0.75(0) = 0$ — Source: 7 — **Value: 0** (Max.=30)

3.4 Distance to Nearest Fishery Resource: NA — Source: 8 — **Value: 0** (Max.=12)

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) NA — Source: 8 — **Value: 0** (Max.=12)

## 4.0 RELEASE

Explain basis for scoring a release to surface water: No confirmed release to surface water. — Source: 3 — **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 ($ug/m^3$) | Val. | Acute Toxicity ($mg/m^3$) | Val. | Chronic Toxicity (mg/kg/day) | Val. | Carcinogenicity WOE | PF* | Val. |
|---|---|---|---|---|---|---|---|---|---|
| 1.Cis1,2Dichloroethylene | 2630.7 | 1 | 65,000 | 3 | - | ND | - | - | ND |
| 2.Tetrachloroethylene | 1.1 | 9 | - | ND | - | ND | B2 | - | ND |
| 3.Trichloroethylene | 0.0091 | 10 | 15,583 | 3 | - | ND | B2 | 0.017 | 4 |
| 4.Vinyl Chloride | 0.082 | 10 | 460,123 | 1 | - | ND | A | - | ND |
| 5. | | | | | | | | | |

*Potency Factor

Source: 1
Highest Value: 10 (Max.=10)
+2 Bonus Points? Yes
Final Toxicity Value: 12 (Max.=12)

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

1.3.1 Gaseous Mobility
Vapor Pressure(s) (mmHg): 1= 210; 2= 18; 3= 58; 4= 2,700; 5= ; 6= Source: 1
Value: 4 (Max.=4)

1.3.2 Particulate Mobility
Soil type: sandy loam Source: 3
Erodibility: 86 Value: 1 (Max.=4)
Climatic Factor: 1-10

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

1.5 Environmental Toxicity/Mobility Source: 1

| Substance | Non-human Mammalian Acute Inhal. Toxicity ($mg/m^3$) | Value | Mobility (mmHg) | Value | (Table A-7) Matrix Value |
|---|---|---|---|---|---|
| 1.Cis1,2Dichloroethylene | 65,000(mouse) | 3 | 210 | 4 | 6 |
| 2.Tetrachloroethylene | No Data | | | | |
| 3.Trichloroethylene | 15,583(man) | 3 | 58 | 4 | 6 |
| 4.Vinyl Chloride | 460,123(rat) | 1 | 2,700 | 4 | 2 |
| 5. | | | | | |

Highest Environmental Toxicity/Mobility Matrix Value (From Table A-7) equals **Final Matrix Value: 6** (Max.=24)

1.6 Substance Quantity: Unknown Source: 3 **Value: 1** (Max.=10)
Explain basis: Use Default.

## WORKSHEET 5 (CONTINUED)
## AIR ROUTE

**2.0 MIGRATION POTENTIAL**

2.1 Containment: cover is less than two feet thick with no vapor collection system in place. Source: 3 **Value: 10** (Max.=10)

**3.0 TARGETS**

3.1 Nearest Population: less than or equal to 1,000 feet Source: 3 **Value: 10** (Max.=10)

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) 400 feet- Greenlake Park Source: 8 **Value: 7** (Max.=7)

3.3 Population within 0.5 miles: $\sqrt{pop.}=\sqrt{7025}=83.81$(max) Source: 9 **Value: 75** (Max.=75)

**4.0 RELEASE**

Explain basis for scoring a release to air: No confirmed release Source: 3 **Value: 0** (Max.=5)

## 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. | Carcinogenicity WOE | PF* | Val. |
|---|---|---|---|---|---|---|---|---|---|
| 1.Cis1,2Dichloroethylene | 70 | 6 | - | ND | 0.01 | 3 | - | - | ND |
| 2.Tetrachloroethylene | 5.0 | 8 | 800 | 5 | 0.01 | 3 | B2 | 0.051 | 4 |
| 3.Trichloroethylene | 5.0 | 8 | 2402 | 3 | - | ND | B2 | 0.011 | 4 |
| 4.Vinyl Chloride | 780.0 | 8 | 500 | 5 | - | ND | A | 2.3 | 7 |
| 5. | | | | | | | | | |
| 6. | | | | | | | | | |

*Potency Factor

Source: 1
Highest Value: 8 (Max.=10)
+2 Bonus Points? Yes
**Final Toxicity Value: 10** (Max.=12)

1.2 Mobility (Use numbers to refer to above listed substances)
Cations/Anions: 1= ; 2= ; 3= ; 4= ; 5= ; 6= . Source: 1 **Value: 3** (Max.=3)

OR
Solubility(mg/l): 1= 3; 2= 2; 3= 3; 4= 3; 5= ; 6= .

1.3 Substance Quantity: Unknown Source: 3 **Value: 1** (Max.=10)
Explain basis: Use Default.

### 2.0 MIGRATION POTENTIAL

2.1 Containment Source: 3 **Value: 6** (Max.=10)
Explain basis: Contaminated area is covered by a building and parking lot, score as a landfill: 1) No liner = 3; 2) Low permeability cover = 1; 3) No leachate collection system = 2.

2.2 Net Precipitation: 24.6" (UW) - 5.9" = 18.7 inches Source: 4 **Value: 2** (Max.=5)

2.3 Subsurface Hydraulic Conductivity: Sandy Silt Source: 2 **Value: 3** (Max.=4)

2.4 Vertical Depth to Ground Water: 6 feet Source: 2 **Value: 8** (Max.=8)

## WORKSHEET 6 (CONTINUED)
## GROUND WATER ROUTE

**3.0 TARGETS**

3.1 Ground Water Usage: Ground water not used, but usable. Source: 3 **Value: 2** (Max.=10)

3.2 Distance to Nearest Drinking Water Well: >10,000 ft Source: 6 **Value: 0** (Max.=5)

3.3 Population Served within 2 Miles: √pop.= √0 Source: 6 **Value: 0** (Max.=100)

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 0.75 √no.acres= 0.75 √0 = 0 Source: 7 **Value: 0** (Max.=50)

**4.0 RELEASE**

Explain basis for scoring a release to ground water: Confirmed release Source: 2 **Value: 5** (Max.=5)

## SOURCES USED IN SCORING


1. Washington Ranking Method Toxicological Data-base.
2. Analytical Results for "Site Characterization Report, Plastic Sales & Service Site", January 28, 2005, by Farallon Consultants, Issaquah, WA.
3. Site Hazard Assessment, Public Health Seattle and King County, Environmental Health, December 7, 2005.
4. National Weather Service Data.
5. Isopluvials of 2-Year, 24 Hour Precipitation, NOAA atlas 2, Vol. IX.
6. Washington State Department of Health Public Water Supply Listing.
7. Washington State Water Use Data.
8. Sensitive Areas Themes, King County GIS Data, King County, WA, December, 2005.
9. 2000 Census Block Data, King County GIS Data, King County, WA, December, 2005