CSID 4147

SITE HAZARD ASSESSMENT
WORKSHEET 1
SUMMARY SCORE SHEET

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

Cleaning Center of Redmond
15796 Redmond Way
Redmond, WA 98052
King County
T-25N, R-05E, Sec-02
TCP ID: ~~N-17-5698-000~~ 26296554
Longitude: 122* 7' 41.016"
Latitude: 47* 40' 28.632"
Site assessed for February 2000 update

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

The Cleaning Center of Redmond is a dry cleaning retail store located within a commercial strip mall bounded on the east by a QFC grocery store and on the west by another retail business. The site is generally flat in topography and includes an asphalt-paved parking lot. There are commercial business and residential areas within a 0.5-mile radius of the site. The Cleaning Center of Redmond has been in business since 1989. The surrounding area is served by municipal sewer systems.

The Cleaning Center of Redmond site was suspected to be the source of Tetrachloroethene (also known as perchloroethylene or PCE) contamination when it was discovered during the sale of The Cleaning Center of Redmond business. The interested parties retained an environmental engineering firm to conduct subsurface sampling and analysis to assess the potential release of dry cleaning solvents into the soil and groundwater. The scope of work included collecting soil samples immediately adjacent to the dry cleaning machine beneath the floor slab of the facility. Soil sample locations were designated by having one sample taken on each side of the rectangular-shaped machine for analysis of halogenated volatile organic compounds (HVOCs). The results of the study found concentrations of PCE in the soil samples to range from 2.71 to 664 parts per million (ppm) PCE. The Method A Cleanup level in soil for PCE is 0.5 ppm. Based on the results of the initial soil sampling and analysis and since groundwater was encountered at 7.25 feet below the top of a concrete slab at the time of sampling, a grab groundwater sample was also collected for analysis of HVOCs. PCE was detected in the grab groundwater sampling with a concentration of 6530 parts per billion (ppb) PCE. The Method A Cleanup level in groundwater for PCE is 5.0 ppb. All these soil and groundwater samples exceed the Model Toxics Control Act (MTCA) Method A cleanup levels.

An initial investigation was conducted by Steve Bremer, Washington State Department of Ecology (Ecology), Northwest Regional Office (NWRO) on July 21, 1999. The investigation was conducted due to the discovery of PCE (Tetrachloroethylene) contamination found in the groundwater in the process of a property transfer. In addition, there are municipal wells located approximately one mile from the site.

The Cleaning Center of Redmond site was listed on Ecology's Site Information System (SIS) list for known or suspected contaminated sites for confirmed HVOCs in soil and groundwater media on July 28, 1999. Early Notice Letters were sent by Ecology to the property owner, Nelgroup Limited Partnership, the current business owner, Debbie Cho, and the former owners/operators, Boyce and Shirley Harris informing them of the inclusion of the site onto Ecology's SIS list.

Yolanda King of the Public Health - Seattle & King County (PHSKC) performed a site hazard assessment (SHA) visit on July 29, 1999. The SHA included a meeting on August 31, 1999 with the City of Redmond Parks Department manager, Phil Cohen. Mr. Cohen provided the PHSKC with localized site maps indicating the locations of the municipal wells currently in use in relation to the Cleaning Center of Redmond. Redmond City Wells 1 through 5 and the Redmond Town Center irrigation well are all within a 1.5-mile radius to the site and in use with the exception of City Well 4, which is to be activated in March 2000 according to Mr. Cohen. The Cleaning Center of Redmond was currently in business at the time of the site visit. Due to the fact that interested parties heeded an environmental engineering firm to execute subsurface soil and groundwater sampling and analysis during the sale of the Cleaning Center of Redmond, it was deemed unnecessary to acquire any further testing at the site.

Because of the limited initial sampling and analysis conducted in the above environmental study, additional assessment is warranted to define the nature and extent of the PCE release into the subsurface beneath and in the vicinity of the Cleaning Center of Redmond facility. There are plans to direct further sampling to collect site-specific data and information necessary to develop an appropriate course of action for remediation. In the interim, the business owner has placed a steel tray under the equipment at the site to contain any further contamination.

On the basis of this SHA completed by PHSKC's Environmental Health Division, this site will be scored for the groundwater, air, 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): n/a

PATHWAY SCORES:

Surface Water/Human Health:	21.2	Surface Water/Environ.:	24.0
Air/Human Health:	9.1	Air/Environmental:	NS
Ground Water/Human Health:	53.2		

OVERALL RANK: 3

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE

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

Tetrachloroethylene

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

The above substance concentration is above MTCA Method A cleanup standards or is associated with past uses on site.

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 is exposed to weather with no containment.

2. AIR ROUTE

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

Tetrachloroethylene

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

The above substance concentration is above MTCA Method A cleanup standards or is associated with past uses on site.

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 is exposed to weather with no containment.

WORKSHEET 2 (CONTINUED)
ROUTE DOCUMENTATION

3. GROUND WATER ROUTE

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

Tetrachloroethylene

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

The above substance concentration is above MTCA Method A cleanup standards or is associated with past uses on site.

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

Analytically confirmed groundwater contamination

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

Groundwater is contaminated with no containment.

WORKSHEET 3
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.Tetrachloroethylene	5.0	8	800	5	0.01	3	B2	0.051	4

*Potency Factor

Source: 1
Highest Value: 8
(Max.=10)
+2 Bonus Points? N/A
Final Toxicity Value 8
(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.Tetrachloroethylene	5280	2		

Source: 1 **Value: 2**
(Max.=10)

1.3 Substance Quantity: Unknown- use default Source: 3 **Value: 1**
(Max.=10)
Explain basis: estimated remaining contamination amount appears to be in range of 1 to 200 gal.

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 3 **Value: 10**
(Max.=10)

Explain basis: spill, discharge, or contaminated soil at the surface with no run-on/ runoff control or unknown controls.

2.2 Surface Soil Permeability: Silt-sand mixture Source: 3 **Value: 3**
(Max.=7)

2.3 Total Annual Precipitation: 34.8 inches Source: 4 **Value: 3**
(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: < or = to 2% Source: 8 **Value: 1**
(Max.=5)

WORKSHEET 3 (CONTINUED)
SURFACE WATER ROUTE

3.0 TARGETS

3.1 Distance to Surface Water: < 1,000 feet Source: 8 **Value:** 10 (Max.=10)

3.2 Population Served within 2 miles (See WARM Scoring Manual Regarding Direction): √pop. = 0 Source: 6 **Value:** 0 (Max.=75)

3.3 Area Irrigated within 2 miles no. acres = 1056
(Refer to note in 3.2.): 0.75√1056 = 24.37 Source: 7 **Value:** 24 (Max.=30)

3.4 Distance to Nearest Fishery Resource: < 1,000 feet Source: 8 **Value:** 12 (Max.=12)

3.5 Distance to, and Name(s) of, Nearest Sensitive Environment(s) < 1,000 feet to Sammammish River Source: 8 **Value:** 12 (Max.=12)

4.0 RELEASE

Explain basis for scoring a release to surface water: No Confirmed release to surface water Source: n/a **Value:** 0 (Max.=5)

WORKSHEET 4
AIR ROUTE

1.0 SUBSTANCE CHARACTERISTICS

1.1 Introduction (WARM Scoring Manual)

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.Tetrachloroethylene	1.1	9	ND	-	ND	-	B2	ND	-

Source: 1

*Potency Factor

Highest Value: 9
(Max.=10)

+2 Bonus Points? n/a

Final Toxicity Value: 9
(Max.=12)

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

1.3.1 Gaseous Mobility

Vapor Pressure(s) (mmHg): 1= 18 Source: 1

Value: 4
(Max.=4)

1.3.2 Particulate Mobility

Soil type: silt Source: 3

Erodibility: 38 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:** 18
(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.Tetrachloroethylene	No Data				

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

1.6 Substance Quantity: Unknown - use default Source: 3 **Value:** 1
(Max.=10)

Explain basis: estimated remaining contamination amount appears to be in range of 1 to 200 gal.

WORKSHEET 4 (CONTINUED)
AIR ROUTE

2.0 MIGRATION POTENTIAL

2.1 Containment: Covered by concrete, no vapor collection system present. Source: 3 **Value:** 5 (Max.=10)

3.0 TARGETS

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

3.2 Distance to, and Name(s) of, Nearest Sensitive Environment(s) 660 feet - Sammammish River Park Source: 3 **Value:** 7 (Max.=7)

3.3 Population within 0.5 miles: $\sqrt{pop.} = \sqrt{120} = 11$ Source: 3 **Value:** 11 (Max.=75)

4.0 RELEASE

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

WORKSHEET 5
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.Tetrachloroethylene	5.0	8	800	5	0.01	3	B2	0.051	4

Source: 1

*Potency Factor

Highest Value: 8
(Max.=10)

+2 Bonus Points? n/a

Final Toxicity Value: 8
(Max.=12)

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

OR
Solubility(mg/l): 1 = 2

1.3 Substance Quantity: Unknown - use default Source: 3 **Value:** 1
(Max.=10)
Explain basis: estimated remaining contamination amount appears to be in range of 1 to 200 gal.

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 3 **Value:** 10
(Max.=10)
Explain basis: Confirmed release to groundwater

2.2 Net Precipitation: 18.7 inches Source: 4 **Value:** 2
(Max.=5)

2.3 Subsurface Hydraulic Conductivity: silt sand, till Source: 3 **Value:** 3
(Max.=4)

2.4 Vertical Depth to Ground Water: 7 feet Source: 3 **Value:** 8
(Max.=8)

WORKSHEET 5 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

3.1 Ground Water Usage: Public supply, but alternate sources available — Source: 3 — **Value: 4** (Max.=10)

3.2 Distance to Nearest Drinking Water Well: 3,960 ft — Source: 6 — **Value: 2** (Max.=5)

3.3 Population Served within 2 Miles: √pop.= > 10,000 — Source: 6 — **Value: 100** (Max.=100)

3.4 Area Irrigated by (Groundwater) Wells within 2 miles: 0.75 √no.acres= 359
0.75 √ 359 = 14.21 — Source: 7 — **Value: 14** (Max.=50)

4.0 RELEASE

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

SOURCES USED IN SCORING

1. Washington Ranking Method Toxicological Database.
2. Analytical Results from Letter of Correspondence to Department of Ecology by Vance, Romero, & Montague for Groundwater Sampling and Soil Sampling, 15796 Redmond Way, Redmond, WA, reported on June 15, 1999.
3. Site Hazard Assessment site visit, Seattle-King County Department of Public Health, July 29, 1999.
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.