CSID 568

SITE HAZARD ASSESSMENT

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:

ST Services Vancouver (formerly named Cenex Pipeline)
5420 NW Fruit Valley Road
Vancouver, Clark County, WA 98660

Section/Township/Range: Sec. 16/TS2N/R1E
Latitude: 45° 38' 56.79" Longitude: 122° 41' 31.27"
Ecology Facility Site ID No.: 61862781

Site scored/ranked for the August 2006 update
June 23, 2006

SITE DESCRIPTION (management areas, substances of concern, and quantities):

The ST Services Vancouver property was entered onto Washington Department of Ecology's database of Confirmed and Suspected Contaminated Sites on March 28, 2005. Confirmation of organic compounds, particularly benzene, ethylbenzene, toluene, xylenes, naphthalene, and methyl tert-butyl ether (MTBE), in groundwater and soil was documented in the "SUBSURFACE INVESTIGATION AND SOIL REMOVAL REPORT" dated May 2002 by AMEC Earth & Environmental, Inc. This report states the following relevant information:

"The site was developed in 1957 as a truck loading terminal. Historically, chemicals and other products stored as the site included liquid fertilizers and refined petroleum products such as gasoline, diesel and kerosene, de-natured alcohol, and petroleum product additives. During the decommissioning of a large petroleum-vapor tank at the site in 2001, petroleum-impacted subsurface soils were encountered. Several test pits were excavated in the vicinity of the former tank to evaluate the extent of subsurface impact. Approximately 328 tons of excavated soil was placed on visqueen located approximately 50 yards north of the former petroleum-vapor tank." [2]

"AMEC conducted an initial Phase 1 Remedial Investigation in the vicinity of the former petroleum-vapor tank on April 10 and 11, 2002, the results of which are presented in our report dated June 14, 2002, titled "Phase 1 Remedial Investigation, Vapor Recovery Unit Knockout Tank". Selected groundwater samples were obtained from 12 Geoprobe borings (GP-1 through GP-12) and submitted to North Creek Analytical (NCA) Laboratories in Beaverton, Oregon for analytical Testing." [2]

"Analytical results of groundwater samples obtained from direct-push borings advanced in the vicinity of the excavation and main product lines revealed benzene at concentrations up to 15,000 micrograms per liter (µg/L). These concentrations exceeded the Washington Department of Ecology's (Ecology) Model Toxics Control Act (MTCA) cleanup standards of 5 µg/L for benzene in groundwater. Benzene concentrations were greatest in groundwater samples obtained from direct-push borings advanced in an inferred upgradient location relative to the former underground petroleum-vapor tank.

Based on the results of the sampling, AMEC recommended that further investigation be conducted in the vicinity of the former petroleum-vapor tank as well as the existing and former truck loading racks, both located to the east of the former petroleum-vapor tank." [2]

Therefore, further investigation, conducted by AMEC, resulted in the "Subsurface Investigation and Soil Removal Report". Because it is unclear and difficult to determine the extent of the soil contamination remaining on site, based on the report alone, the soil sample results from the report were listed in Table 1 for reference purposes.

TABLE 1: Contaminants Detected at ST Services Vancouver [2]

Sample ID(s)	Matrix	Contaminant	Result (range)	MTCA Method A
GP14/10-12, MW2 @ 25-26.5, GP26/6-8, GP32/6.5-8, GP33/8-10, GP34/6-8	Soil	Gasoline	314 – 3,230 mg/kg	30 mg/kg
GP14/10-12, GP32/6.5-8, GP33/8-10, GP34/6-8	Soil	Diesel	2,530 – 31,500 mg/kg	2000 mg/kg
GP26/6-8, GP33/8-10	Soil	Ethylbenzene	7.2 – 91.3 mg/kg	6 mg/kg
GP26/6-8, GP32/6.5-8, GP33/8-10, GP34/6-8	Soil	Xylenes (total)	16 – 825 mg/kg	9 mg/kg
GP26/6-8, GP32/6.5-8, GP33/8-10, GP34/6-8	Soil	Napthalene	11.90 – 124 mg/kg	5 mg/kg
GP26/6-8	Soil	Toluene	9.74 mg/kg	7 mg/kg
GP-3/GW-24, GP-7/GW-24, GP-10/GW-32, MW2-051402, MW3-051402	Groundwater	Gasoline	4,500 – 159,000 µg/L	800 µg/L
GP-3/GW-24, GP-7/GW-24, GP-8/GW-23, GP-10/GW-32, GP-11/GW-32, GP-12/GW-32, GP22/GW34, GP23/GW34, GP29/GW50, MW2-051402	Groundwater	Benzene	5.44 – 15,000 µg/L	5 µg/L
GP-3/GW-24, GP-7/GW-24, GP-8/GW-23, GP-10/GW-32, GP-11/GW-32, GP22/GW34, GP29/GW50, MW2-051402	Groundwater	Ethylbenzene	1,410 - 8,250 µg/L	700 µg/L
GP-3/GW-24, GP-7/GW-24, GP-8/GW-23, GP-10/GW-32,	Groundwater	Xylenes (total)	1,258 - 36,600 µg/L	1,000 µg/L

GP-11/GW-32, GP22/GW34, GP29/GW50, MW2-051402				
GP-7/GW-24, GP-8/GW-23, GP-10/GW-32, GP-11/GW-32	Groundwater	Napthalene	212 – 1,910 µg/L	160 µg/L
GP-7/GW-24, GP-8/GW-23, GP-10/GW-32, GP-11/GW-32, GP-12/GW-32, GP22/GW34, GP29/GW50, MW2-051402	Groundwater	Toluene	1,640 – 48,300 µg/L	1,000 µg/L
MW2-051402	Groundwater	MTBE (methyl-tertiary-butyl ether)	700	20 µg/L

*GP – GeoProbe
*MW – Monitoring Well

On June 20, 2006, Washington Department of Ecology (DOE) sent a letter to the site owner(s) notifying them that Clark County Health Department's (CCHD) Environmental Health Division will be conducting a Site Hazard Assessment (SHA). On June 22, 2006, a site visit was made by CCHD as part of the SHA. As a result, it was noted that the site is currently named Valero LP Vancouver Terminal. The site contains several large petroleum fuel reservoirs. Although portions of the site are paved, the vast majority consists of bare soil and grass providing no containment.

As a result of the Site Hazard Assessment, analytical data submitted by AMEC Earth & Environmental, Inc. is considered representative of onsite conditions. Therefore, due to documented soil and groundwater contamination, this site is ranked and scored accordingly.

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):

Due to the significant contamination documented on-site being primarily subsurface, the surface water and air routes are not applicable for WARM scoring for this site. Thus, only the groundwater route will be scored.

ROUTE SCORES:

Surface Water/Human Health: **NS**
Surface Water/Environmental.: **NS**
Air/Human Health: **NS**
Air/Environmental: **NS**
Groundwater/Human Health: **80**

OVERALL RANK: 2

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE** – *Not Scored*
   a. List those substances to be considered for scoring: Source: __

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

   c. List those management units to be considered for scoring: Source: __

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

2. **AIR ROUTE** – *Not Scored*
   a. List those substances to be considered for scoring: Source: __
   b. Explain basis for choice of substance(s) to be used in scoring:

   c. List those management units to be considered for scoring: Source: __

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

3. **GROUNDWATER ROUTE**
   a. List those substances to be considered for scoring: Source: 1

      Diesel, Gasoline, Benzene, Ethylbenzene, Toluene, Xylene, Napthalene, and MTBE.

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

      These substances were detected in on-site soil and groundwater samples associated with the site in concentrations exceeding their respective MTCA Method A cleanup levels.

   c. List those management units to be considered for scoring: Source: 1

      Subsurface soils and groundwater.

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

      The contaminating substances were detected in on-site soil and groundwater samples in concentrations exceeding their respective MTCA Method A cleanup levels.

WORKSHEET 6
Groundwater Route

1.0 SUBSTANCE CHARACTERISTICS

1.2 Human Toxicity

	Substance	Drinking Water Standard (µg/L)	Value	Acute Toxicity (mg/ kg-bw)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value
								WOE	PF*	
1	Diesel	160	4	490 (rat)	5	0.004	3	-	-	ND
2	Gasoline	5	8	3306 (rat)	3	-	ND	A	0.029	5
3	Benzene	5	8	3306 (rat)	3	-	ND	A	0.029	5
4	Ethylbenzene	700	4	3500 (rat)	3	0.1	1	-	-	ND
5	Toluene	2000	2	5000 (rat)	3	0.2	1	-	-	ND
6	Xylene (total)	10,000	2	50 (human)	10	2	1	-	-	ND
7	Napthalene	160	4	490 (rat)	5	0.004	3	-	-	ND
8	MTBE	20	6	ND	-	1	3	B1	0.8	3

* *Potency Factor*

Source: 1, 2, 4

Highest Value: 10
(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 12
(Max = 12)

1.2 Mobility (use numbers to refer to above listed substances)

Cations/Anions	OR	Solubility (mg/L)
1=		1= $3.0 \times 10^1 = 1$
2=		2= $1.8 \times 10^3 = 3$
3=		3= $1.8 \times 10^3 = 3$
4=		4= $1.5 \times 10^2 = 2$
5=		5= $5.4 \times 10^2 = 2$
6=		6= $2.0 \times 10^2 = 2$
7=		7= $3.0 \times 10^1 = 1$
8=		8= $5.0 \times 10^4 = 3$

Source: 1, 2, 4
Value: 3
(Max = 3)

1.3 Substance Quantity:	
Explain basis: Unknown, use default = 1	Source: 1, 3 **Value: 1** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Spill release to soil = **10**	5, 7	**10** (Max = 10)
2.2	**Net precipitation:** 22.9" – 5.7" = 23.2"	6	**3** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** sand, gravel	3, 5	**4** (Max = 4)
2.4	**Vertical depth to groundwater:** verified groundwater contamination = 0'	1, 2, 5	**8** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** public supply, but alternate sources available with minimum hookup requirements	8	**4** (Max = 10)
3.2	**Distance to nearest drinking water well:** ≤ 600 feet	7	**5** (Max = 5)
3.3	**Population served within 2 miles: √ pop.** = >10,000	7	**100** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** 580.26 **(0.75)*√# acres** = 18	8	**18** (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Confirmed by laboratory analysis.	1	**5** (Max = 5)

SOURCES USED IN SCORING

1. Phase II Environmental Site Assessment by AMEC Earth & Environmental, Inc., Portland, Oregon, May 2002.
2. Subsurface Investigation and Soil Removal Report by AMEC Earth & Environmental, Inc., Portland, Oregon, December 2002.
3. Soil Survey of Clark County, Washington, November 1972.
4. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
5. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
6. Washington Climate – Net Rainfall Table
7. Arial Photo, GIS Clark County MapsOnline.
8. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.