SITE HAZARD ASSESSMENT
WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

400 E Mill Plain Drywells
400 E Mill Plain Blvd.
Vancouver, Clark County, WA 98660

Section/Township/Range: Sec. 27/T2N/R1E
Latitude: 45.63220 Longitude: -122.66753
Ecology Facility Site ID No.: 8223776

Site scored/ranked for the August 2010 update
May 4th, 2010

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

The 400 E Mill Plain Drywells site was entered onto the Washington State Department of Ecology's (Ecology) database of Confirmed and Suspected Contaminated Sites on March, 17th 2009. The property was a former Denny's restaurant. The site now consists of a large office building complex.

On August 19, 2008 & September 2, 2008, three drywells were encountered during excavation activities and were subsequently decommissioned. The drywells ranged from 13 to 20 feet below ground surface (bgs). Drywell 1 (DW-1) was approximately 20 feet in depth. Drywell 2 (DW-2) was approximately 13 feet in depth. Drywell 3 (DW-3) was approximately 17 feet in depth. Groundwater was not observed in any of the drywells.

Samples collected from the bottom of the drywells confirmed the presence of elevated levels of priority pollutant metals. Cadmium, Chromium, Lead, and Mercury were detected above their respective Model Toxics Control Act (MTCA) Cleanup Levels. Analytical results are summarized in Table 1.

All three drywells were decommissioned by filling with controlled density fill (CDF). Almost immediately after decommissioning of the drywells, a large commercial building was constructed on top of the drywell locations.

Table 1: Soil Sample Results above MTCA Method A/B Cleanup Levels

Sample ID	Sample Depth	Analyte Found	Sample Results	MTCA Method A or B Cleanup Level
DW-1	20 feet	Cadmium	2 mg/kg	2 mg/kg
DW-2	13 feet	Chromium VI*	20.5 mg/kg	19 mg/kg
		Mercury	5.82 mg/kg	2 mg/kg
DW-3	17 feet	Chromium VI*	30.3 mg/kg	19 mg/kg
		Lead	432 mg/kg	250 mg/kg
		Mercury	10.4 mg/kg	2 mg/kg

*Note: Total chromium analysis was run without speciation. Therefore, the conservative value for Chromium VI will be used.

As a result of this SHA, this site is scored and ranked due to the documented presence of cadmium, mercury, chromium, & lead in onsite subsurface soils exceeding their respective MTCA Method A cleanup levels.

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:	46.0		

OVERALL RANK: 3

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, 2, 8

      Cadmium, chromium, lead, & mercury.

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

      These substances were detected in subsurface soil samples at concentrations exceeding their respective MTCA Method cleanup levels.

   c. List those management units to be considered for scoring: Source: 1, 2, 8
      Groundwater.

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

      The contaminating substances were detected in subsurface samples at concentrations exceeding their respective MTCA Method A cleanup levels.

WORKSHEET 6
Groundwater Route

1.0 SUBSTANCE CHARACTERISTICS

1.1 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	Cadmium	5	8	225 (rat)	5	0.0005	5	B1	-	ND
2	Chromium	100	6	-	ND	0.005	3	A	-	ND
3	Lead	5	8	-	ND	-	ND	B2	-	ND
4	Mercury	2	8	-	ND	0.0003	5	-	-	ND

* *Potency Factor*

Source: 1, 2, 4, 8
Highest Value: 8
(Max = 10)
Plus 2 Bonus Points? 2
Final Toxicity Value: 10
(Max = 12)

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

Cations/Anions	OR	Solubility (mg/L)
1= 3		1=
2= 1		2=
3= 2		3=
4= 3		4=

Source: 1, 2, 4, 8
Value: 3
(Max = 3)

1.3 Substance Quantity:

Explain basis: Unknown, use default = 1	Source: 1, 2, 4, 9 **Value: 1** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Site is capped, score as a landfill. 1)No liner = 3; 2)Low permeability cover = 1; 3)No leachate collection system = 2; 4)Possible free liquids have been disposed = 1.	1, 2, 5	7 (Max = 10)
2.2	**Net precipitation:** 22.9" – 5.7" = 23.2"	5	3 (Max = 5)
2.3	**Subsurface hydraulic conductivity:** gravel	2, 4	4 (Max = 4)
2.4	**Vertical depth to groundwater:** 30' (approximately)	1, 4, 8	6 (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** public supply, but alternate sources available with minimum hookup requirements	4, 6	4 (Max = 10)
3.2	**Distance to nearest drinking water well:** >2,640 – 5,000	4, 6	2 (Max = 5)
3.3	**Population served within 2 miles:** √ **pop.** = >10,000	4, 6	100 (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** 74 **(0.75)*√# acres** = 6	7	6 (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Confirmed soil contamination by laboratory analysis.	1, 8	5 (Max = 5)

SOURCES USED IN SCORING

1. Initial Investigation by Clark County Public Health, December 2nd, 2008.
2. Soil Survey of Clark County, Washington, November 1972.
3. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
4. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
5. Washington Climate – Net Rainfall Table.
6. Arial Photo, GIS Clark County MapsOnline.
7. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
8. Drywell Decommissioning report by Geocon Northwest, Inc., September 18th, 2008.