WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

Name: **Roby's Property**
Address: **790 Buena Road**
City: **Buena** County: **Yakima** State: **WA** Zip: **98921**
Section/Township/Range: SE ¼, NE1/4, S21//T11N/R20E
Latitude: **46.42988** Longitude: **-120.31451**
F/S ID: **93453337**
Cleanup Site ID #: **1937**

Site scored/ranked for the August 2012 update

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

The site is owned by Richard Roby and was historically used as a gas station. Groundwater monitoring wells installed in the area as part of the Buena LUST project, were sampled in 1997 and found to contain detectable levels of benzene, ethylbenzene, toluene, and xylenes (BTEX).

In 2001 it consisted of an abandoned service station building, dispenser canopy, and two fuel dispensers. In April 2001, Fulcrum Environmental conducted a site assessment following the removal of five USTs.

1. 6,000-gallon leaded gasoline
2. 6,000-gallon unleaded gasoline
3. 2,000-gallon leaded gasoline
4. 2,000-gallon leaded gasoline
5. 550-gallon heating oil

A single tank pit was dug to remove the five tanks, and eight side samples, two piping samples, and one base sample (from beneath the heating oil UST) were collected. Analytical results of soil samples detected the following contaminants of concern.

SAMPLE ID	LOCATION (BGS)	GASOLINE (PPM)	DIESEL (PPM)	BENZENE (PPM)	ETHYLBENZENE (PPM)	TOLUENE (PPM)	XYLENES (PPM)	LEAD (PPM)
0409-02	sidewall at 4'	**490**	nt	**3**	6	3.7	**32**	22
0409-04	sidewall at4'	**13,000**	nt	**120**	**190**	**660**	**1,200**	nd
0410-06	sidewall at 7'	**180**	nt	0.18	1.2	2.2	10	40
0410-08	sidewall at 5.5'	nt	detected	nt	nt	nt	nt	nt
0410-09	sidewall at 5.5'	nt	300	nt	nt	nt	nt	nt

nt= not tested; nd = not detected; **bold** = above MTCA cleanup levels

No soil samples were collected from the base of the large UST excavation in the area of the gasoline USTs. However, a water sample was collected to characterize conditions. This sample collected indicates the presence of gasoline, BTEX, and lead.

In July 2010, groundwater sample events began to be conducted on a quarterly basis. The samples were analyzed for petroleum hydrocarbons. The conditions at Roby's Property are represented by four monitoring wells. During the last four quarters (July 2010-June 1011), the highest levels of petroleum constituents found groundwater are found in the chart below.

WELL ID	GASOLINE (PPB)	DIESEL (PPB)	LUBE OIL (PPB)	BENZENE (PPB)	ETHYLBENZENE (PPB)	TOLUENE (PPB)	XYLENES (PPB)
MW-5*	nd	nd	nd	nd	nd	nd	nd
MW-6	nd	nd	**672**	nd	nd	nd	nd
MW-7	nd	nd	nd	nd	nd	nd	nd
MW-15	**438**	**7820**	**7840**	nd	1.2	nd	nd

*sampled only during June 2011 sampling event
bold = above MTCA cleanup levels

In December 2011, Geo Engineers used direct push drilling technique to collect soil and water samples and better characterize contaminant conditions at Roby's Property. Apparently, the site contained a dry well. Samples were analyzed for volatile organic compounds, ethyldibromine, NWTPH-Dx, NWTPH-Gx, and total metals. Laboratory results indicate the presence of naphthalene, gasoline, diesel, heavy oil, BTEX, lead, and acetone in groundwater.

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:	**n/a**	Surface Water/Environmental.:	**n/a**
Air/Human Health:	**n/a**	Air/Environmental:	**n/a**
Groundwater/Human Health:	**48.5**		

OVERALL RANK: 3

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE –** *or Not Scored*

2. **AIR ROUTE –** *or Not Scored*

3. **GROUNDWATER ROUTE**

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

   Naphthalene, diesel, heavy oil, benzene, ethylbenzene, toluene, xylenes, lead, and acetone

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

   Exceed MTCA cleanup standards and/or are considered more toxic

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

   Subsurface soil and groundwater

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

   Laboratory results confirm the presence of these substances at levels which exceed the 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	acetone	--	ND	3000	3	0.1	1	--	--	--
2	benzene	5	8	3306	3	--	ND	0.8	3	2.1
3	lead	15	6	--	ND	0.001	10	0.8	--	--
4	napthalene	20	6	490	5	0.004	3	--	--	--

** Potency Factor*

Source: 3

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 [Coefficient of Aqueous Migration (K)] OR	Solubility (mg/L)
1=	1= 0
2=	2= 3
3= 2	3=
4=	4= 1

Source: 7

Value: 3
(Max = 3)

1.3 Substance Quantity:

Explain basis: Due to shallow groundwater at the site, the contaminants of concerns do not have the "potential for release via the groundwater route" because they are found in groundwater. Because the value assessed for this category is not easily determined and it doesn't affect the outcome of the final rank, I have not calculated substance quantity for this site.

Source: 5

Value: unknown
(Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Leaking underground storage tank site with possible spills and discharges; Site is not paved	2, 3, 5	**10** (Max = 10)
2.2	**Net precipitation:** 3.9 – 15.3 = <0 (Wapato)	8	**0** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** primarily silt with organic, sand, and gravel components	1	**3** (Max = 4)
2.4	**Vertical depth to groundwater:** a confirmed release to groundwater has been determined	1, 2	**8** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Public supply, but alternate sources available with minimum hookup requirements	11	**4** (Max = 10)
3.2	**Distance to nearest drinking water well:** 2000 **feet**	12	**3** (Max = 5)
3.3	**Population served within 2 miles:** The public water supply well serves 804 people, however, after including three people per water right claim a total population equals 1638. Therefore, √1638 = 40.47	10, 11	**40** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** **(0.75)*√# acres** = (0.75) * √ 3214.09 = 42.52	10	**43** (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Analytical results confirm the presence of the contaminants of concern in groundwater	3	**5** (Max = 5)

SOURCES USED IN SCORING

1. Underground Storage Tank Site Assessment, Fulcrum Environmental Consulting, Inc., May 31, 2011
2. Groundwater Monitoring Reports, GeoEngineers, July 2010-June 2011
3. Analytical Report, TestAmerica, December 9, 2011
4. Site Characterization Report, GeoEngineers, October 2010
5. Site visits by Ecology site managers, Mary Monahan and Jason Shira, during groundwater sampling events
6. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992

7. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
8. Washington Climate, May 1979
9. US EPA SITEINFO GIS Query for Latitude/Longitude of site – Attached
10. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
11. Washington State Department of Health, Office of Drinking Water Sentry website printout for public water supplies
12. Water well report for Jose Jimenez