WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

Name: Benton City Maintenance Yard
Address: Dale Ave. & 7th St.
City: **Benton City** County: **Benton** State: **WA** Zip: **99320**
Section/Township/Range: **S18/ T9N/ R27E**
Latitude: **46° 15' 49" N** Longitude: **119° 29' 03" W**
TCP ID #: **34717571**

Site scored/ranked for the February 21, 2007 update.

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

The Benton City Maintenance Yard site was listed on the Washington State Department of Ecology's (Ecology) Integrated Site Information System list due to contamination found during the removal of three underground storage tanks (USTs) from the site in December 1991. The site at that time of listing had an address of 509 7th Street; since then the land was platted into three lots along with the maintenance shop abandonment and removal.

The USTs removed from the site included a 500 gallon diesel tank, a 2,500 gallon unleaded gasoline tank, and 1,000 gallon regular gasoline tank. The unleaded gasoline tank was installed in 1981; the other two tanks' in-service date is unknown but is estimated to be over 25 years old in 1991. The two gasoline tanks were located end to end along the south fence at the property. The diesel tank was located in the middle of the yard southwest of the shop.

The site is located 0.5 miles east of the Yakima River in Benton City. The USTs are approximately 30 feet north of the old Kiona Irrigation District Irrigation Canal which is now piped and 85 feet south of the old Union Pacific Railroad line.

On December 17, 1997, employees from PetCo Incorporated (PetCo) removed the three USTs from the maintenance yard in accordance with "Guidance for Site Checks and Site Assessments for Underground Storage Tanks" published in 1991 by Ecology. It was observed that the diesel tank and the regular gasoline tank were rusty but no visible evidence of leakage, while the unleaded gasoline tank was in excellent condition. After the UST removal there was evidence of contamination beneath the regular gasoline tank. Five soil samples were taken in the excavation that contained both the regular and unleaded gasoline tanks and another three soil samples were taken in the bottom of the excavation to remove the diesel tank. Soil samples were sent for analysis with results revealing contamination above Model Toxic Control Act (MTCA) Method A cleanup levels for gasoline with benzene present, benzene, toluene, ethylbenzene, and xylene in the gasoline tanks excavation and diesel above MTCA Method A cleanup level in the diesel tank excavation.

The soil removed from USTs excavation was stockpiled onsite. The excavated soil was placed directly on the ground, not on polyethylene sheeting as required. On January 24, 1992, PetCo contacted Ecology about the possibility of remediation the contaminated soils onsite. PetCo proposed

to place the stockpiled contaminated soil loosely back in the excavation with two slotted PVC pipes extending to the surface with hoods. The concept was that the PVC pipes would enhance oxygen flow and the contaminated soils would be treated by this modified in-situ bioremediation system. There is no documentation of Ecology's response to the remediation proposal or the whereabouts of the contaminated soils that had been stockpiled onsite.

In 2001, the site was split up into three different lots. On September 29, 2005, Ecology changed the sites status to awaiting site hazard assessment. Upon the site visit by Kay Rottell on December 11, 2006, the site had no obvious surface contamination. The lot has been cleared of all structures with only the concrete slab from the old building and sparse vegetation remaining.

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:	**50.3**		

OVERALL RANK: 3

WORKSHEET 2
Route Documentation

1. **Surface Water Route** - not scored Source: 1

2. **Air Route** – not scored Source: 1

3. **GROUNDWATER ROUTE**

   a. List those substances to be considered for scoring: Source: 1

   Benzene, ethylbenzene, naphthalene (diesel), toluene, and xylene

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

   Analytical results from soil sampling indicate the presence of these hazardous substances at levels which exceed current Method A cleanup levels.

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

   Contaminated soils

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

   Spills/discharges caused soil contamination

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	Benzene	5	8	3306	3	-	ND	A	3	3
2	Ethylbenzene	700	4	3500	3	0.1	1	-	-	ND
3	Naphthalene	160	4	490	5	0.004	3	-	-	ND
4	Toluene	2000	2	5000	3	0.2	1	-	-	ND
5	Xylene	10000	2	50	10	2	1	-	-	ND

* *Potency Factor*

Source: 1, 3,4,10

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= 1.8E3 = 3
2=	2= 1.5E2 = 2
3=	3= 3.0E1 = 0
4=	4= 5.4E2 = 2
5=	5= 2.0E2 = 2

Source: 1,4

Value: 3
(Max = 3)

1.3 Substance Quantity (volume):

Explain basis: Total Volume of Tanks = 1,500 gallons; Unknown volume of release. The site contained 1,000 gallon regular gasoline tank and 500 gallon diesel tank. The site also contained a 2,500 gallon unleaded gasoline tank, but there is no evidence that this tank leaked; therefore it is not used in the volume calculation.	Source: 1, 4 **Value: 4** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Contaminated soil left after excavation with no cap.	1,4	**10** (Max = 10)
2.2	**Net precipitation:** 4.7" – 3.2" = 1.5"	4,7	**1** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** fine silt loam	1,4	**3** (Max = 4)
2.4	**Vertical depth to groundwater:** Groundwater is at 35 to 47 feet in the area. Contamination was found 10 feet below the ground surface. Depth to groundwater 35 - 10 = 25 or 47 – 10 = 37 (>25 – 50)	1,4	**6** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Public supply; not alternate unthreatened sources available with minimal hookups	4,6,8,9	**9** (Max = 10)
3.2	**Distance to nearest drinking water well:** <2600 **feet**	4,6	**3** (Max = 5)
3.3	**Population served within 2 miles: √ pop.** = √3127 = 55.9	4,8,9	**56** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles: (0.75)*√# acres** = 0.75 * √862.85 = 22.03	4,5	**22** (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: No release documented	1,4	**0** (Max = 5)

SOURCES USED IN SCORING

1. Site Assessment Report For City of Benton City Maintenance Yard, January 1992, PetCo Incorporated, for City of Benton City.

2. Department of Ecology Central Region Office's site file and correspondence.

3. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.

4. Washington Department of Ecology, WARM Scoring Manual, April 1992.

5. Ecology Water Rights Information System (WRIS).

6. Facility Site/Atlas, Department of Ecology, Geographic Information System, available at http://apps.ecy.wa.gov/website/facsite/viewer.htm

7. Washington Climate for Benton, Franklin Counties, Cooperative Extension Services, College of Agriculture, Washington State University.

8. Washington State Department of Health, Division of Environmental Health, Office of Drinking Water, Water System Search, Available at http://www4.doh.wa.gov/SentryInternet/FindWaterSystem.aspx

9. Washington Department of Ecology Well Log Viewer, available at http://apps.ecy.wa.gov/welllog/.

10. Washington State Department of Ecology CLARC Database, https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx

11. Site Hazard Assessment Site Visit by Kay Rottell, December 12, 2006.

WASHINGTON RANKING METHOD

ROUTE SCORES SUMMARY AND RANKING CALCULATION SHEET

Site Name: Benton City Maintenance Yard Region: Central

Street, City, County: Dale Ave & 7th St., Benton City, Benton County

Facility ID: 34717571

This site was(X) ranked,( ) re-ranked, on December 12, 2006 based on the August 23, 2006 quintile values from a total of 912 assessed/scored sites.

Pathway	Route Scores	Quintile Group number(s)	Priority scores:
SW-HH			$\frac{H^2 + 2M + L}{8}$ = 2
Air - HH			$4^2/8 = 16/8 =$
GW-HH	50.3	4	
SW-En			$\frac{H^2 + 2L}{7}$ =
Air-En			

Use the matrix presented to the right, along with the two priority scores, to determine the site ranking. N/A refers to where there is no applicable pathway (e.g. typically with ground water route-only sites).

Human Health \ Environment	5	4	3	2	1	N/A
5	1	1	1	1	1	1
4	1	2	2	2	3	2
3	1	2	3	4	4	3
→ 2	2	3	4	4	5	(3)
1	2	3	4	5	5	5
N/A	3	4	5	5	5	NFA

(DRAFT) / FINAL

Matrix ("bin") Ranking: 3 , ___
No Further Action

CONFIDENCE LEVEL: The relative position of this site within this bin is:

___ almost into the next higher bin.
X right in the middle, unlikely to ever change.
___ almost into the next lower bin.