North Central Petroleum Spill Final SHA Report May 9, 2006

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:

Name: North Central Petroleum Spill
Address: SR 17 Near MP 123
City: Bridgeport County: Douglas State: WA Zip: 98813
Section/Township/Range: T28N/R27E/S16/17
Latitude: 47^0 55.791' Longitude: 119^0 27.328'
Facility Site ID #: 25378742

Site scored/ranked for the August 2006 update

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

On December 1, 1994, a tanker truck operated by North Central Petroleum (NCP) overturned on Highway 17 approximately 17 miles east of Bridgeport, Washington. Approximately 6250 gallons of leaded and 900 gallons of unleaded gasoline were spilled. Spilled gasoline entered the soils and groundwater on the north and south sides of the highway. A quantity of gasoline was pumped from a pit which the contractor had dug in the ground.

The site and surrounding areas are primarily used for grazing of livestock and contain no aboveground structures or other man-made features. Washington State Department of Ecology (Ecology) records indicate no registered water wells within one mile of the site.

Approximately 7700 cubic yards of soil were excavated by LMH Environmental and stockpiled near the site. Of eight samples taken from this stockpile on August 8, 1996, all but one was non-detectable for total petroleum hydrocarbons-gasoline range (TPH-G). One sample had a TPH-G concentration of 43 mg/kg, which is above the Model Toxics Control Act (MTCA) Method A soil cleanup level of 30 mg/kg.

In March 1995, NCP authorized Summit Envirosolutions Inc. to assess petroleum concentrations in groundwater in the vicinity of the spill area. Four groundwater monitoring wells were installed, and samples were collected and analyzed for TPH-G and BTEX (benzene, toluene, ethylbenzene, xylene). No analysis was done for lead in soil or groundwater. The initial samples exceeded MTCA Method A groundwater cleanup levels for all parameters tested as shown below:

Parameter	Concentration Range (ug/L) *	MTCA Level A (ug/L) *
TPH-G	3100-240,000	800
Benzene	160-25,000	5
Toluene	540-43,000	1000
Ethylbenzene	53-2800	700
Xylene	490-24,000	1000

*results expressed in micrograms per liter

A site visit was made on October 9, 1996, by Dick Bassett from Ecology's Central Regional Office (CRO). He stated that surface remediation appeared to be complete, and there was no apparent difference in vegetation in the spill area. He recommended that the site receive no further action. However, a re-evaluation of the site was conducted by Mark Peterschmidt of the CRO based upon groundwater data shown in Summit Envirosolution's report dated April 11, 1997. A site hazard assessment (SHA) was recommended, and an Early Notice Letter was sent on December 23, 1998.

Samples have been taken annually by West Central Environmental Consultants from each of the four monitoring wells and analyzed for TPH-G and BTEX. The September 2002 samples indicated that three of the monitoring wells (MP-1, MP-3, MP-4) had results for all parameters tested which were below MTCA Method A cleanup levels for groundwater. Well MP-2 exceeded MTCA for TPH-G (10,700 ug/L) and benzene (4140 ug/L). The wells were sampled in September 2003, 2004 and 2005 and analyzed for MTBE (methyl-tert-butyl-ether) in addition to TPH-G and BTEX. The values for all parameters showed steady declines each year. Results from the most recent samples taken in September 2005 again showed that only MP-2 exceeded MTCA Method A cleanup levels for TPH-G (1670 ug/L) and benzene (354 ug/L). However, MP-4 had 39.4 ug/L MTBE, which exceeded the MTCA Method A value of 20 ug/L.

ROUTE SCORES:

Surface Water/Human Health:	**2.8**	Surface Water/Environmental.:	**3.1**
Air/Human Health:	**NS**	Air/Environmental:	**NS**
Groundwater/Human Health:	**37.0**		

OVERALL RANK: **5**

WORKSHEET 2
Route Documentation

1. **AIR ROUTE** – *Not Scored*

2. **GROUNDWATER ROUTE**

   a. List those substances to be considered for scoring: Source: 1,2

   Benzene, TPH-G, methyl-tert-butyl-ether (MTBE), lead

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

   The most recent groundwater analyses show only benzene, TPH-gasoline, and MTBE were detected at significant concentrations

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

   Contaminated groundwater

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

   Benzene, TPH-G, and MTBE contamination confirmed by most recent laboratory testing (September 2005)

3. **SURFACE WATER ROUTE**

   a. List those substances to be considered for scoring: Source: 1,2

   Benzene, TPH-G, methyl-tert-butyl-ether (MTBE), lead

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

   The most recent groundwater analyses show only benzene, TPH-gasoline, and MTBE were detected at significant concentrations

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

   Contaminated groundwater and surface soils

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

   Benzene, TPH-G, and MTBE contamination confirmed by most recent laboratory testing (September 2005)

WORKSHEET 4

Surface Water 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	Benzene	5	8	3306	3		ND	A	.029	5
2	Lead	5	8	ND	-	<0.001	10	B2	ND	-
3	MTBE	20	6	ND	-	.857	1	B	0.68	5
4										
5										
6										

Potency Factor

Source: 2,5,6

Highest Value: 10
(Max = 10)

Plus 2 Bonus Points? 2

Final Toxicity Value: 12
(Max = 12)

1.2 Environmental Toxicity

	Substance	Acute Water Quality Criteria		Non-Human Mammalian Acute Toxicity	
		(µg/L)	Value	(mg/kg)	Value
1	Benzene	5300	2		
2	Lead	82	6		
3	MTBE	ND		ND	
4					
5					

Source: 2,5,6

Highest Value: 6
(Max = 10)

1.3 Substance Quantity

Explain Basis: **6900 gallons**	Source: 1 **Value: 5** (Max = 10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment:** **Explain basis: Soil contamination that has been covered or partially excavated and filled with clean soil**	1,2	**0** (Max = 10)
2.2	**Surface Soil Permeability: silt loam**	3	**3** (Max = 7)
2.3	**Total Annual Precipitation: 11 inches**	7	**1** (Max = 5)
2.4	**Max 2yr/24hr Precipitation: 1.5 inches**	6	**2** (Max = 5)
2.5	**Flood Plain: Not in flood plain**	11	**0** (Max = 2)
2.6	**Terrain Slope: Estimated at 10 %**	11	**5** (Max = 5)

3.0 TARGETS

		Source	Value
3.1	**Distance to Surface Water: estimated 200 feet**	11	**10** (Max = 10)
3.2	**Population Served within 2 miles: No downstream water intakes within 2 miles; therefore population = 0.**	10	**0** (Max = 75)
3.3	**Area Irrigated within 2 miles : (0.75)*$\sqrt{20}$ acres = 3.4 = 3**	8	**3** (Max = 30)
3.4	**Distance to Nearest Fishery Resource: > 10,000 feet**	10	**0** (Max = 12)
3.5	**Distance to, and Name(s) of, Nearest Sensitive Environment(s): > 10,000 feet**	10	**0** (Max = 12)

4.0 RELEASE

Explain Basis: **None documented by analytical evidence.**	Source: 1,2 **Value: 0** (Max = 5)

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	.029	5
2	Lead	5	8	ND	-	<0.001	10	B2	-	-
3	MTBE	20	6	ND		0.857	1	B	0.68	5
4										
5										
6										

* *Potency Factor*

Source: 2,5,6

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= 1,800 (=3)
2= 0.1 to 1.0 (=2)		2
3=		3= 50,000 (=3)
4=		4=

Source: 2,6

Value: 3
(Max = 3)

1.3 Substance Quantity:

Explain basis: **Unknown, use default value = 1**	Source: 6 **Value: 1** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Spill, discharge to soil, no cap	2,6	**10** (Max = 10)
2.2	**Net precipitation:** 7.1 minus 2.3 = 4.8 inches	7	**1** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** silty clay	1,2,6	**2** (Max = 4)
2.4	**Vertical depth to groundwater:** Observed release	3,6	**8** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** private supply, no alternate unthreatened sources	1,2,6	**5** (Max = 10)
3.2	**Distance to nearest drinking water well:** ~ 5200 **feet**	1,4,6	**1** (Max = 5)
3.3	**Population served within 2 miles: $\sqrt{}$pop. = $\sqrt{}$10 = 3.16 = 3**	6,9	**3** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** (0.75)*$\sqrt{}$# acres = (0.75)*$\sqrt{}$10 acres = 0.75*3.16 = 2.4 = 2	6,8	**2** (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Contaminants in groundwater documented by analytical data	2,6	**5** (Max = 5)

SOURCES USED IN SCORING

1. Summit Envirosolutions, Inc. report dated April 11, 1997 (project no. 0867-001)
2. West Central Environmental Consultants report dated November 14, 2005
3. Soil Survey of Douglas County, Washington (USDA 1981).
4. Water well reports on file at Chelan-Douglas Health District
5. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
6. Washington Department of Ecology, WARM Scoring Manual, April 1992.
7. Washington Climate – Net Rainfall Table
8. Water Rights Application Tracking System (WRATS) printout for two-mile radius of site.
9. US EPA SITEINFO GIS Query for Latitude/Longitude of site.
10. Map of Douglas County, published 2004 by Douglas County Transportation and Land Services.
11. Site visit by Tom Guthrie March 14, 2006
12. Ecology spill response sheet (Tom Mackie 12/1/1994)

N. side of Highway 17 looking south towards spill site March 14, 2006

S. side of Highway 217 looking south towards seasonal creek March 14, 2006