

SITE HAZARD ASSESSMENT  
WORKSHEET 1  
Summary Score Sheet

**SITE INFORMATION:**

**BNSF Track Switching Facility**

500 Main Street  
Wishram, Klickitat County, WA 98673

Section/Township/Range: Sec 17/T2N/R15E  
Latitude: 45° 39' 32.30" Longitude: 120° 57' 56"

Ecology Facility Site ID No.: 1625461

*Site scored/ranked for the August 22, 2007 update*  
August 14, 2007

**SITE DESCRIPTION**

The Burlington Northern/Santa Fe Railway Company (BNSF) Track Switching Facility site is located on the northern shoreline of the Columbia River, approximately 0.75 miles south of Wishram Heights, WA, on State Route 14. It is the location of a former underground storage tank (UST) located at 500 Main Street, near the southwestern boundary of the town of Wishram.

The UST was formerly located approximately 50 feet north of a small maintenance shop and five feet west of a former boiler house at the western end of the facility. The 30,000 gallon, single-walled, steel UST was used to supply heating oil to the adjacent boiler house. The tank was installed in the early 1970's and used until approximately 1982. After the boiler house was no longer used by BNSF, the building was converted to a parking garage for the Wishram Volunteer Fire Department ambulance.

Following "discovery" of this UST by BNSF in January 2002, their contractor Kennedy/Jenks Consultants subcontracted RMCAT Environmental Services, Inc., Portland (RMCAT), to conduct a site assessment later than same month, with removal of the tank by RMCAT occurring in April 2002.

During the site assessment phase, RMCAT collected subsurface soil samples from 17 direct-push soil borings advanced around the UST. In all but two of locations, soil samples were taken from depths ranging from 10- 16 feet. Analytical results documented the presence of diesel and heavy oil at concentrations significantly in excess of their Model Toxics Control Act (MTCA) Method A cleanup levels.

The UST, which contained diesel and heavy oil at a depth of approximately two inches, was removed in April 2002. Following the UST removal, approximately 750 tons of petroleum contaminated soil was excavated down to 16 feet depth (bedrock), and transported offsite for disposal at the Rabanco

landfill in Roosevelt, WA. Clean overburden and imported pit-run were then placed into the completed excavation in two-foot thick lifts and compacted.

Prior to backfilling, RMCAT collected 30 confirmation samples from the excavation sidewalls; however none were collected from the bedrock at the bottom. Analytical results showed a thin layer of soil containing diesel and heavy oil at concentrations exceeding their MTCA Method A Cleanup levels remained in place just above bedrock to the north, east, and south of the excavated area: diesel concentrations up to 118,500 mg/kg and heavy oil concentrations as high as 62,900 mg/kg (MTCA Method A = 2000 mg/kg for each).

These UST and soil removal activities resulted in a Washington Department of Ecology (Ecology) Environmental Report Tracking System (ERTS) reported being generated from a complaint from a member of Klickitat Fire District 11 in mid-April 2002. The fire chief was concerned about the strong petroleum smells, and that holes were being filled without removal of contamination. Ecology's UST database records a report of the petroleum release (from a tank or piping failure) in November 2003.

BNSF was notified on January 4, 2005, that this site would be added to Ecology's Confirmed and Suspected Contaminated Sites list, and they were further notified on November 8, 2006, that an SHA will be conducted. This resulted in the submission by Kennedy/Jenks of a report detailing BNSF follow-up to the April 2002 activities.

Between October 24 and November 11, 2005, NRC Environmental Services, Inc. (NRC), under the direction of Kennedy/Jenks, excavated a further 3,656 tons of petroleum contaminated soil; remove approximately 10 tons of abandoned piping and one unregistered 5,000 gallon lubricating oil UST; removed/disposed of approximately 1,800 gallons of bunker C oil, lubricating oil, and diesel from the piping and UST; removed/disposed of approximately 300 tons of steel-reinforced concrete; and spread 400 pounds of oxygen release compound on the bottom of the open excavations.

Analytical results from confirmation samples show that the majority of the petroleum contaminated soils were removed, with only small, localized residual hydrocarbon concentrations left where further excavation could not be conducted safely. A summary of on-site groundwater monitoring well sample results document concentrations of both diesel-range and gasoline range hydrocarbons, as well as arsenic, in excess of their respective MTCA Method A groundwater cleanup levels.

A site visit on April 4, 2007, visually confirmed that the site was primarily covered with coarse gravels. No noticeable odors of petroleum products were noted during a thorough walk-around of the property border, other than what would be expected in a railroad yard.

**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  
Air/Human Health: NS  
Groundwater/Human Health: 41.2

Surface Water/Environmental.: NS  
Air/Environmental: NS

**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: 1-3
  
- b. Explain basis for choice of substance(s) to be used in scoring:  
These substances were detected in on-site subsurface soil and groundwater samples associated with the site in concentrations exceeding their respective MTCA cleanup levels.
  
- c. List those management units to be considered for scoring: Source: 1-3  
Subsurface soils and groundwater.
  
- d. Explain basis for choice of unit to be used in scoring:  
The contaminating substances were detected in on-site subsurface soil and groundwater samples in concentrations exceeding their respective MTCA cleanup levels.

WORKSHEET 6  
Groundwater Route

**1.0 SUBSTANCE CHARACTERISTICS**

| <b>1.2 Human Toxicity</b> |                                |       |                            |       |                              |       |                 |             |       |  |
|---------------------------|--------------------------------|-------|----------------------------|-------|------------------------------|-------|-----------------|-------------|-------|--|
| Substance                 | Drinking Water Standard (µg/L) | Value | Acute Toxicity (mg/ kg-bw) | Value | Chronic Toxicity (mg/kg/day) | Value | Carcinogenicity |             | Value |  |
|                           |                                |       |                            |       |                              |       | WOE             | PF*         |       |  |
| 1 TPH-diesel              | 160                            | 4     | 490 (rat)                  | 5     | 0.004                        | 3     | ND              | ND          | -     |  |
| 2 TPH-gasoline (benzene)  | 5                              | 8     | 3306                       | 3     | ND                           | -     | A=1             | .029<br>= 5 | 5     |  |
| 3 Arsenic                 | 10                             | 8     | 763                        | 5     | 0.001                        | 5     | A= 1            | 1.75<br>= 7 | 7     |  |

\* Potency Factor

Source: 1-3,5

**Highest Value: 8**

(Max = 10)

**Plus 2 Bonus Points? 2**

**Final Toxicity Value: 10**

(Max = 12)

| <b>1.2 Mobility (use numbers to refer to above listed substances)</b> |                      |
|---|----------------------|
| Cations/Anions  | OR Solubility (mg/L) |
| 1=  | 1= 30 mg/l = 1       |
| 2=  | 2= >1000 mg/l = 0    |
| 3 = As is >1.0 = 3  |                      |

Source: 3,6

**Value: 3**

(Max = 3)

| <b>1.3 Substance Quantity:</b>                   |  |
|--|--|
| Explain basis:<br>Unknown, use default value = 1 | Source: <u>4,6</u><br><b>Value: <u>1</u></b><br>(Max=10) |

## 2.0 MIGRATION POTENTIAL

|     |  | Source | Value                   |
|-----|--|--------|-------------------------|
| 2.1 | <b>Containment (explain basis):</b> Spill/discharge to soil, no cover = 10 | 4,6    | <u>10</u><br>(Max = 10) |
| 2.2 | <b>Net precipitation:</b> 13.1" – 3.4" = 9.7" or 14.8" – 5.1" = 9.7"       | 7      | <u>1</u><br>(Max = 5)   |
| 2.3 | <b>Subsurface hydraulic conductivity:</b> Fine to medium sand/gravels      | 1-3    | <u>4</u><br>(Max = 4)   |
| 2.4 | <b>Vertical depth to groundwater:</b> Obs. release to groundwater = 0'     | 1-3    | <u>8</u><br>(Max = 8)   |

## 3.0 TARGETS

|     |  | Source | Value                    |
|-----|--|--------|--------------------------|
| 3.1 | <b>Groundwater usage:</b> Public supply, unthreatened alts. avail.                           | 8,9    | <u>4</u><br>(Max = 10)   |
| 3.2 | <b>Distance to nearest drinking water well:</b> 2,600 - 5,000 feet                           | 8,9    | <u>2</u><br>(Max = 5)    |
| 3.3 | <b>Population served within 2 miles:</b> $\sqrt{425} = 20.6 = 21$                            | 8,9    | <u>21</u><br>(Max = 100) |
| 3.4 | <b>Area irrigated by (groundwater) wells within 2 miles:</b><br>(0.75)* $\sqrt{0}$ acres = 0 | 8,9    | <u>0</u><br>(Max = 50)   |

## 4.0 RELEASE

|  |  | Source | Value                 |
|--|--|--------|-----------------------|
|  | <b>Explain basis for scoring a release to groundwater:</b> Confirmed by presence of free product in groundwater. | 1-3    | <u>5</u><br>(Max = 5) |

## SOURCES USED IN SCORING

1. UST Site Assessment and Removal Report, Wishram, Washington, The Burlington Northern and Santa Fe Railway Company, Kennedy/Jenks Consultants, October 2003.
2. Ecology Central Regional Office Department Decision Recommendation, December 28, 2004.
3. Kennedy/Jenks Consultants submissions of December 21, 2006 (further remedial activities) and January 2, 2007 (Groundwater monitoring well sample results for Sept-03 through Nov-06).
4. Site hazard assessment site visit by Michael Spencer, Washington Department of Ecology Toxics Cleanup Program, April 4, 2007.
5. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
6. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
7. Washington Climate – Net Rainfall Table
8. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
9. Washington State Department of Health, Sentry Internet Database printout for public water supplies.