



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

CERTIFIED MAIL

July 26, 2006

Amy Essig Desai
Farallon Consulting
320 3rd Avenue NE
Issaquah, WA 98027

Re: Further Action Determination under WAC 173-340-515(5) for the following Hazardous Waste Site:

- Name: BNSF Winlock
- Address: 908 NW Kerron Avenue, Winlock, WA
- Facility/Site No.: 3151688
- VCP No.: SW0775

Dear Ms. Amy Essig Desai:

Thank you for submitting your independent remedial action report for the BNSF Winlock facility (Site) for review by the State of Washington Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding whether further remedial action is necessary at the Site to meet the substantive requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC. Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.



Ecology's Toxics Cleanup Program has reviewed the following information regarding the Site:

1. Farallon Consulting, Supplemental Subsurface Investigation, BNSF Winlock, 908 Northwest Kerron Avenue, Winlock, Washington, May 31st, 2006.

The documents listed above will be kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Appointments can be made by calling the SWRO resource contact at (360) 407-6365.

The Site is defined by the extent of contamination caused by the following release(s):

- Petroleum hydrocarbons in Soil.
- Petroleum hydrocarbons in Groundwater.
- Petroleum hydrocarbons in Surface Water

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of the independent remedial action report and supporting documentation listed above, **Ecology has determined that the independent remedial action(s) performed at the Site are not sufficient to meet the substantive requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing any of the contamination at the Site.** Therefore, pursuant to WAC 173-340-515(5), Ecology is issuing this opinion that **further remedial action is necessary** at the Site under MTCA.

Recommendations:

1. A Supplemental Subsurface Investigation Report conducted by Farallon Consulting indicated that a previous subsurface investigation was conducted at the site but did not provide any documentation to Ecology about these previous site investigations. Environmental Management Resources Incorporated (EMR) conducted a property inspection at the Site in 1999, and Wayne M. Coppel conducted a Level II Site Assessment at the Site in July 2000. *Ecology requests a copy of all remedial investigation reports pertaining to the subject site in order to fully characterize the nature and extent of soil and groundwater contamination.*

2. The full extent of contamination will need to be determined for both the soils and groundwater as delineated in WAC 173-340-350(7)(c)(iii)(B) and (C). ***Ecology recommends the installation of additional groundwater monitoring wells (west of borehole B-9, and monitoring wells along the west side of NW Kerron Avenue); a monitoring well near borehole B-6, and an additional monitoring well along the northwestern site boundary (north of B-11). All soil and groundwater samples must be analyzed for GRO, DRO, ORO, and required constituents under those categories as outlined in page WAC 173-340-900, Table 830-1 at the required detection limits.***
3. The pump house and ASTs may serve as a contamination source for soil, groundwater, and surface water due to leaks and spills. ***Ecology also recommends drilling an additional borehole/monitoring well between the pump house and warehouse, and additional boreholes/monitoring wells in the area between the ASTs and warehouse.***
4. Two catch basins exist on the western side of the site, and a drainage ditch exists on the northern portion of the site. Surface water and soils may be impacted in these areas due to leaking ASTs and stormwater runoff. ***Ecology recommends a characterization plan for the catch basins and drainage ditch. Surface water and soil should be analyzed to address possible petroleum hydrocarbon contamination within these areas.***
5. Groundwater analytical results from samples B5 and B6 indicated detections of GRO, DRO, and ORO above MTCA Method A cleanup levels. Samples B5 and B6 were additionally sampled for BTEX, but for no other constituents. Additionally, samples B7, B8, B9, and B11 contained detections of DRO and ORO above Method A cleanup levels but were not sampled for DRO and ORO-related constituents. At this particular site, groundwater should be sampled for all contaminants of concern rather than selecting out and testing for particular contaminants given that GRO, DRO, and ORO were found coexisting in many of the wells. ***Therefore, Ecology recommends retesting all groundwater samples for GRO, DRO, and ORO related constituents as outlined in Table 830-1 such as naphthalene, 1-methyl-naphthalene, 2-methyl-naphthalene, low-level (detection limit below 0.01 µg/L) 1,2-dibromoethane (EDB), and 1,2-dichloroethane (EDC) at the required detection limits. If all required analytical testing was completed on some wells, retesting is not necessary on those wells. Also, please refer to footnotes in Table 830-1 for testing requirements. An X in the box means that the testing requirement applies to groundwater and soil if a release is known or suspected to have occurred to the medium, unless otherwise specified in the footnotes. MTCA requires that if contaminants exist in the groundwater above cleanup levels, then the soil must be tested for those contaminants as well.***

In accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy

Ms. Amy Essig Desai
July 26, 2006
Page 4

840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted in both a written and electronic format. For additional information regarding electronic format requirements, see the website <http://www.ecy.wa.gov/eim>. All laboratory analyses shall be performed by the State of Washington Certified Laboratory for each analytical method used.

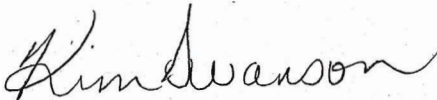
Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or performed at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (360)407-6255.

Sincerely,



Kim Swanson
SWRO Toxics Cleanup Program

KS/ksc:BNSF Winlock Further Action letter

Enclosures: Site Summary
Figures 1 through 5- Site Diagrams
Tables 1 through 7- Soil and Groundwater Analytical Results

Cc: Bruce Sheppard
Steve Garrett, Lewis County Public Health
Robert Warren- Ecology

ENCLOSURE A

The site is located at 908 NW Kerron Avenue, Winlock, WA within Township 12 North, Range 2 West, Section 28, of the Willamette Meridian in Lewis County, Washington. The site is currently unoccupied, with existing structures that include an abandoned warehouse, overhead fuel racks, four 20,000 to 30,000 gallon aboveground storage tanks (ASTs), and two underground storage tanks (USTs) of unknown capacity. The site has been used as a bulk fuel storage plant from approximately 1925 through 1976. Shell Oil Company (Shell) leased the site from BNSF for use as a bulk fuel storage facility in 1925, when the site was first developed. In 1970, the lease was transferred from Shell to Cummings Oil Company, which continued to operate the bulk fuel storage facility until approximately 1976.

Soil at the site may be characterized as Prather silty clay loam. The upper part is very dark brown silty clay loam followed by dark brown silty clay to a depth of 60 inches. Permeability of this soil is slow.

Surface water on the site is captured by two catch basins on the western side of the site, and by a drainage ditch on the northern part of the site. The drainage ditch on the northern part of the site is approximately 3 feet deep, and is uncontained until it flows into an underground pipe and drains to the catch basin. An underground stormwater line exists in the western side of the site and is composed of 12-inch concrete or tile pipe located 18 inches below ground surface (bgs). A topographic map of the vicinity indicates that the site is relatively flat, and slopes to the west-southwest towards Olequa Creek which is located 660 feet west of the site.

The following information has been reviewed regarding the site:

- Farallon Consulting, Supplemental Subsurface Investigation, BNSF Winlock, 908 Northwest Kerron Avenue, Winlock, Washington, May 31st, 2006.

In November 2005, Farallon Consulting conducted a subsurface investigation and evaluated the presence of Gasoline Range Organics (GRO), Diesel Range Organics, (DRO), Oil Range Organics (ORO), benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalenes, 1,2-dichloroethane (EDC), ethylene dibromide (EDB), methyl tertiary-butyl ether (MTBE), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and lead.

The Farallon consulting report indicated that previous subsurface investigations were

conducted at the site but did not submit reports to Ecology about these previous site investigations. Environmental Management Resources Incorporated (EMR) conducted a property inspection at the site in 1999, and Wayne M. Coppel conducted a Level II Site Assessment at the site in July 2000. The investigation completed by Wayne M. Coppel included collecting soil samples from six test pits located in areas on the site where either staining was observed or had the potential to release chemicals to soil and groundwater. Analytical results from this investigation indicated no detections of GRO and ORO in soil samples. DRO was detected, but below MTCA Method A cleanup levels in three soil samples. Shallow groundwater was observed in one of the test pits at a depth of approximately 9 feet below ground surface (bgs); however, no groundwater sample was collected. *Ecology requests a copy of all remedial investigation reports pertaining to the subject site in order to fully define the nature and extent of soil and groundwater contamination.*

Farallon Consulting directed the drilling of 12 direct-push borings (B1 through B12) and one hollow-stem auger boring (B13) at the site in November 2005. Four monitoring wells (MW-1 through MW-4) were also installed at the site in December 2005 (see figure 2). Soil and groundwater samples were analyzed using the following methods: GRO by NWTPH-Gx; BTEX by EPA Method 8021B; DRO and ORO by NWTPH-Dx.; EDB, EDC, and MTBE by EPA Method 8260B; lead by EPA Method 6000 Series, PAHs by EPA Method 8270/SIM; and PCBs by EPA Method 8082.

Soil sampling and analysis:

In November 2005, soil samples were collected from 0 to 4 feet bgs with the exception of soil sample B13. Soil was sampled in boring B13 from 5 to 6.5 feet bgs. In several borings, soil was sampled from 4 to 8 feet bgs. Soil samples collected from 0 to 4 feet bgs were submitted for NWTPH-HCID analysis. Soil samples with field-screening evidence of contamination were analyzed for GRO, DRO, ORO, and BTEX. The soil sample with the highest concentration of GRO (B6-0-4) was further analyzed for EDB, EDC, MTBE, lead, and PAHs. Follow-up analysis for PCBs was not performed on soil samples because insulating oil was not identified in the samples using NWTPH-HCID. Insulating oil is used as dielectric fluid in electrical equipment such as transformers, and can contain PCBs. *Note: B13-5-6.5 indicates that boring B13 was sampled from 5 to 6.5 feet bgs, B7-0-4 indicates that boring B7 was sampled from 0 to 4 feet bgs, etc. and this notation is indicated for all borings and sampling depths.*

In December 2005, soil samples were collected from monitoring wells MW-1 through MW-4. Refusal was encountered during advancement of MW-2A. As a result, MW-2A was abandoned and MW-2 was installed to replace MW-2A. One soil sample each was

collected from borings MW-1, MW-3, and MW-4 and analyzed for Total Petroleum Hydrocarbons (TPH) by NWTPH-HCID. MW-2A and MW-2 soil samples were analyzed for GRO, DRO, ORO, and BTEX.

A petroleum odor was noted in soil samples collected from borings B5 through B7, B9, B10, B12, B13, MW-2, and MW-2A. Volatile organic vapors were detected in each corresponding soil sample, with Photo Ionization Detector (PID) readings ranging from 2.0 to 238 units.

Total petroleum hydrocarbons were detected in one of 12 soil samples submitted for HCID analysis (B8-0-4, Table 1). The analytical results of the HCID analysis of sample B8-0-4, collected at 0 to 4 feet bgs, detected lube oil; however, lube oil as ORO was not detected above the practical quantitation limit (PQL) in the follow-up NWTPH-Dx analysis (Table 2).

Soil analytical results exceeding the MTCA Method A cleanup levels:

GRO in borings B5-4-8, B6-0-4, B6-4-8, B7-0-4, B7-4-8, B9-0-4, and B9-4-8 (142 mg/kg – 1790 mg/kg) (Table 2; Figure 3);

Benzene in borings B5-0-4, B5-4-8, B6-0-4, B6-4-8, B7-0-4, B7-4-8, and B9-0-4 (0.0643 – 3.97 mg/kg) (Table 2; Figure 3);

Ethylbenzene and total xylenes in borings B6-0-4 and B6-4-8 (8.15 mg/kg – 15.5 mg/kg) (Table 2; Figure 3);

Total naphthalene in boring B6-0-4: Naphthalene (0.742 mg/kg), 1-methylnaphthalene (4.76 mg/kg), and 2-methylnaphthalene (8.75 mg/kg) (Table 3)

DRO, ORO, toluene, EDB, EDC, MTBE, lead, or PAHs were not detected in the soil samples above the PQL.

Tables 1 through 3 summarize the soil analytical results for hydrocarbon identification, Volatile Organic Compounds (VOCs), lead, and PAHs. Figure 3 summarizes the analytical results for the organic compounds.

Groundwater sampling and analysis:

In November 2005, groundwater samples were collected from borings B1 through B9, B11, and B12, and from hollow-stem auger boring B13. A groundwater sample was not collected from boring B10 due to lack of measurable groundwater. Groundwater was encountered between 6 and 8.5 feet bgs in the soil borings.

Groundwater samples were submitted for TPH identification by NWTPH-HCID. If TPH were detected, groundwater samples were further analyzed for GRO, DRO, and ORO. If ORO was detected, groundwater samples were analyzed for BTEX.

Groundwater analytical results exceeding MTCA Method A cleanup levels:

TPH in borings B3, B5 through B9, and B11 (Table 4). Groundwater samples were additionally analyzed for DRO, ORO and/or GRO and BTEX, based on HCID analysis (Table 5);

GRO in borings B5 and B6 (16,200 – 46,000 µg/L) (Table 5; Figure 4);

DRO in borings B3, B5 through B9, and B11 (2,100 – 41,000 µg/L) (Table 5; Figure 4);

ORO in borings B5 through B9 and B11 (500 – 2,950 µg/L) (Table 5; Figure 4);

Benzene in borings B5 and B6 (141 – 2,380 µg/L) (Table 5; Figure 4);

Total xylenes in borings B5 and B6 (1,420 – 3,760 µg/L) (Table 5; Figure 4);

Ethylbenzene from boring B6 (1,380 µg/L) (Table 5; Figure 4);

Toluene was below the MTCA Method A cleanup level of 1,000 µg/L in two groundwater samples B5 and B6 (Table 5; Figure 4).

In December 2005, five hollow-stem auger borings were drilled and were completed as monitoring wells in four (MW-1 through MW-4) of the five borings. The monitoring well locations were selected based on analytical results of soil and groundwater samples. Refusal was encountered during advancement of MW-2A. As a result, MW-2A was abandoned and MW-2 was installed to replace MW-2A.

Groundwater samples in MW-1 through MW-4 were analyzed for GRO, DRO, ORO and BTEX. Groundwater samples from monitoring wells MW-1 and MW-3 were analyzed for PCBs, based on proximity to borings B3, B7, B8, and B11 that detected insulating oil in those borings. However, an insufficient volume of water was collected from the borings to analyze the groundwater samples for PCBs.

Groundwater analytical results indicated that benzene exceeded the MTCA cleanup level in MW-2 (Table 5; Figure 4). GRO, DRO, ORO, toluene, ethylbenzene, and total xylenes were not detected in groundwater samples above the PQL.

The distribution of GRO, DRO, ORO, benzene, ethylbenzene and xylenes above groundwater cleanup levels are predominantly within the western area of the site, with the exception of a DRO detection in boring B3 located on the southern side of the warehouse. DRO and ORO exceeding groundwater cleanup levels were detected between the northern site boundary and the central portion of the warehouse on the western side of the site.

The concentrations of ORO, benzene, ethylbenzene and xylenes exceeding groundwater cleanup levels were also detected in borings near the overhead fuel racks (borings B6 and B9) and monitoring well MW-2, which is located near the western site boundary.

The site is located in an area of outwash deposits, which consist of sand and gravel with minor silt and clay. The subsurface investigation encountered silt with woody debris and other organic matter underlying the surface soil to depths ranging from 5 to 8 feet below ground surface (bgs). Subsurface soil observed in the soil borings consists of a silt layer that extends from ground surface to 5 to 8 feet bgs. Underlying the silt is approximately 3 to 5 feet of gravel, and underlying the gravel is 2 feet of sand that extends to the maximum depth drilled of 12 feet bgs. All soil borings and monitoring wells completed during the subsurface investigation were completed within the sand. Groundwater was encountered at a depth of 7 feet bgs, with static groundwater levels at 0.5 to 2.5 feet bgs, indicating a confined aquifer. The groundwater flow direction and approximate hydraulic gradient were calculated from the groundwater level data shown on Table 7. Groundwater flow direction was estimated to the west-southwest toward Olequa Creek, under an average hydraulic gradient of 0.03. Groundwater contours are illustrated on Figure 5.

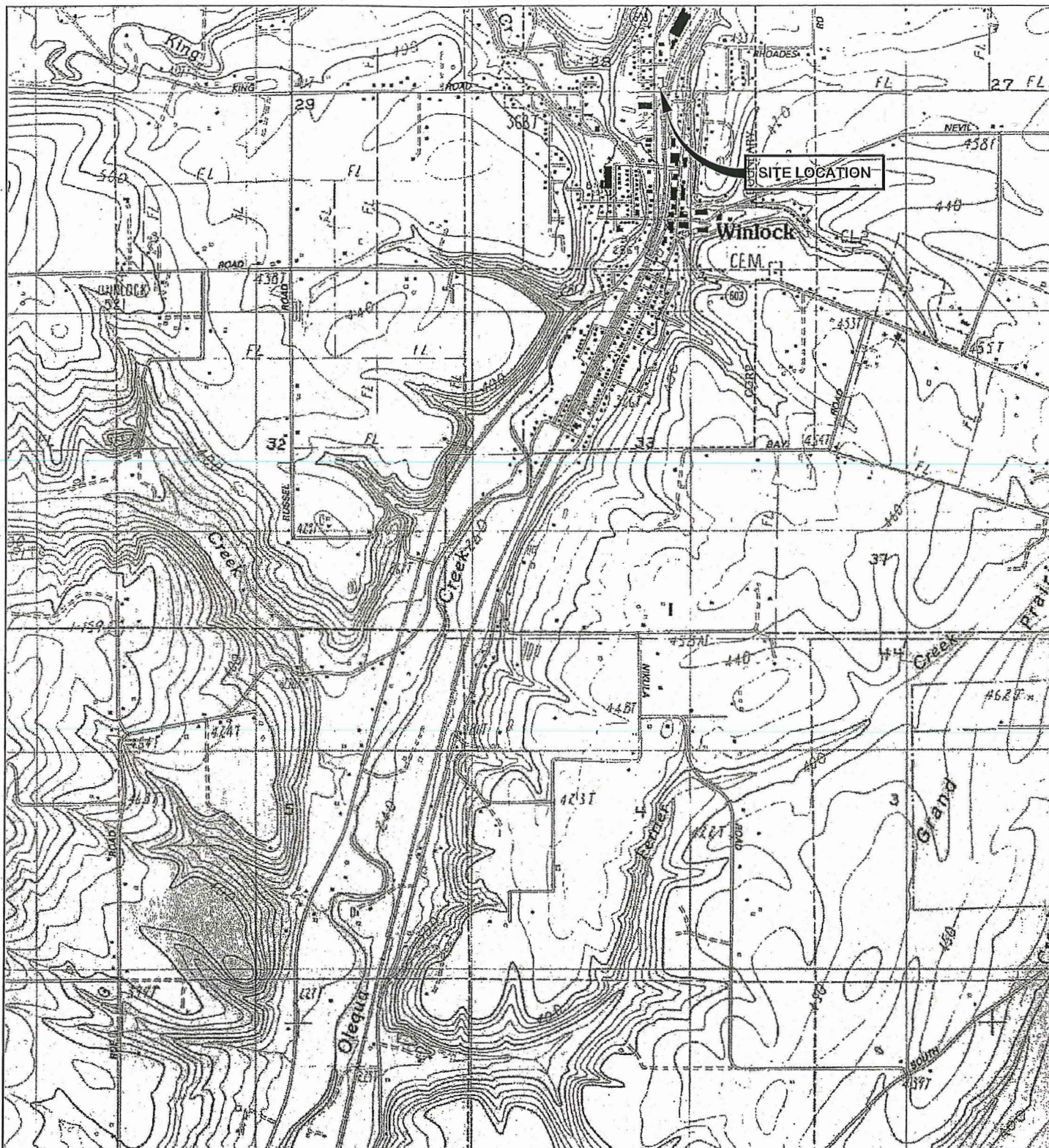
The Contaminants of Concern (COCs) that were detected in soil at the site exceeding the MTCA cleanup levels include GRO, benzene, ethylbenzene, total xylenes, and naphthalene.

The COCs that were detected in groundwater at the site exceeding the MTCA cleanup levels include GRO, DRO, ORO, benzene, ethylbenzene and total xylenes.

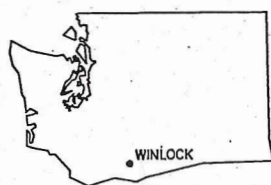
It appears that the sources of contamination to soil and groundwater at the site originated from spills and leaks from the ASTs and USTs, along with spills, leaks and joint leaks from above ground piping, underground piping, vent piping, UST fill ports, and fuel racks. It also appears that groundwater contaminants are migrating toward Olequa Creek.

The direction of groundwater flow and the concentrations of ORO, DRO, ORO and/or BTEX detected above the MTCA Method A cleanup levels in boring B9 and monitoring well MW-2 indicate that contaminated groundwater may have migrated off the site to the west (Figures 4 and 5).

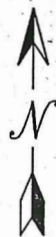
A cleanup action plan has not been submitted to the Department of Ecology as further soil and groundwater characterization is needed.



REFERENCE: 7.5 MINUTE USGS QUADRANGLE WINLOCK, WASHINGTON. DATED 1985



WASHINGTON



FARALLON CONSULTING
320 3rd Ave. NE
Issaquah, WA 98027

FIGURE 1

SITE VICINITY MAP
BNSF WINLOCK
908 KERRON AVENUE
WINLOCK, WASHINGTON

FARALLON PN: 683-009

Drawn By: DEW

Checked By: JK

Date: 3/14/06

Disk Reference: 683009

Table 1
Summary of Soil Analytical Results for Hydrocarbon Identification
BNSF Winlock
Winlock, Washington
Farallon PN: 683-009

Identification Sample	Sample Date	Designation Location	Depth ¹	Soil Analytical Results (milligrams per kilogram)					
				Total Petroleum Hydrocarbons Identification ²					
				GRO	DRO	ORO	Kerosene	Insulating Oil	Lube Oil
B1-0-4	11/2/2005	B1	0-4	<30.2	<75.4	<151	<75.4	<151	<151
B2-0-4	11/2/2005	B2	0-4	<25.2	<63	<126	<63	<126	<126
B3-0-4	11/2/2005	B3	0-4	<29.6	<74	<148	<74	<148	<148
B4-0-4	11/2/2005	B4	0-4	<29.5	<73.6	<147	<73.6	<147	<147
B8-0-4	11/2/2005	B8	0-4	<25.9	<64.7	<129	<64.7	<129	DET
B10-0-4	11/3/2005	B10	0-4	<27	<67.6	<135	<67.6	<135	<135
B11-0-4	11/3/2005	B11	0-4	<24.8	<62	<124	<62	<124	<124
B12-0-4	11/3/2005	B12	0-4	<25.3	<63.3	<127	<63.3	<127	<127
B13-6.5	12/20/2005	B13	5-6.5	<26.6	<66.6	<133	<66.6	<133	<133
MW1-6.5	12/20/2005	MW-1	5-6.5	<25.4	<63.6	<127	<63.6	<127	<127
MW3-6.0	12/20/2005	MW-3	5-6	<23.2	<58.0	<116	<58.0	<116	<116
MW4-4.0	12/20/2005	MW-4	2.5-4	<25.5	<63.8	<128	<63.8	<128	<128

NOTES:

< denotes result is less than laboratory practical quantitation limit or analyte not detected at or above the reporting limit listed.

¹ Depth in feet below ground surface

² Analyzed by Northwest Hydrocarbon Identification Method NWTPH-HCID.

DET=indicates detection

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO = TPH as gasoline-range organics

ORO = TPH as oil-range organics

Table 3
Summary of Soil Analytical Results for Polycyclic Aromatic Hydrocarbons
BNSF Winlock
Winlock, Washington
Farallon PN: 683-009

Identification Sample	Sample Date	Identification Location	Depth ¹	Soil Analytical Results (milligrams per kilogram) ²									
				1-Methylnaphth- alene	2-Methylnaphth- alene	Naphthalene	Benzo(a)anthra- cene	Benzo(a)pyrene	Benzo(b)fluoran- thene	Benzo(k)fluoran- thene	Chrysene	Dibenzo(a,h)anthra- cene	Indeno(1,2,3-cd)- pyrene
B6-0-4	11/2/2005	B6	0-4	4.76 J	8.75 J	0.742	<0.0139	<0.0139	<0.0139	<0.0139	<0.0139	<0.0139	<0.0139
MTCA Method A Cleanup Levels for Soil ³				5			0.1						

NOTES:

< denotes result is less than laboratory practical quantitation limit or analyte not detected at or above the reporting limit listed.

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

J = estimated result

¹ Depth in feet below ground surface.

² Analyzed by U.S. Environmental Protection Agency Method 8270/SIM.

³ Table 740-1, Model Toxics Control Act Cleanup Regulation (MTCA), Chapter 173-340 of the Washington Administrative Code (WAC), as amended February 2001. The cleanup level for 1-methylnaphthalene, 2-methylnaphthalene and naphthalene is the cleanup level for total naphthalene. The cleanup level for cPAHs is the cleanup level for total cPAHs using the toxic equivalency methodology in WAC 173-340-708(8).

Table 4
Summary of Reconnaissance Groundwater Analytical Results for Hydrocarbon Identification
BNSF Winlock
Winlock, Washington
Farallon PN: 683-009

Identification Sample	Sample Date	Designation Location	Sample Depth (feet)	Groundwater Analytical Results (milligrams per liter)					
				Total Petroleum Hydrocarbons Identification ¹					
				GRO	DRO	ORO	Kerosene	Insulating Oil	Lube Oil
B1-110205	11/2/2005	B1	7	<0.238	<0.600	<0.600	<0.600	<0.600	<0.600
B2-110205	11/2/2005	B2	8	<0.243	<0.612	<0.612	<0.612	<0.612	<0.612
B3-110205	11/2/2005	B3	8.5	<0.238	<0.600	<0.600	<0.600	DET	<0.600
B4-110205	11/2/2005	B4	9.5	<0.236	<0.594	<0.594	<0.594	<0.594	<0.594
B5-110205	11/2/2005	B5	8.5	DET	DET	<0.606	<0.606	<0.606	<0.606
B6-110205	11/2/2005	B6	8.5	DET	DET	<0.594	<0.594	<0.594	<0.594
B7-110205	11/2/2005	B7	8.5	<0.236	<0.594	<0.594	<0.594	DET	<0.594
B8-110205	11/2/2005	B8	7	<0.236	<0.594	<0.594	<0.594	DET	<0.594
B9-110305	11/3/2005	B9	8	<0.236	DET	<0.594	<0.594	<0.594	<0.594
B11-110305	11/3/2005	B11	8	<0.236	<0.594	<0.594	<0.594	DET	<0.594
B12-110305	11/3/2005	B12	8	<0.236 UJ	<0.594 UJ	<0.594 UJ	<0.594 UJ	<0.594 UJ	<0.594 UJ
B13-122005	12/20/2005	B13	7	<0.250	<0.630	<0.630	<0.630	<0.630	<0.630

NOTES:

< denotes result is less than laboratory practical quantitation limit or analyte not detected at or above the reporting limit listed.

¹Analyzed by Northwest Hydrocarbon Identification Method NWTPH-HCID.

DET indicates detection

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO = TPH as gasoline-range organics

UJ = estimated detection limit

ORO = TPH as oil-range organics

Table 5
Summary of Reconnaissance and Monitoring Well Groundwater Analytical Results - Total Petroleum Hydrocarbons and Volatile Organic Compounds
BNSF Winlock
Winlock, Washington
Farallon PN: 683-009

Identification ID	Sample Date	Designation Location	Sample Depth (feet)	Groundwater Analytical Results (micrograms per liter)						
				GRO ¹	DRO ²	ORO ²	Benzene ³	Toluene ³	Ethylbenzene ³	Total Xylenes ³
RECONNAISSANCE GROUNDWATER										
B3-110205	11/2/2005	B3	8.5	—	2,090	<476	—	—	—	—
B5-110205	11/2/2005	B5	8.5	16,200	26,300	1,220	141	47.3 J	470	1,420
B6-110205	11/2/2005	B6	8.5	46,000	41,400	2,950	2,380	288	1,380	3,760
B7-110205	11/2/2005	B7	8.5	—	2,330	937	—	—	—	—
B8-110205	11/2/2005	B8	7	—	2,100	950	—	—	—	—
B9-110305	11/3/2005	B9	8	—	31,800	2,840	—	—	—	—
B11-110305	11/3/2005	B11	8	—	1,470	529	—	—	—	—
B12-110305	11/3/2005	B12	8	—	<236	<472	—	—	—	—
MTCA Method A Cleanup Levels for Groundwater ⁴				800	500	500	5	1000	700	1000

Identification ID	Sample Date	Designation Location	Groundwater Analytical Results (micrograms per liter)						
			GRO ¹	DRO ²	ORO ²	Benzene ³	Toluene ³	Ethylbenzene ³	Total Xylenes ³
MONITORING WELL GROUNDWATER									
MW1-122305	12/23/2005	MW-1	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00
MW2-122305	12/23/2005	MW-2	465	<238	<476	55.2	2.84	3.46	35.6
FD-122305			496	<238	<476	57.5	2.98	3.63	37.3
MW3-122305	12/23/2005	MW-3	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00
MW4-122305	12/23/2005	MW-4	<50.0	<238	<476	<0.500	<0.500	<0.500	<1.00
TB-122305	12/23/2005	NA	<50.0	—	—	<0.500	<0.500	<0.500	<1.00
MTCA Method A Cleanup Levels for Groundwater ⁴			800	500	500	5	1000	700	1000

NOTES:

Results in **BOLD** denote concentrations are above Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A or B cleanup levels.

< denotes result is less than laboratory practical quantitation limit or analyte not detected at or above the reporting limit listed.

¹ Analyzed by Northwest Method NWTPH-Gx.

² Analyzed by Northwest Method NWTPH-Dx.

³ Analyzed by U.S. Environmental Protection Agency (EPA) Method 8021B.

⁴ Table 720-1, MTCA, Chapter 173-340 of the Washington Administrative Code, as amended February 2001.

— = sample not analyzed

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO = TPH as gasoline-range organics

J = estimated result

ORO = TPH as oil-range organics

Table 6
Summary of Monitoring Well Groundwater Analytical Results for Polychlorinated Biphenyls
BNSF Winlock
Winlock, Washington
Farallon PN: 683-009

Identification Sample	Sample Date	Designation Location	Groundwater Analytical Results (micrograms per liter) ²								
			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
MW1-122305	12/23/2005	MW-1	<0.0792	<0.152	<0.137	<0.105	<0.0623	<0.0349	<0.158	<0.0481	<0.224
MW3-122305	12/23/2005	MW-3	<0.0792	<0.152	<0.137	<0.105	<0.0623	<0.0349	<0.158	<0.0481	<0.224
MTCA Method A Cleanup Levels for Groundwater ³			0.1								

NOTES:

< denotes result is less than laboratory method detection limit.

¹ Depth in feet below ground surface

² Analyzed by U.S. Environmental Protection Agency Method 8082.

³ Table 720-1, Model Toxics Control Act Cleanup Regulation, Chapter 173-340
of the Washington Administrative Code, as amended February 2001.

Table 7
Summary of Monitoring Well Groundwater Elevations
BNSF Winlock
Winlock, Washington
Farallon PN: 683-009

Well Identification	Monitoring Date	Depth of Monitoirng Well (feet)	Monitoring Well Screen Interval (feet)	Wellhead Elevation ¹ (feet) ²	Depth to Water (feet)	Groundwater Elevation (feet)
MW-1	12/23/2005	12	5-12	100.46	2.13	98.33
MW-2	12/23/2005	11	5-11	100.4	2.50	97.90
MW-3	12/23/2005	10	5-10	100.18	2.21	97.97
MW-4	12/23/2005	12	5-12	102.45	0.50	101.95

NOTES:

¹Elevations based on survey by Farallon Consulting, L.L.C. to a benchmark of 105.59.

²Feet below top of well casing.