Kennedy/Jenks Consultants

Engineers & Scientists

32001 32nd Avenue South Suite 100 Federal Way, Washington 98001 253-874-0555 (Seattle) 253-927-8688 (Tacoma) FAX 253-952-3435

31 October 2003

Mr. Don Abbott **Toxics Cleanup Program** Central Regional Office Washington State Department of Ecology 15 West Yakima Avenue, Suite 200 Yakima, Washington 98902-3452

Subject:

UST Removal Report

The Burlington Northern and Santa Fe Railway Company Wishram Yard

K/J 036026.00

Dear Mr. Abbott:

Please find enclosed a report describing the removal of an underground storage tank (UST) at the Burlington Northern and Santa Fe Railway Company (BNSF) facility in Wishram, Washington. Although Kennedy/Jenks Consultants did not perform the preliminary soil sampling and UST removal, we have compiled the analytical results and attached a UST site assessment checklist, which was completed to the extent practicable based on available information.

On behalf of BNSF, Kennedy/Jenks Consultants is currently conducting an expanded study to evaluate hydrogeologic conditions and the extent of petroleum-containing soil remaining at the site. The results of the study will be reported under separate cover. If you have any questions, please call us at (253) 874-0555.

> MElipnoth Melissa Papworth, P.E.

Vice President

Very truly yours,

KENNEDY/JENKS CONSULTANTS

Hydrogeologist

Enclosure

Bruce Sheppard, BNSF

UST Site Assessment and Removal Report

Wishram, Washington

The Burlington Northern and Santa Fe Railway Company

K/J 036026.00 October 2003

Kennedy/Jenks Consultants

UST SITE ASSESSMENT AND REMOVAL REPORT

Prepared for

THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY Wishram, Washington

Prepared by:

Galen C. Davis Hydrogeologist Reviewed by:

Melissa Papworth, P.E.

MERANOUM

Vice President

KENNEDY/JENKS CONSULTANTS ENGINEERS AND SCIENTISTS 32001 32nd Avenue South, Suite 100 Federal Way, Washington 98001 (253) 874-0555

K/J 036026.00

October 2003

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1.0 INTRODUCTION

Kennedy/Jenks Consultants prepared this report on behalf of The Burlington Northern and Santa Fe Railway Company (BNSF) to document an underground storage tank (UST) site assessment and removal conducted at the BNSF track-switching facility (facility) in Wishram, Washington (Figure 1).

The UST described herein was discovered by BNSF in January 2002. RMCAT Environmental Services, Inc. of Portland, Oregon (RMCAT) conducted a site assessment later that same month and removed the UST in April 2002.

2.0 SITE LOCATION AND DESCRIPTION

2.1 SITE LOCATION

Wishram is in Klickitat County, Washington, on the northern shoreline of the Columbia River approximately 10 miles northeast of the Dalles, Oregon, and 0.75 mile south of the town of Wishram Heights on Washington State Route 14 (Figure 1). The UST site is located at 500 Main Street, near the southwestern boundary of the town of Wishram (Figures 1 and 2), in the southwestern quarter of the southwestern quarter of section 17, township 2 north, range 15 east of the Willamette Meridian.

2.2 SITE DESCRIPTION

The UST was formerly located approximately 50 feet north of a small maintenance shop and 5 feet west of a former boiler house, at the western end of the facility (Figure 2). The 30,000-gallon, single-walled, steel UST was used to supply heating oil to the adjacent boiler house. File information indicates that the tank was installed in the early 1970s and was used until approximately 1982. After the boiler house was no longer used by BNSF, the building was converted to a garage for parking the Wishram Volunteer Fire Department ambulance.

2.2.1 Hydrogeology

Hydrogeologic conditions at the site will be described in detail in a site characterization report delivered under separate cover. Based on RMCAT's field observations, soil in the vicinity of the former UST location is composed of fine to medium sand, between the ground surface and approximately 15 feet below ground surface (bgs). During the site assessment and UST removal, bedrock was encountered in the immediate location of the UST at a depth of 15 to 16 feet bgs. Bedrock was not encountered in two soil

borings advanced approximately 50 feet south of the UST above the maximum depth drilled (24 feet bgs). Groundwater was not encountered in any of the soil borings or in the UST excavation.

3.0 UST SITE ASSESSMENT

3.1 SOIL BORINGS AND FIELD OBSERVATIONS

On 25 January 2002, RMCAT collected subsurface soil samples from 17 direct-push soil borings advanced around the UST in the locations shown on Figure 2. In all but two of the locations, soil samples were collected from depths ranging from approximately 10 to 16 feet bgs, with the deepest samples collected from just above bedrock. Bedrock was not encountered in soil borings #7 and #8 (Figure 2), and samples were collected from 24 feet bgs (maximum drilling depth) in these two locations.

3.2 LABORATORY ANALYSIS AND RESULTS

Subsurface soil samples collected from the soil borings were submitted to Wy'East Environmental Sciences, Inc. of Portland, Oregon, (Wy'East) for analysis of diesel- and heavy oil-range hydrocarbons by the NWTPH-Diesel extended method. The analytical results are summarized in Table 1, and the laboratory analytical reports prepared by Wy'East are provided in Appendix A.

Analytical results indicated the presence of diesel- and oil-range hydrocarbons in soil surrounding the UST at depths between approximately 10 feet bgs and bedrock. The approximate horizontal extent of petroleum-containing soil, based on the site assessment results, is shown on Figure 2.

4.0 UST REMOVAL

4.1 UST REMOVAL AND SOIL EXCAVATION

RMCAT removed the UST from the site between 23 and 25 April 2002. Clean surface soil was excavated from above the UST and stockpiled in the paved bullpen located southeast of the site (Figure 2). Approximately 2 inches of diesel and oil were then pumped out of the tank, the tank was cleaned and rinsed, and the fluids were transported to Spencer Environmental Services of Oregon City, Oregon, for recycling. The UST was then cut into three pieces, flattened, and transported offsite to a scrap-metal recycling facility.

After the UST was removed, RMCAT excavated approximately 750 tons of petroleum-containing soil, from the area shown on Figure 2, to a depth of approximately 16 feet bgs (bedrock). The soil was transported and disposed offsite at the Rabanco Landfill in Roosevelt, Washington. Clean overburden and imported pit-run were then placed into the completed excavation in 2-foot-thick lifts and compacted using the excavator bucket.

4.2 CONFIRMATION SAMPLING

Prior to backfilling, RMCAT collected 30 confirmation samples from the excavation sidewalls from the locations shown on diagrams included in Appendix B. Confirmation bedrock samples were not collected from the bottom of the excavation.

4.3 ANALYTICAL RESULTS

Confirmation samples were submitted to Wy'East for analysis of diesel- and oil-range petroleum hydrocarbons by the NWTPH-Diesel extended method. The results show that a thin layer of soil containing diesel and oil at concentrations exceeding Washington

State Department of Ecology Model Toxics Control Act (MTCA) Method A industrial soil cleanup levels remained in place just above bedrock to the north, east, and south of the excavated area (Table 1). Diesel and oil concentrations in confirmation samples collected from the excavation sidewall due west of the UST were below MTCA Method A industrial soil cleanup levels.

5.0 SUMMARY AND CONCLUSION

In April 2003, BNSF removed an abandoned 30,000-gallon heating oil UST from the western end of the facility. Based on the analytical results and the reported extent of the UST excavation, petroleum hydrocarbons remain in site soil at concentrations exceeding the MTCA Method A Cleanup Levels for Industrial Properties.

	Tables
TI CONTRACTOR OF THE CONTRACTO	

Table 1 Site Assessment and Confirmation Sample Laboratory Analytical Results Former UST Site BNSF Wishram, Washington

Sample Location	Depth	Petroleum Hydrocarbo	n Concentration (mg/kg)
and Identification	(ft.)	Diesel	Oii
North of UST Site			
#1	10	nd	nd
#1	14	nd	nd
#1	18	nd	nd
#2	11.5	5,120	7,850
#12	12	nd	nd
#12	16	187	976
#13 #13	12	nd	nd
#13 #14	16 8	nd 445	nd
East of UST Site	- ° - 	445	2,480
#3	na	na	na
#4	10	nd	nd
#4	14	nd	nd
South of UST Site		1,0	110
#5	12	1,190	nd
#6	12	260	nd
#7	10	3,740	2,730
#7	16	7,750	nd
#8	15	1,560	1,210
#8	18	85	nd
#8	24	4,520	4,680
#9	10	31,000	36,800
#9	12	50,200	62,900
#9	14	29,900	35,200
#10	12	567	1,700
#10	14	43,200	34,300
Soil Borings in Excavated Area ^(a)			
#15	8	39,400	51,200
#16	13	999	3,870
#17	10	2,460	2,440
#17	12	118,500	nd
#17	14	57,600	56,900
North Excavation Sidewali			
N-1	15.5	nd	nd
N-2	3	nd	nd
N-3	15.5	28,500	48,500
N-4	3	nd	nd
N-9	14.5	26,900	34,400
N-10	3 -	nd	nd
N-11	14.5	35,400	53,500
N-12	3	351	523
West Excavation Sidewaii	44.5	42 900	80.000
W-5 W-6	14.5	42,800	60,000 nd
W-6 W-7		nd 7,660	
W-7 W-8	14.5	7,660 nd	17,900
W-27	15.5	nd	nd nd
W-27 W-28	3	28	nd nd
W-29	15.5	150	nd
W-30	3	217	nd
South Excavation Sidewali		411	i iiu
S-19	14.5	936	882
S-19 S-20	3	nd	nd
S-21	15.5	29,300	44,500
S-22	3	43	nd
S-23	15.5	35,500	56,800
S-24	3	nd	nd
S-25	15.5	nd	nd
S-26	3	nd	nd
East Excavation Sidewall			<u> </u>
E-13	14.5	27,200	30,400
E-14	3	nd	nd
E-15	14.5	60,600	44,400
E-16	3	nd	nd
E-17	14.5	52,500	47,300
E-18	3	nd	nd
MTCA Method A Criteria ^(b)		2,000	2,000
or morrow ra ormana		2,000	2,000

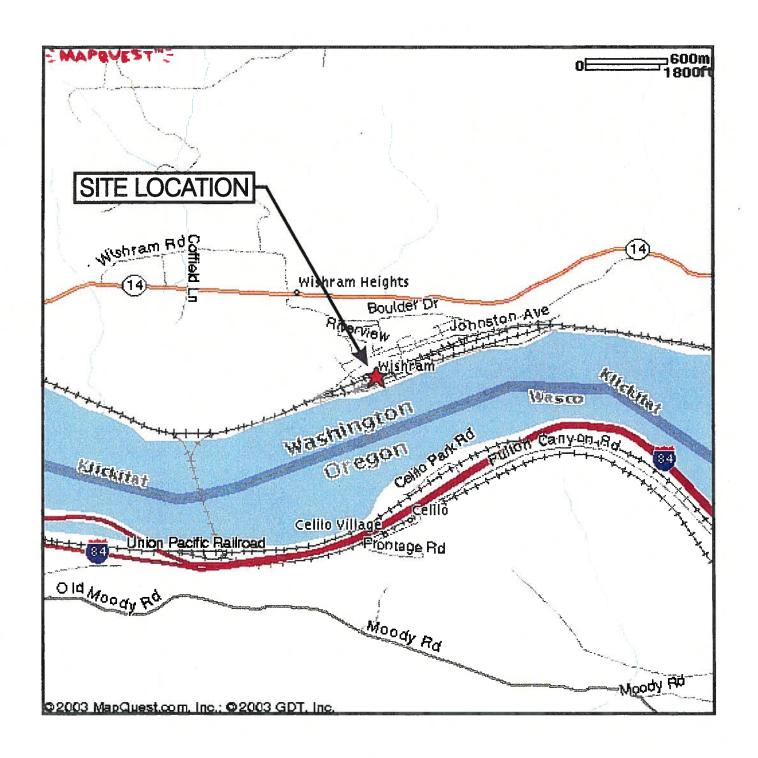
Notes:

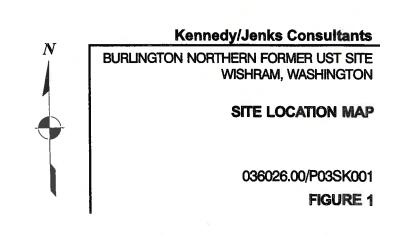
- Samples collected from borings in excavated area represent soil already disposed offsite.
 Washington State Department of Ecology Model Toxics Control Act Method A Cleanup Levels for Industrial Properties (WAC 173-340-900).
- na. Samples were not analyzed. It is assumed samples were not collected based on field observations.

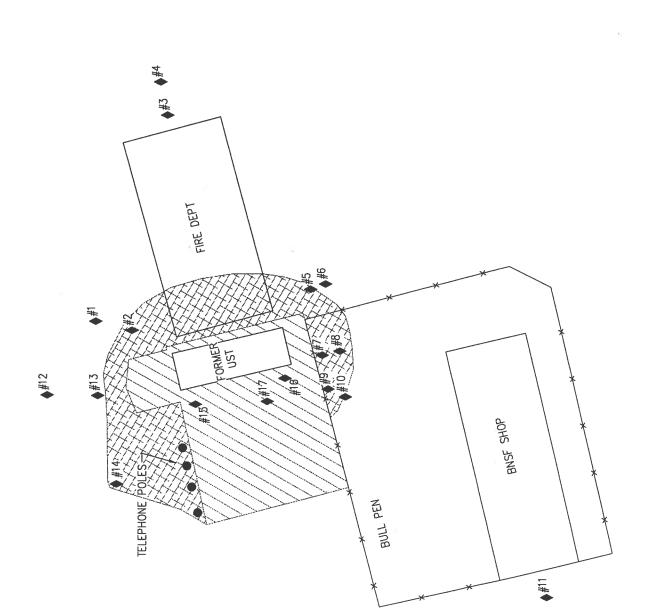
 nd. Analyte not detected at a concentration greater than the laboratory practical quantitation limit.

 Bold values exceed the MTCA Method A Industrial soil cleanup levels.

Fi	a		r	P	S
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Appendix A

Laboratory	Analytical	Reports
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Wy'East Environmental Sciences, Inc.

April 18, 2002

Jason Miltenberger RMCAT Environmental Services, Inc. 12823 NE Airport Way Portland, OR 97230

Dear Mr. Miltenberger:

Enclosed are the results of the NW-TPH-Dx analysis for the soil samples submitted as indicated on the Chain of Custody for report 40569. The samples were analyzed in accordance with the NW-TPH-Dx method and Wy'East's quality control procedures. A quality control report is included for your review.

Sincerely,

2415 SE 11th Ave., Portland, Oregon 97214



Wy'East Environmental Sciences, Inc.

QUALITY CONTROL REPORT

Run Date:

1/28/02

Batch ID:

WY020128

Prep. Date: Batch Units:

1/25/02 82 Test Code: INVOICE #:

NWTPH-Dx 40569

NWTPH-Dx

Analyte: Total Petroleum Hydrocarbon Quantification for Soil (dry weight basis)

Spike Quality Control

Sample ID	mg/Kg (ppm) Unspiked Sample	mg/Kg (ppm) Spiked Sample	Spike RPR*	RPR Lower Limit	RPR Upper Limit
H4715S	14,627	12,689	86	80%	120%
H5057S	0	1 6 6	97	80%	120%
H5065S	0	185	90	80%	120%
H5073S	0	177	113	80%	120%
H5080S	9,958	10,745	106	80%	120%
H5091S	0	190	95	80%	120%
H5099S	0	175	89	80%	120%
H5106S	5,191	5,170	87	80%	120%
H5114S	1,330	1,269	83	80%	120%
H5121S	0	165	90	80%	120%
H5129S	57,642	58,064	102	80%	120%

ND = Not Detected (below reporting limit or detection limit)

Calibration Standard Quality Control

		Calibration		
Instrument	Calibration Standard	Standard % Recovery	Lower Limit	Upper Limit
DIESEL	1.28E+04	82%	67%	133%
DF	4.38E+06	118%	81%	119%
OF	1.89E+06	112%	57%	143%
DR	3.34E+06	101%	62%	138%
OR	1.62E+06	89%	60%	140%

^{*}RPR = Relative Percent Recovery

FROM:



Wy'East Environmental Sciences, Inc.

LABORATORY REPORT

RMCAT Environmental Services, Inc. Attn: Jason Miltenberger 12823 NE Airport Way Portland, OR 97230

PROJECT NAME/SITE:

BNSF-Wishram

REPORT NUMBER:

40569

PROJECT NUMBER: EXTRACTION DATE:

90920 1-28-02 REPORT DATE: PAGE:

1-29-02 1 of 2

NWTPH-Dx

Analyte: Total Petroleum Hydrocarbon Quantification for soil (dry weight basis)

Field ID	Lab ID	Diesel mg/Kg (ppm)	Heavy Oil mg/Kg (ppm)	Surrogate Recovery
90920-1-10	H5091	ND	ND	98
90920-1-14	H5092	ND	ND	101
90920-1-18	H5093	ND	ND	100
90920-2-11.5	H5094	5,120	7,850	*
90920-4-10	115095	ND	ND	124
90920-4-14	H5096	ND	ND	97
90920-5-10	H5097	ND	ND	98
90920-5-12	H5098	1,190	ND	140
90920-5-16	H5099	ND	ND	99
90920-6-10	H5100	ND	ND	98
90920-6-12	H5101	260	ND	112
90920-6-16	H5102	ND	ND	97
90920-7-10	H5103	3,740	2,730	*
90920-7-16	H5104	7,750	ND	*
90920-7-20	H5105	2,570	1,630	129
90920-7-24	H5106	5,190	5,760	*
90920-8-15	H5107	1,560	1,210	92
90920-8-18	H5108	85	ND	75
90920-8-24	H5109	4,520	4,680	*
90920-9-10	H5110	31,000	36,800	*
90920-9-14	H5111	29,900	35,200	*
90920-9-12	H5112	50,200	62,900	*
90920-10-10	H5113	ND	ND	91
90920-10-12	H5114	567	1,700	64
BLANK	-	ND	ND	-
Reporting Limit	_	25	100	-
~ · · · · · ·		-	100	-

Surrogate is o-Terphenyl

ND = Not Detected (below reporting limit or detection limit)

^{*} Surrogate peak is not discernible on chromatogram from analyte peak.

FROM:



Wy'East Environmental Sciences, Inc.

LABORATORY REPORT

RMCAT Environmental Services, Inc.

Attn: Jason Miltenberger 12823 NE Airport Way Portland, OR 97230

PROJECT NAME/SITE:

BNSF-Wishram

REPORT NUMBER:

40569

PROJECT NUMBER:

90920

REPORT DATE:

1-29-02

EXTRACTION DATE:

1-28-02

PAGE:

2 of 2

NWTPH-Dx

Analyte: Total Petroleum Hydrocarbon Quantification for soil (dry weight basis)

Field ID	Lab ID	Diesel mg/Kg (ppm)	V 2017: Oil - 27/- ()	
			Heavy Oil mg/Kg (ppm)	Surrogate Recovery (%)
90920-10-14	H5115	43,200	34,300	*
90920-11-10	H5116	ND	ND	92
90920-11-14	H5117	ND	ND	88
90920-11-18	H5118	ND	ND	91
90920-12-12	H5119	ND	ND	89
90920-12-16	H5120	187	976	124
90920-13-12	H5121	ND	ND	92
90920-13-16	H5122	ND	ND	93
90920-14-8	H5123	445	2,480	*
90920-15-8	H5124	39,400	51,200	*
90920-16-8	H5125	ND	ND	92
90920-16-13	H5126	999	3,870	110
90920-17-10	H5127	2,460	2,440	118
90920-17-12	H5128	118,500	ND	*
90920-17-14	H5129	57,600	56,900	*
90920-18-10	H5130	ND	ND	93
90920-18-18	H5131	ND	ND	92
BLANK	-	ND	ND	-
Reporting Limit	-	25	100	_

Surrogate is o-Terphenyl

ND = Not Detected (below reporting limit or detection limit)

^{*} Surrogate peak is not discernible on chromatogram from analyte peak.



LABORATORY REPORT

RMCAT Environmental Services, Inc.

Attn: Jason Miltenberger 12823 NE Airport Way Portland, OR 97230

PROJECT NAME/SITE:

BNSF - Wishram

REPORT NUMBER:

PROJECT NUMBER: **EXTRACTION DATE:** 90920 4-17-02

REPORT DATE:

4-18-02

PAGE:

1 of 1

NWTPH-Dx

Analyte: Total Petroleum Hydrocarbon Quantification for soil (dry weight basis)

	Field ID	Lab ID	Diesel mg/Kg (ppm)	Heavy Oil mg/Kg (ppm)	Surrogate Recovery (%)
	90920-W-7	H8719	7,660	17,900	65
	90920-E-1 5/	H8720	ND	ND	102
	90920-N-12	H8721	351	523	123
	90920-N-10	H8722	ND	ND	105
	90920-W-5	H8723	42,800	60,000	105
	90920-E-13	H8724	27,200	30,400	•
	90920-N-11	H8725	35,400	53,500	• 9
	90920-W-6	H8726	ND	ND	108
	90920-S-21	H8727	29,300	44,500	*
	90920-S-20	H8728	ND	ND	105
©	90920-S-19	H8729	936	882	100
	90920-S-23	H8730	35,500	56,800	*
	90920-N-4	H8731	ND	ND	109
	90 920-S-26	H8732	ND	ND	103
	90920-S-22	H8733	43	ND	122
	90920-S-24	H8734	ND	ND	121
	90920-E-16	H8735	ND	ND	105
	90920-E-17	H8736	52,500	47,300	*
	90920-E-15	H8737	60,600	44,400	
	90920-W-30	H8738	217	ND	118
	909 20-W-8	H8739	ND	ND	111
	90920-W-29	H8740	150	ND	126
	90920-W-28	H8741	28	ND	126
	90920-W-27	H8742	ND	ND	106
	90920-E-18	H8743	ND	ND	122
	90920-S-25	H8744	ND	ND	106
	90920-N-3	H8745	28,500	48,500	*
	90920-N-1	H8746	ND	ND	102
	90920-N-9	H8747	26,900	34,400	*
	90920-N-2	H8748	ND	ND	101
	BLANK	-	ND	ND	-
	Reporting Limit	-	25	100	_

Surrogate is o-Terphenyl

ND = Not Detected (below reporting limit or detection limit)

^{*} Surrogate peak is not discernible on chromatogram from analyte peak.

ENVIRONMENTAL SERVICES, INC.		ANALYSES												Date Time	1050 RICIA	Time	T. sales	Jyw.	
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2-5-20 412-02 1355 H872 9 59 4-2-02 1355 H872 9 532 4-2-02 1350 H8732 5-32 4-2-02 1340 H8732 5-5-32 4-2-02 1340 H8732 6-5-32 4-2-02 1340 H8732 10 10 10 10 10 10 10 10 10 10 10 10 10 1	18-5-0860	4-12-62		H8727	6.00	1 - 40.1	7	$oldsymbol{\perp}$	1	+	+	
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15-26 4-12-02 1430 H8732 -5-34 4-12-03 1410 H8733 -5-34 4-12-03 1410 H8733 -5-34 4-12-03 1410 H8733 -5-34 4-12-03 1410 H8733 Time Received by: (Signature) AMALYTICAL LABORATORY ANALYTICAL LABORATORY ANALYTICAL LABORATORY ANALYTICAL LABORATORY	90930-N.4	41203	12/2	H8731								T
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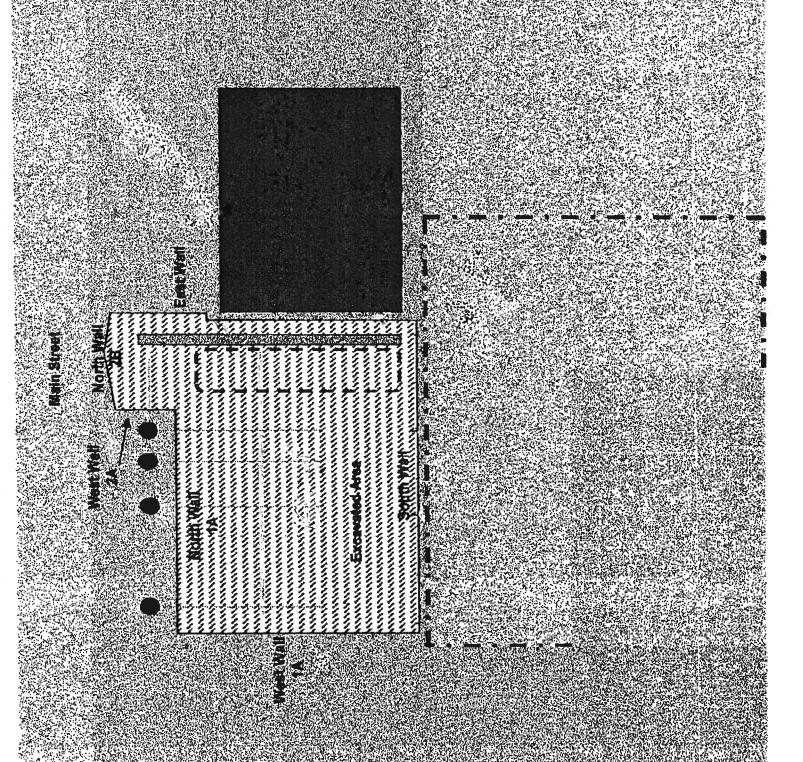
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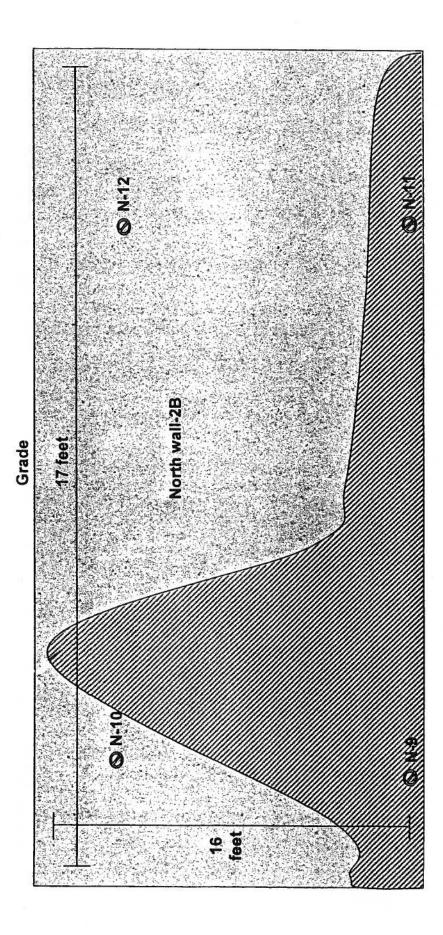
Appendix B

Confirmation Sample Location Diagrams



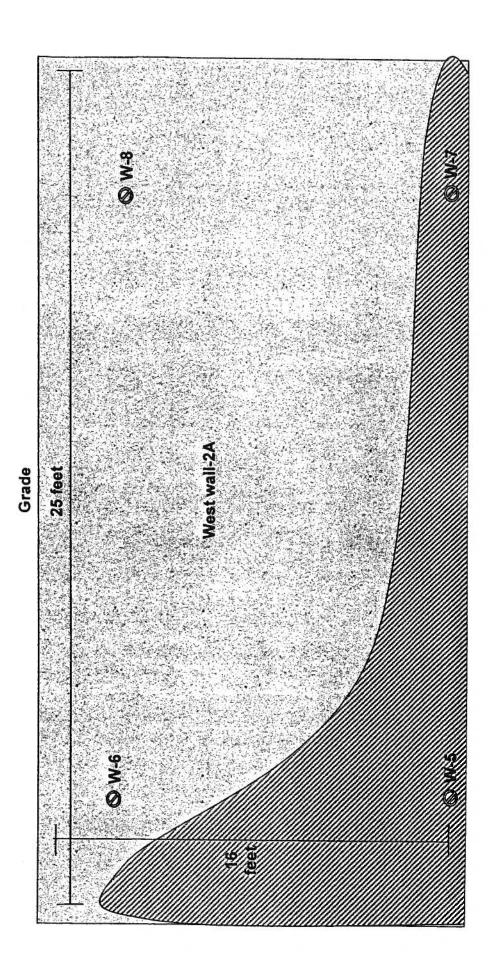


Burlington Northern Santa Fe Railway Wishram, Washington Facility Sample Location and Contamination Left in Place Map RMCAT WO# 90920

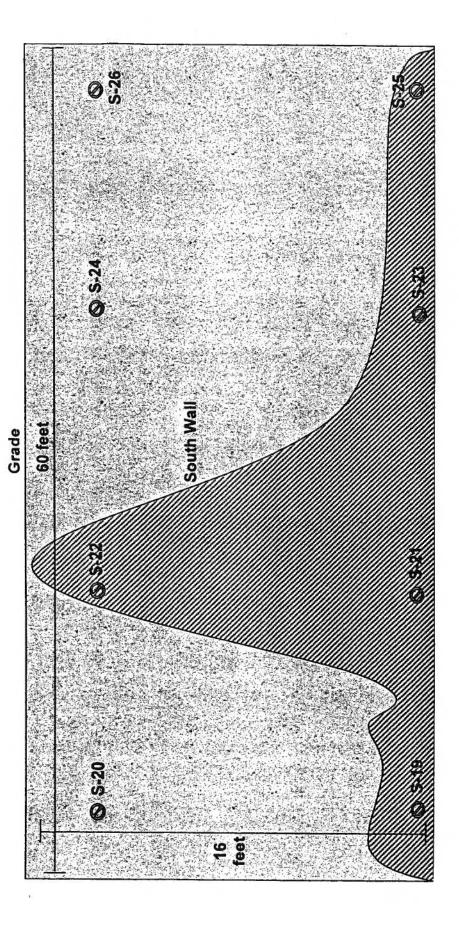


West Wall-1A Grade

Burlington Northern Santa Fe Railway Wishram, Washington Facility Sample Location and Contamination Left in Place Map RMCAT WO# 90920



Burlington Northern Santa Fe Railway Wishram, Washington Facility Sample Location and Contamination Left in Place Map RMCAT WO# 90920



Burlington Northern Santa Fe Railway Wishram, Washington Facility Sample Location and Contamination Left In Place Map RMCAT WO# 90920

