

# **Wishram Rail Grinder Cleanup Report**

**Wishram, Washington**

**BNSF Railway Company**

**K/J 0796022.12**

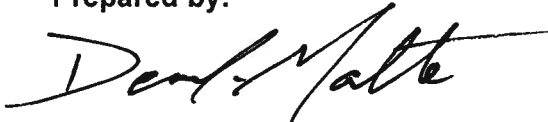
**May 2007**

**Kennedy/Jenks Consultants**

**WISHRAM RAIL GRINDER CLEANUP REPORT  
WISHRAM, WASHINGTON**

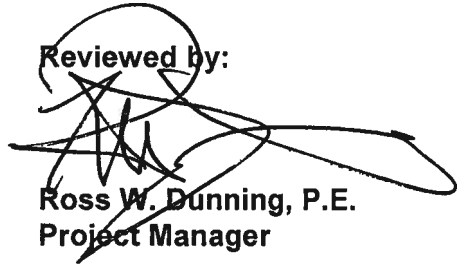
**Prepared for  
BNSF RAILWAY COMPANY**

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**K/J 0796022.12**

**May 2007**

# TABLE OF CONTENTS

	<b>PAGE NUMBER</b>
LIST OF TABLES .....	ii
LIST OF FIGURES .....	ii
APPENDICES .....	iii
1.0 INTRODUCTION AND BACKGROUND .....	1-1
2.0 PROJECT ACTIVITIES .....	2-1
2.1 GEOPROBE INVESTIGATION.....	2-1
2.2 SOIL EXCAVATION AND DISPOSAL .....	2-1
2.3 CONFIRMATION SAMPLING AND ANALYSIS .....	2-2
2.4 SUMMARY .....	2-3

## LIST OF TABLES

TABLE 1	SUMMARY OF SOIL ANALYTICAL RESULTS – RAIL GRINDER SPILL AREA
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## LIST OF FIGURES

FIGURE 1	SITE LOCATION MAP
FIGURE 2	SOIL BORING AND EXCAVATION AREA MAP – RAIL GRINDER SPILL AREA

## **TABLE OF CONTENTS**

### **APPENDICES**

- APPENDIX A SOIL BORING LOGS
- APPENDIX B SOIL DISPOSAL DOCUMENTS
- APPENDIX C LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTS

## 1.0 INTRODUCTION AND BACKGROUND

Kennedy/Jenks Consultants has prepared this report on behalf of BNSF Railway Company (BNSF) to describe the cleanup of a small diesel release at the Wishram Railyard (site) located in Wishram, Washington. The release occurred on 25 February 2007, and cleanup activities were conducted between 26 February and 7 March 2007. The City of Wishram and the site are located in Klickitat County, Washington, approximately 13 miles northeast of The Dalles, Oregon, and 0.75 mile south of Washington State Route 14 (Figure 1). The release occurred adjacent to a spur track south of the railyard depot building (Figure 2).

On 25 February 2007, approximately 40 gallons of diesel fuel were reportedly released to the ground surface at the site during fueling of a rail grinding machine spotted on track number 6520 operated by Harsco Track Technologies. On 26 February 2007, NRC Environmental Services (NRC) of Portland, Oregon, performed an assessment of the extent of the release and applied a granular absorbent material to the upper foot of affected ballast in the release area. On 7 March 2007, Kennedy/Jenks Consultants performed a geoprobe investigation to characterize affected soil in the release area and documented soil excavation activities performed by NRC.

## **2.0 PROJECT ACTIVITIES**

### **2.1 GEOPROBE INVESTIGATION**

Fourteen direct-push soil borings were advanced in the release area by Cascade Drilling, Inc. (Cascade) of Woodinville, Washington, to depths ranging from 8 to 16 feet below ground surface (bgs). Soil samples were collected continuously in 4-foot intervals for field logging purposes and for evaluation for the presence of petroleum hydrocarbons using sensory observation and water-sheen testing. Locations of the soil borings are shown on Figure 2. Soil boring logs are provided in Appendix A.

Results indicate that the release affected only surface soil (0 to 2.5 feet bgs) in a relatively small area located immediately north of track number 6520 (Figure 2). Diesel-range hydrocarbons were observed in samples retrieved from between the ground surface and approximately 2 feet bgs from three soil borings located north of the track (DB-3, DB-4, and DB-7). The affected surface soil was composed of ballast, gravel, and approximately 1 foot of dense, sandy gravel. Evidence of petroleum hydrocarbons was not observed in poorly graded sand present below approximately 2.5 feet bgs. Field observations did not indicate the presence of diesel-range hydrocarbons in soil retrieved from any of the other soil borings.

### **2.2 SOIL EXCAVATION AND DISPOSAL**

On 8 March 2007, NRC removed petroleum-containing soil from the area shown on Figure 2. Approximately 9 tons of soil were removed from between the ground surface and approximately 2 to 2.5 feet bgs using a vacuum truck. The material was transported to the Regional Disposal Company Landfill in Roosevelt, Washington, (Roosevelt Landfill) for disposal. A copy of the disposal facility weigh ticket is provided in Appendix B.

After collection of confirmation soil samples (described below) the excavated area was backfilled with 3/4-inch-minus basalt gravel obtained from the Pacific Northwest Aggregates (PNA) pit located approximately 1 mile west of the site.

### **2.3 CONFIRMATION SAMPLING AND ANALYSIS**

Seven confirmation soil samples were collected from the base of the excavation for laboratory analysis. Samples were collected by transferring soil directly from the excavation to laboratory-provided glass containers using a stainless steel spoon. Filled containers were submitted under chain-of-custody to Test America Analytical Testing Corporation in Bothell, Washington (Test America). Test America analyzed each sample for diesel- and oil-range petroleum hydrocarbons using the Washington State Department of Ecology (Ecology) Northwest Total Petroleum Hydrocarbons Diesel Extended (NWTPH-Dx) Method with silica gel cleanup. The locations of confirmation soil samples collected from the excavation are shown on Figure 2.

Diesel-range hydrocarbons were detected in three of the confirmation samples (DxA1, DxA4, and DxA6) at concentrations ranging from 18.4 to 105 milligrams per kilogram (mg/kg). Lube oil-range hydrocarbons were detected in four of the samples at concentrations ranging from 31.8 to 334 mg/kg. None of the detected diesel or oil concentrations exceeded Ecology's Model Toxics Control Act (MTCA) Method A soil cleanup levels for industrial properties (2,000 mg/kg for diesel and 2,000 mg/kg for heavy oils).

Analytical results for detected compounds in confirmation samples are summarized in Table 1 and shown on Figure 2. Laboratory reports showing results for all analyses are provided in Appendix C.

## **2.4 SUMMARY**

Observation of soil boring samples and analysis of confirmation samples collected following soil excavation indicate that all soil affected by the diesel release has been removed from the site. Soil materials impacted by the diesel release did not appear to extend below 2.5 feet bgs and were of limited lateral extent (refer to Figure 2). Additionally, there is no evidence of groundwater impacts at the site, and no further cleanup action is considered to be necessary in response to the spill incident.



## Tables

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**TABLE 1**  
**SUMMARY OF SOIL ANALYTICAL RESULTS**  
**RAIL GRINDER SPILL AREA**  
**BNSF Wishram Railyard**  
**Wishram, Washington**

Sample	Diesel-range Petroleum Hydrocarbons <sup>(a)</sup>	Oil-range Petroleum Hydrocarbons <sup>(a)</sup>
DXA1-2	105	295
DXA2-2	<11.1 <sup>(b)</sup>	<27.8
DXA3-2	<11.0	<27.4
DXA4-2	18.4	55.4
DXA5-2	<11.5	31.8
DXA6-2	78.3	334
DXA7-2	<11.0	<27.4
<b>MTCA Method A Industrial Soil Cleanup Level<sup>(c)</sup></b>	<b>2,000</b>	<b>2,000</b>

Notes:

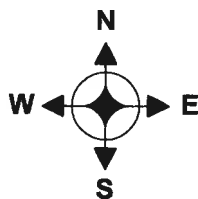
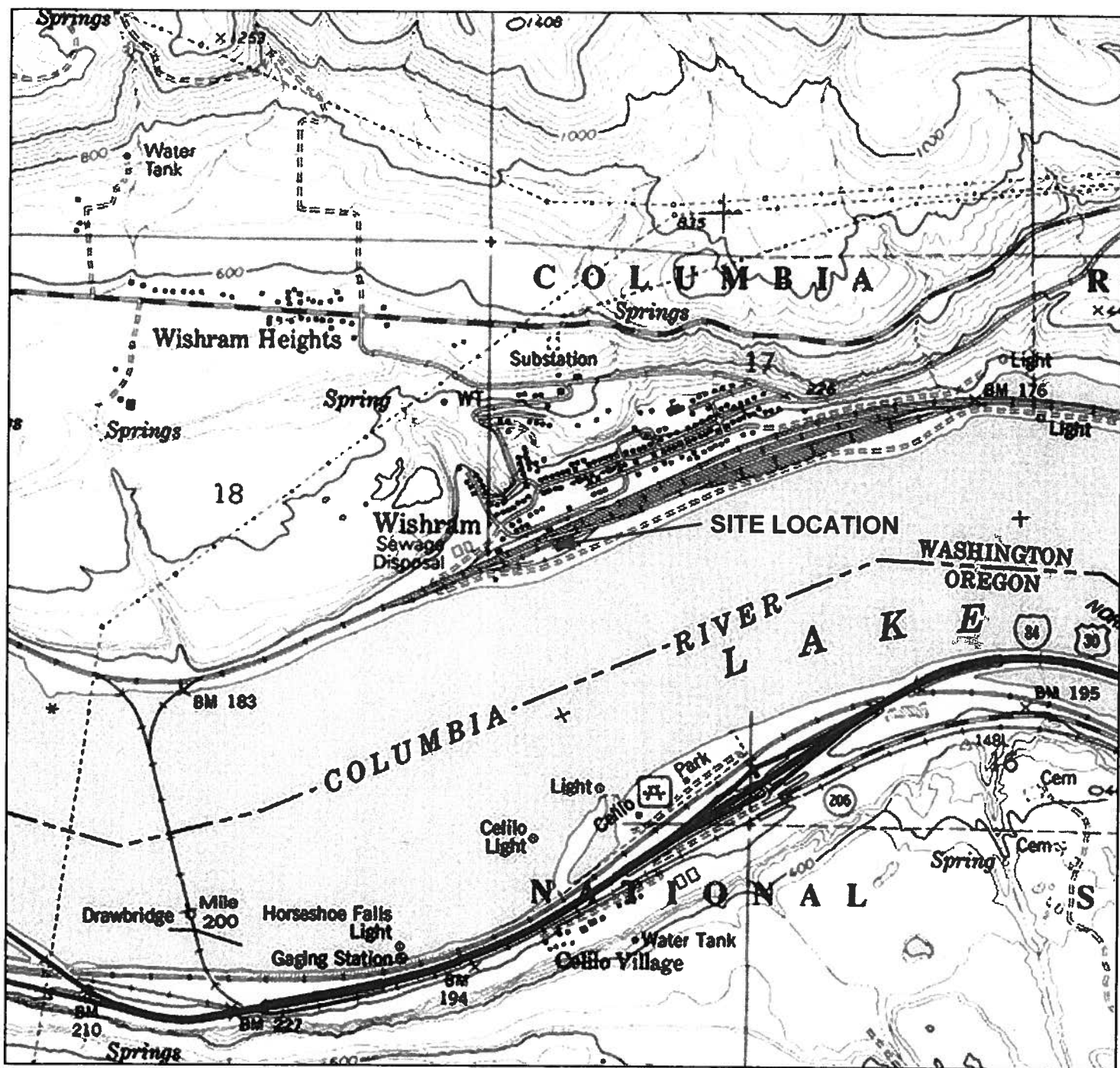
- (a) Diesel- and oil-range petroleum hydrocarbons analyzed by Ecology Method NWTPH-Dx with silica gel cleanup.
- (b) "<" denotes that the analyte was not detected at a concentration above the indicated laboratory reporting limit.
- (c) Model Toxics Control Act (WAC 173-340) Method A soil cleanup level for industrial properties.

Refer to Figure 2 for soil sample locations.

## Figures

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Approximate Scale in Feet

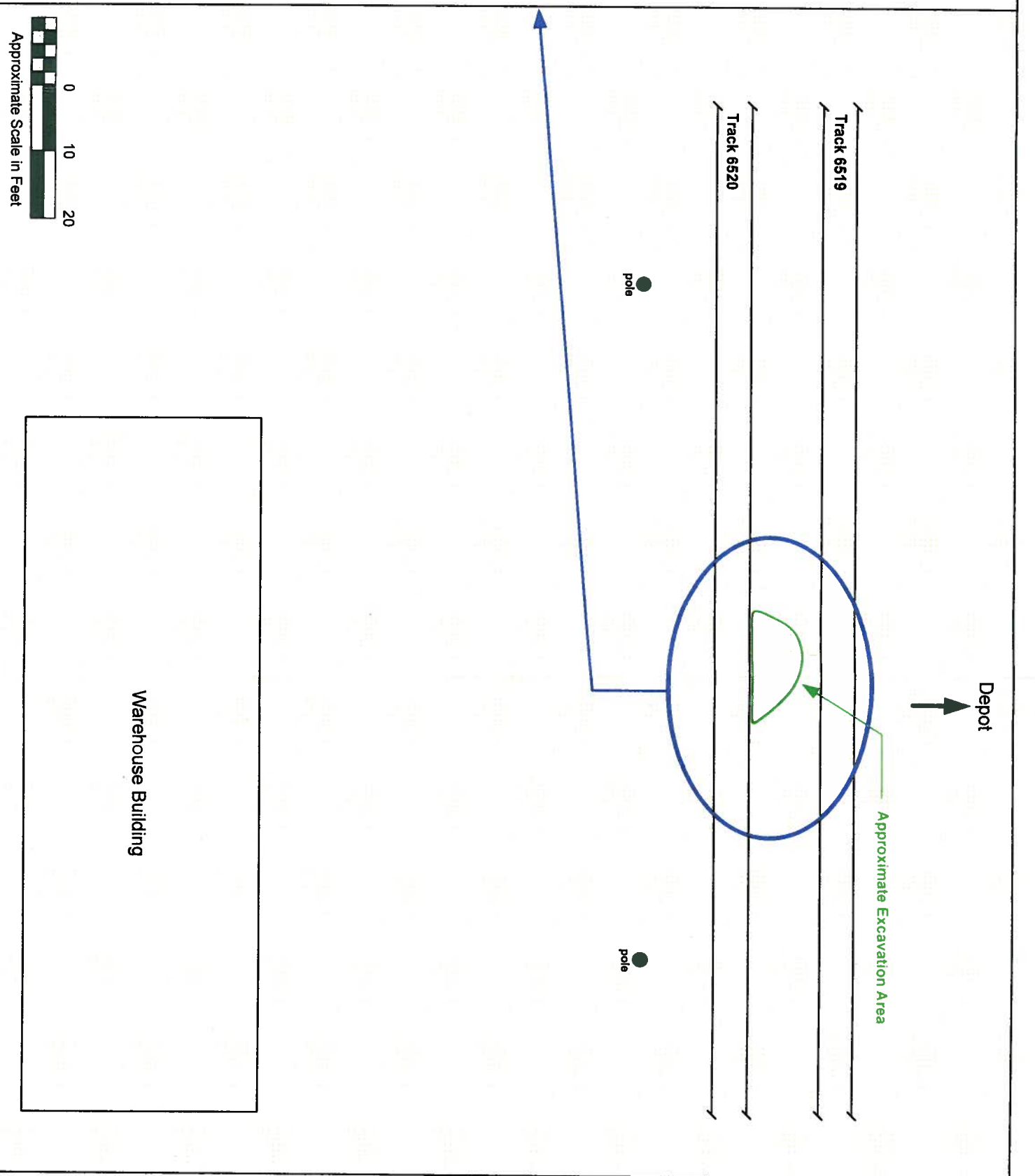
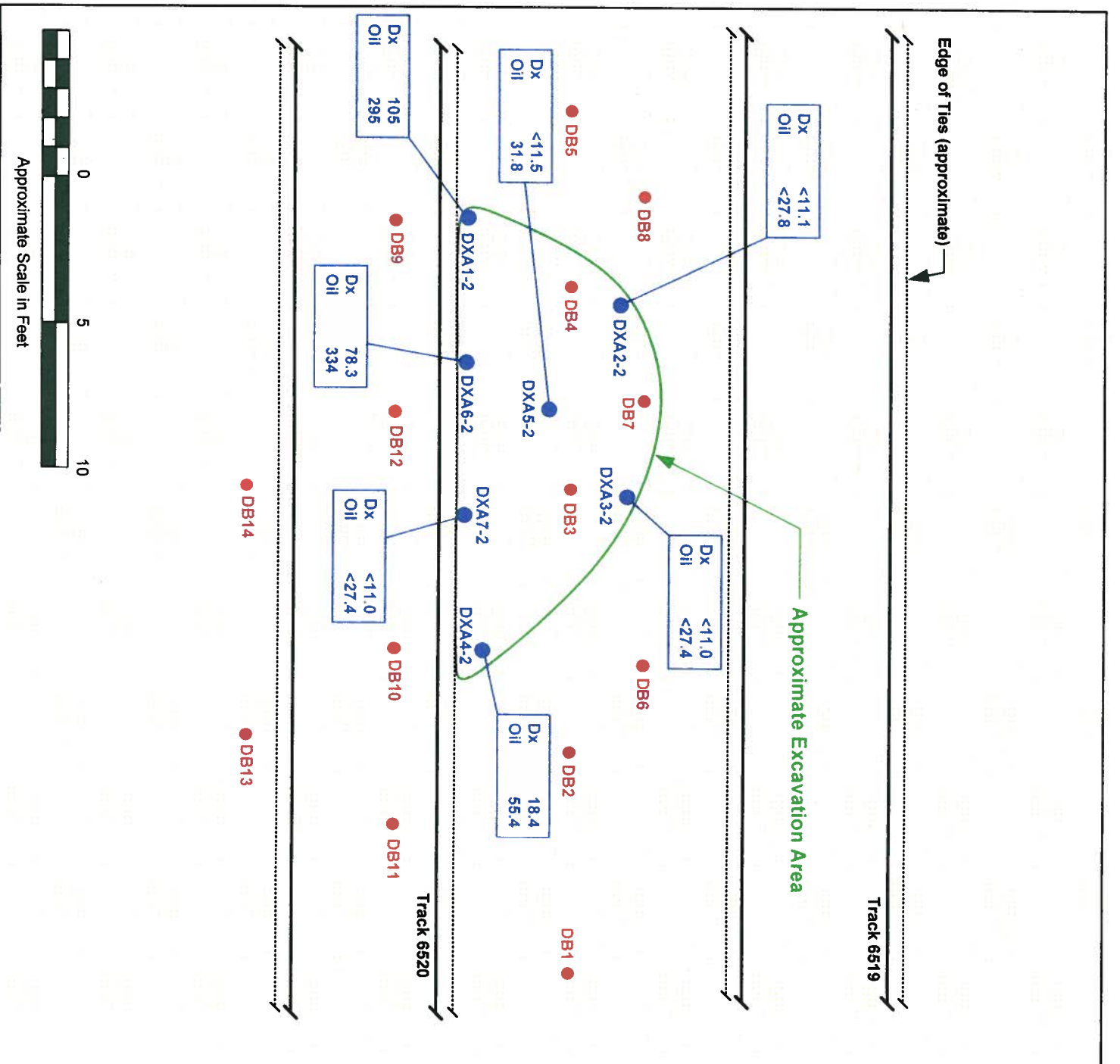
Kennedy/Jenks Consultants

BNSF WISHRAM YARD  
WISHRAM, WA

SITE LOCATION MAP

0796022\*12/LOCATION.VSD

FIGURE 1



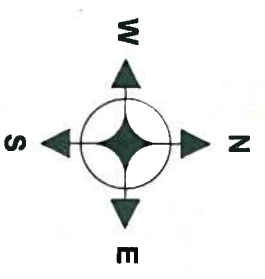
**LEGEND:**

- DB1 GeoProbe soil boring location
- DXA1-2 Excavation area soil sample location and depth

Confirmation soil sample analytical results  
 Dx=Diesel-range Petroleum Hydrocarbons (mg/kg)  
 Oil=Oil-range Petroleum Hydrocarbons (mg/kg)

**NOTES:**

- All locations are approximate.
- mg/kg = milligrams per kilogram.
- "<" denotes that the analyte was not detected at the indicated laboratory reporting limit.



**Kennedy/Jenks Consultants**  
**BNSF WISHRAM YARD**  
**WISHRAM, WA**

**0796022\*12/WISHRAM MAP.VSD**

**FIGURE 2**

Boring Log

Project Name	Site Location	Boring ID	Date
Project Number	Client Name	Depth (ft)	Time
Contract Number	Operator	Soil Description	Remarks
Job Order Number	Weather	Penetration Test	Notes
Drawings	Groundwater	Moisture Content	Observations
Other Documents	Soil Temperature	Grain Size Analysis	Photographs
Field Notes	Soil pH	Organic Matter	Sketches
Lab Reports	Soil Specific Gravity	Soil Compaction	Diagrams
Regulatory Documents	Soil Swell/Shrinkage	Soil Permeability	Other
Other Documents	Soil Shrinkage	Soil Strength	

# Appendix A

## Soil Boring Logs

Boring ID	Depth (ft)	Soil Description	Penetration Test	Moisture Content	Grain Size Analysis	Organic Matter	Soil Compaction	Soil Permeability	Soil Strength
B-1	0 - 2	Light Brown Silty Sand	15	20%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	2 - 4	Light Brown Silty Sand	18	22%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	4 - 6	Light Brown Silty Sand	20	25%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	6 - 8	Light Brown Silty Sand	22	28%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	8 - 10	Light Brown Silty Sand	25	30%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	10 - 12	Light Brown Silty Sand	28	32%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	12 - 14	Light Brown Silty Sand	30	35%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	14 - 16	Light Brown Silty Sand	32	38%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	16 - 18	Light Brown Silty Sand	35	40%	60% Sand, 30% Silts	5%	95%	0.01	1.5
	18 - 20	Light Brown Silty Sand	38	42%	60% Sand, 30% Silts	5%	95%	0.01	1.5

Soil Depth (ft)	Soil Description	Moisture (%)	Temperature (°C)	Notes
0 - 1	Topsoil	15	15	
1 - 2	Subsoil	12	15	
2 - 3	Clay	10	15	
3 - 4	Silt	12	15	
4 - 5	Sand	15	15	
5 - 6	Gravel	18	15	
6 - 7	Bedrock	-	-	

# Appendix A

## Soil Boring Logs

Boring ID	Depth (ft)	Soil Type	Moisture (%)	Temperature (°C)	Notes
B-1	0 - 1	Topsoil	15	15	
	1 - 2	Subsoil	12	15	
	2 - 3	Clay	10	15	
	3 - 4	Silt	12	15	
	4 - 5	Sand	15	15	
	5 - 6	Gravel	18	15	
	6 - 7	Bedrock	-	-	
B-2	0 - 1	Topsoil	15	15	
	1 - 2	Subsoil	12	15	
	2 - 3	Clay	10	15	
	3 - 4	Silt	12	15	
	4 - 5	Sand	15	15	
	5 - 6	Gravel	18	15	
	6 - 7	Bedrock	-	-	
B-3	0 - 1	Topsoil	15	15	
	1 - 2	Subsoil	12	15	
	2 - 3	Clay	10	15	
	3 - 4	Silt	12	15	
	4 - 5	Sand	15	15	
	5 - 6	Gravel	18	15	
	6 - 7	Bedrock	-	-	

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Diesel Spill Area--North of Track		Boring Name DB-1	
DRILLING COMPANY Cascade	DRILLER Casey	Project Name BNSF Wishram	
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2-inch	Project Number 0796022*12	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH 16.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 3/7/07	DATE COMPLETED 3/7/07
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 10.5	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Bentonite Granules	FROM 0 TO 16 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'						
			1					Track Structure Ballast Material (composed of well-graded gravel with sand) Moderately dense to very dense in lower ~1 foot, slightly moist, no odor, no sheen.
SS	3		2					Poorly graded SAND Tan/brown, mostly medium sand with 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist to wet below ~10.5 feet bgs, no odor, no sheen.
			3					
			4					
			5					
SS	3.5		6					
			7					
			8					
			9					
SS	2		10				SP	
			11					
			12					
			13					
SS	1		14					
			15					
			16					

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07



# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--North of Track</b>		DRILLER <b>Casey</b>		Boring Name <b>DB-2</b>	
DRILLING COMPANY <b>Cascade</b>		DRILL BIT(S) SIZE <b>2-inch</b>		Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		FROM TO FT. <b>N/A N/A</b>		Project Number <b>0796022*12</b>	
ISOLATION CASING <b>N/A</b>		FROM TO FT. <b>N/A N/A</b>		ELEVATION AND DATUM	
BLANK CASING <b>N/A</b>		FROM TO FT. <b>N/A N/A</b>		TOTAL DEPTH <b>16.0 ft. bgs</b>	
SLOTTED CASING <b>N/A</b>		FROM TO FT. <b>N/A N/A</b>		DATE STARTED <b>3/7/07</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		FROM TO FT. <b>N/A N/A</b>		DATE COMPLETED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		FROM TO FT. <b>0 16</b>		INITIAL WATER DEPTH (FT) <b>10.5</b>	
GROUT <b>N/A</b>		FROM TO FT. <b>N/A N/A</b>		LOGGED BY <b>DKM</b>	
				SAMPLING METHODS	
				MacroCore w/liner	
				WELL COMPLETION	
				<input type="checkbox"/> SURFACE HOUSING	
				<input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'						
SS	3		1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, no odor, no sheen.
SS	3		2					<b>Poorly graded SAND</b> Tan/brown, sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist to wet below ~10.5 feet bgs, no odor, no sheen.
			3					
			4					
			5					
SS	3		6					
			7					
			8					
SS	1		9				SP	
			10					
			11					
			12					
			13					
SS	1		14					
			15					
			16					

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Boring Log

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BORING LOCATION <b>Diesel Spill Area--North of Track</b>		DRILLER <b>Casey</b>		Boring Name <b>DB-3</b>	
DRILLING COMPANY <b>Cascade</b>		DRILL BIT(S) SIZE <b>2-inch</b>		Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		FROM N/A TO N/A FT.		Project Number <b>0796022*12</b>	
ISOLATION CASING <b>N/A</b>		FROM N/A TO N/A FT.		ELEVATION AND DATUM	
BLANK CASING <b>N/A</b>		FROM N/A TO N/A FT.		TOTAL DEPTH <b>12.0 ft. bgs</b>	
SLOTTED CASING <b>N/A</b>		FROM N/A TO N/A FT.		DATE STARTED <b>3/7/07</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		FROM N/A TO N/A FT.		DATE COMPLETED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		FROM 0 TO 12 FT.		INITIAL WATER DEPTH (FT) <b>9</b>	
GROUT <b>N/A</b>		FROM N/A TO N/A FT.		LOGGED BY <b>DKM</b>	
				SAMPLING METHODS <b>MacroCore w/liner</b>	
				WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'						
SS	1		1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Dark brown, Moderately dense to very dense in lower ~1 foot, slightly moist, diesel odor and sheen.
SS	3.5		2					<b>Poorly graded SAND</b> Tan/brown, sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist to wet below ~9 feet bgs, no odor, no sheen.
SS	3.5		3					
SS	3.5		4					
SS	3.5		5					
SS	3.5		6					
SS	3.5		7				SP	
SS	3.5		8					
SS	3.5		9					
SS	3.5		10					
SS	3.5		11					
SS	3.5		12					

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Boring Log

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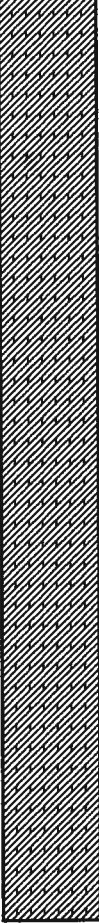

BORING LOCATION Diesel Spill Area--North of Track		DRILLER Casey		Boring Name DB-4	
DRILLING COMPANY Cascade		DRILL BIT(S) SIZE 2-inch		Project Name BNSF Wishram	
DRILLING METHOD(S) GeoProbe		FROM N/A TO N/A FT.		Project Number 0796022*12	
ISOLATION CASING N/A		FROM N/A TO N/A FT.		ELEVATION AND DATUM	
BLANK CASING N/A		FROM N/A TO N/A FT.		TOTAL DEPTH 12.0 ft. bgs	
SLOTTED CASING N/A		FROM N/A TO N/A FT.		DATE STARTED 3/7/07	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.		DATE COMPLETED 3/7/07	
SEAL Bentonite Granules		FROM 0 TO 12 FT.		INITIAL WATER DEPTH (FT) 8.5	
GROUT N/A		FROM N/A TO N/A FT.		LOGGED BY DKM	
				SAMPLING METHODS MacroCore w/liner	
				WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'						
SS	3		1					Track Structure Ballast Material (composed of well-graded gravel with sand) Moderately dense to very dense in lower ~1 foot, slightly moist, diesel odor and sheen.
			2					
			3					Poorly graded SAND Tan/brown, sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist to wet below ~8.5 feet bgs, slight odor and sheen above ~2.5 feet bgs, no odor, no sheen below ~2.5 feet bgs.
			4					
SS	3		5					
			6					
			7				SP	
			8					
			9					
SS	4		10					
			11					
			12					

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Boring Log

BORING LOCATION Diesel Spill Area--North of Track		Boring Name <u>DB-5</u>	
DRILLING COMPANY Cascade		DRILLER Casey	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2-inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SLOTTED CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
SEAL Bentonite Granules		FROM <u>0</u> TO <u>12</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
		ELEVATION AND DATUM	
		TOTAL DEPTH 12.0 ft. bgs	
		DATE STARTED 3/7/07	
		DATE COMPLETED 3/7/07	
		INITIAL WATER DEPTH (FT) 9	
		LOGGED BY DKM	
		SAMPLING METHODS	
		MacroCore w/liner	
		WELL COMPLETION	
		<input type="checkbox"/> SURFACE HOUSING	
		<input type="checkbox"/> STAND PIPE _____ FT.	

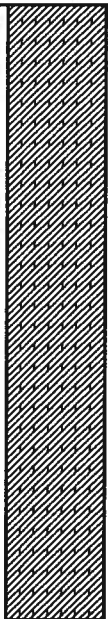
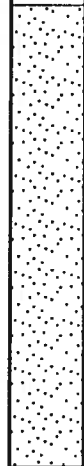
SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"						
SS	2.5		1					Track Structure Ballast Material (composed of well-graded gravel with sand) Moderately dense to very dense in lower ~1 foot, slightly moist, no odor, no sheen.
			2					Poorly graded SAND Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), siltier (15-20%) below ~10 feet bgs, moderately loose to moderately dense (locally variable), moist to wet below ~9 feet bgs, no odor, no sheen.
			3					
			4					
SS	3		5					
			6					
			7				SP	
			8					
SS	3		9					
			10					
			11					
			12					

KJ.PNW.WISHRAM.SOIL.LOGS.GPJ.KJ.PNW.GDT.4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--North of Track</b>		Boring Name <b>DB-6</b>	
DRILLING COMPANY <b>Cascade</b>		DRILLER <b>Casey</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		PROJECT NAME <b>BNSF Wishram</b>	
ISOLATION CASING <b>N/A</b>		PROJECT NUMBER <b>0796022*12</b>	
BLANK CASING <b>N/A</b>		ELEVATION AND DATUM	
SLOTTED CASING <b>N/A</b>		TOTAL DEPTH <b>8.0 ft. bgs</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		DATE STARTED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		DATE COMPLETED <b>3/7/07</b>	
GROUT <b>N/A</b>		INITIAL WATER DEPTH (FT) <b>N/A</b>	
		LOGGED BY <b>DKM</b>	
		SAMPLING METHODS	
		MacroCore w/liner	
		WELL COMPLETION	
		<input type="checkbox"/> SURFACE HOUSING	
		<input type="checkbox"/> STAND PIPE _____ FT.	

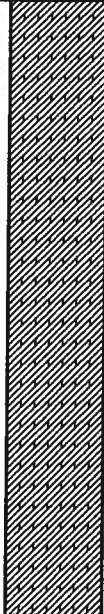

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"						
SS	3.5		1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, no odor, no sheen.
			2					<b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, no odor, no sheen.
			3					
			4					
			5					
SS	3		6				SP	
			7					
			8					

KJ.PNW.WISHRAM SOIL LOGS.GPJ KJ.PNW.GDT 4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--North of Track</b>		DRILLER <b>Casey</b>		Boring Name <b>DB-7</b>	
DRILLING COMPANY <b>Cascade</b>		DRILL BIT(S) SIZE <b>2-inch</b>		Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		ISOLATION CASING <b>N/A</b>		Project Number <b>0796022*12</b>	
BLANK CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		ELEVATION AND DATUM	
SLOTTED CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		TOTAL DEPTH <b>8.0 ft. bgs</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		DATE STARTED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		FROM <b>0</b> TO <b>8</b> FT.		DATE COMPLETED <b>3/7/07</b>	
GROUT <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		INITIAL WATER DEPTH (FT) <b>N/A</b>	
				LOGGED BY <b>DKM</b>	
				SAMPLING METHODS <b>MacroCore w/liner</b>	
				WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	


SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6"						
SS	3.5		1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, diesel odor and sheen.
			2					
SS	3		3				SP	<b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, slight odor and sheen above ~2.5 feet bgs; no odor, no sheen below ~2.5 feet bgs.
			4					
			5					
			6					
			7					
			8					

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Diesel Spill Area--North of Track		Boring Name DB-8	
DRILLING COMPANY Cascade	DRILLER Casey	Project Name BNSF Wishram	
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2-inch	Project Number 0796022*12	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH 8.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 3/7/07	DATE COMPLETED 3/7/07
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) N/A	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL N/A	FROM N/A TO N/A FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS	
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6"							
SS	3.5		1					Track Structure Ballast Material (composed of well-graded gravel with sand) Moderately dense to very dense in lower ~1 foot, slightly moist, no odor, no sheen.	
			2						
SS	3		3				SP	Poorly graded SAND Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, no odor, no sheen.	
			4						
			5						
			6						
			7						
			8						

KJ PNW WISHRAM SOIL LOGS.GPJ KJ.PNW.GDT 4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--On Track</b>		DRILLER <b>Casey</b>		Boring Name <b>DB-9</b>	
DRILLING COMPANY <b>Cascade</b>		DRILL BIT(S) SIZE <b>2-inch</b>		Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		ISOLATION CASING <b>N/A</b>		Project Number <b>0796022*12</b>	
BLANK CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		ELEVATION AND DATUM	
SLOTTED CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		TOTAL DEPTH <b>8.0 ft. bgs</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		DATE STARTED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		FROM <b>0</b> TO <b>8</b> FT.		DATE COMPLETED <b>3/7/07</b>	
GROUT <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		INITIAL WATER DEPTH (FT) <b>N/A</b>	
				LOGGED BY <b>DKM</b>	
				SAMPLING METHODS	
				MacroCore w/liner	
				WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6"						
SS	3		1	[Hatched Backfill]	[Dotted Lithology]	SP	<p><b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, oil-like hydrocarbon odor and sheen.</p> <p><b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, no odor, no sheen.</p>	
			2					
3								
4								
5								
6								
7								
8								
SS	3.5							

KJ PNW WISHRAM SOIL LOGS.GPJ\_KJ PNW.GDT 4/30/07



# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--On Track</b>		DRILLER <b>Casey</b>		Boring Name <b>DB-10</b>	
DRILLING COMPANY <b>Cascade</b>		DRILL BIT(S) SIZE <b>2-inch</b>		Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		ISOLATION CASING <b>N/A</b>		Project Number <b>0796022*12</b>	
BLANK CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		ELEVATION AND DATUM	
SLOTTED CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		TOTAL DEPTH <b>8.0 ft. bgs</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		DATE STARTED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		FROM <b>0</b> TO <b>8</b> FT.		DATE COMPLETED <b>3/7/07</b>	
GROUT <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		INITIAL WATER DEPTH (FT) <b>N/A</b>	
				LOGGED BY <b>DKM</b>	
				SAMPLING METHODS	
				MacroCore w/liner	
				WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	



SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'						
			1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, oil-like hydrocarbon odor and sheen.
SS	1.5		2					
			3					<b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, slight odor above ~2.5 feet bgs; no odor below ~2.5 feet bgs.
			4					
			5				SP	
SS	3.5		6					
			7					
			8					

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--On Track</b>		Boring Name <b>DB-11</b>	
DRILLING COMPANY <b>Cascade</b>	DRILLER <b>Casey</b>	Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>	DRILL BIT(S) SIZE <b>2-inch</b>	Project Number <b>0796022*12</b>	
ISOLATION CASING <b>N/A</b>	FROM <b>N/A</b> TO <b>N/A</b> FT.	ELEVATION AND DATUM	TOTAL DEPTH <b>8.0 ft. bgs</b>
BLANK CASING <b>N/A</b>	FROM <b>N/A</b> TO <b>N/A</b> FT.	DATE STARTED <b>3/7/07</b>	DATE COMPLETED <b>3/7/07</b>
SLOTTED CASING <b>N/A</b>	FROM <b>N/A</b> TO <b>N/A</b> FT.	INITIAL WATER DEPTH (FT) <b>N/A</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>	FROM <b>N/A</b> TO <b>N/A</b> FT.	LOGGED BY <b>DKM</b>	
SEAL <b>Bentonite Granules</b>	FROM <b>0</b> TO <b>8</b> FT.	SAMPLING METHODS <b>MacroCore w/liner</b>	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT <b>N/A</b>	FROM <b>N/A</b> TO <b>N/A</b> FT.		

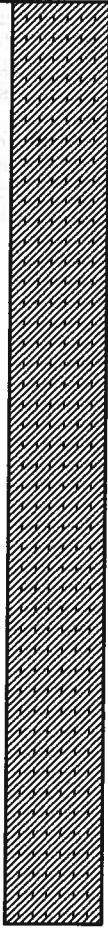


SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS		
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'								
SS	3		1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, oil-like hydrocarbon odor and sheen.		
			2							
SS	3.5		3				SP			<b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, no odor, no sheen.
			4							
			5							
			6							
			7							
			8							

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--On Track</b>		DRILLER <b>Casey</b>		Boring Name <b>DB-12</b>	
DRILLING COMPANY <b>Cascade</b>		DRILL BIT(S) SIZE <b>2-inch</b>		Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		ISOLATION CASING <b>N/A</b>		Project Number <b>0796022*12</b>	
BLANK CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		ELEVATION AND DATUM	
SLOTTED CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		TOTAL DEPTH <b>12.0 ft. bgs</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		DATE STARTED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		FROM <b>0</b> TO <b>12</b> FT.		DATE COMPLETED <b>3/7/07</b>	
GROUT <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		INITIAL WATER DEPTH (FT) <b>9.5</b>	
				LOGGED BY <b>DKM</b>	
				SAMPLING METHODS	
				MacroCore w/liner	
				WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS	
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'							
SS	3		1				SP	<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, oil-like hydrocarbon odor and sheen.	
			2					<b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist to wet below ~9.5 feet bgs, no odor, no sheen.	
			3						
			4						
SS	3		5						
			6						
			7						
			8						
SS	2		9						
			10						
			11						
			12						

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Diesel Spill Area--South of Track		Boring Name <b>DB-13</b>	
DRILLING COMPANY Cascade	DRILLER Casey	Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2-inch	Project Number <b>0796022*12</b>	
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH 8.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 3/7/07	DATE COMPLETED 3/7/07
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) N/A	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY DKM	
SEAL Bentonite Granules	FROM 0 TO 8 FT.	SAMPLING METHODS MacroCore w/liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM N/A TO N/A FT.		

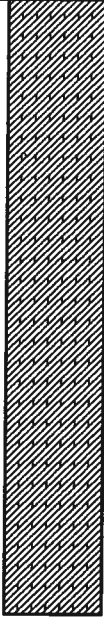

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6"						
			1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~0.5 foot, slightly moist, no odor, no sheen.
SS	3.5		2					
			3					<b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, no odor, no sheen.
			4					
			5				SP	
SS	3		6					
			7					
			8					

KJ PNW WISHRAM SOIL LOGS.GPJ\_KJ PNW.GDT\_4/30/07

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION <b>Diesel Spill Area--South of Track</b>		DRILLER <b>Casey</b>		Boring Name <b>DB-14</b>	
DRILLING COMPANY <b>Cascade</b>		DRILL BIT(S) SIZE <b>2-inch</b>		Project Name <b>BNSF Wishram</b>	
DRILLING METHOD(S) <b>GeoProbe</b>		ISOLATION CASING <b>N/A</b>		Project Number <b>0796022*12</b>	
BLANK CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		ELEVATION AND DATUM	
SLOTTED CASING <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		TOTAL DEPTH <b>8.0 ft. bgs</b>	
SIZE AND TYPE OF FILTER PACK <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		DATE STARTED <b>3/7/07</b>	
SEAL <b>Bentonite Granules</b>		FROM <b>0</b> TO <b>8</b> FT.		DATE COMPLETED <b>3/7/07</b>	
GROUT <b>N/A</b>		FROM <b>N/A</b> TO <b>N/A</b> FT.		INITIAL WATER DEPTH (FT) <b>N/A</b>	
				LOGGED BY <b>DKM</b>	
				SAMPLING METHODS	
				MacroCore w/liner	
				WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS		
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'								
SS	3		1					<b>Track Structure Ballast Material (composed of well-graded gravel with sand)</b> Moderately dense to very dense in lower ~1 foot, slightly moist, no odor, no sheen.		
			2							
SS	3		3				SP			<b>Poorly graded SAND</b> Tan/brown, mostly medium sand with up to 5-10% silt overall (locally variable), moderately loose to moderately dense (locally variable), moist, no odor, no sheen.
			4							
			5							
			6							
			7							
			8							

KJ PNW WISHRAM SOIL LOGS.GPJ KJ PNW.GDT 4/30/07

# Appendix B

## Soil Disposal Documents

Site	Soil Disposal Documents	Date	Location	Volume	Notes
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

RABANCO REGIONAL DISPOSAL  
 P.O. BOX 388  
 Roosevelt, WA 99356  
 (509) 384-5641

001935 - 0058  
 BNSF / Bruce Sheppard  
 BNSF / Bruce Sheppard

Contract: 07-1072

1 Gross Weight 55,060.00 LB  
 Tare Weight 34,940.00 LB  
 Net Weight 18,120.00 LB 9.06 TN

SITE 01		TICKET 134046		GRID 000000	
WEIGHMASTER GH00036 GAIL H					
DATE IN 16 March 2007		DATE OUT 16 March 2007		TIME IN 10:31 am	
VEHICLE 2072		ROLL OFF		TIME OUT 10:53 am	
REFERENCE		ORIGIN Wishram			
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TAX
9.06	TN	34 [E4] PCS 34 Inbound - SELF HAULER Roosevelt Landfill			
					TOTAL
					NET AMOUNT
					TENDERED
					CHANGE
					CHECK NO.

0.00 YD

**SAFETY MEMOS:**

- Hard hats MUST be worn.
- High Visibility vests MUST be worn.
- Passengers MUST remain in vehicle at all times.

SIGNATURE 

# Appendix C

## Laboratory Analytical Results and Chain-of Custody Documents

Case No.	Sample No.	Sample Description	Collection Date	Collection Location	Collector	Chain of Custody	Analysis Date	Analysis Results
101	1	...	...	...	...	...	...	...
101	2	...	...	...	...	...	...	...
101	3	...	...	...	...	...	...	...
101	4	...	...	...	...	...	...	...
101	5	...	...	...	...	...	...	...
101	6	...	...	...	...	...	...	...
101	7	...	...	...	...	...	...	...
101	8	...	...	...	...	...	...	...
101	9	...	...	...	...	...	...	...
101	10	...	...	...	...	...	...	...
101	11	...	...	...	...	...	...	...
101	12	...	...	...	...	...	...	...
101	13	...	...	...	...	...	...	...
101	14	...	...	...	...	...	...	...
101	15	...	...	...	...	...	...	...
101	16	...	...	...	...	...	...	...
101	17	...	...	...	...	...	...	...
101	18	...	...	...	...	...	...	...
101	19	...	...	...	...	...	...	...
101	20	...	...	...	...	...	...	...
101	21	...	...	...	...	...	...	...
101	22	...	...	...	...	...	...	...
101	23	...	...	...	...	...	...	...
101	24	...	...	...	...	...	...	...
101	25	...	...	...	...	...	...	...
101	26	...	...	...	...	...	...	...
101	27	...	...	...	...	...	...	...
101	28	...	...	...	...	...	...	...
101	29	...	...	...	...	...	...	...
101	30	...	...	...	...	...	...	...
101	31	...	...	...	...	...	...	...
101	32	...	...	...	...	...	...	...
101	33	...	...	...	...	...	...	...
101	34	...	...	...	...	...	...	...
101	35	...	...	...	...	...	...	...
101	36	...	...	...	...	...	...	...
101	37	...	...	...	...	...	...	...
101	38	...	...	...	...	...	...	...
101	39	...	...	...	...	...	...	...
101	40	...	...	...	...	...	...	...
101	41	...	...	...	...	...	...	...
101	42	...	...	...	...	...	...	...
101	43	...	...	...	...	...	...	...
101	44	...	...	...	...	...	...	...
101	45	...	...	...	...	...	...	...
101	46	...	...	...	...	...	...	...
101	47	...	...	...	...	...	...	...
101	48	...	...	...	...	...	...	...
101	49	...	...	...	...	...	...	...
101	50	...	...	...	...	...	...	...
101	51	...	...	...	...	...	...	...
101	52	...	...	...	...	...	...	...
101	53	...	...	...	...	...	...	...
101	54	...	...	...	...	...	...	...
101	55	...	...	...	...	...	...	...
101	56	...	...	...	...	...	...	...
101	57	...	...	...	...	...	...	...
101	58	...	...	...	...	...	...	...
101	59	...	...	...	...	...	...	...
101	60	...	...	...	...	...	...	...
101	61	...	...	...	...	...	...	...
101	62	...	...	...	...	...	...	...
101	63	...	...	...	...	...	...	...
101	64	...	...	...	...	...	...	...
101	65	...	...	...	...	...	...	...
101	66	...	...	...	...	...	...	...
101	67	...	...	...	...	...	...	...
101	68	...	...	...	...	...	...	...
101	69	...	...	...	...	...	...	...
101	70	...	...	...	...	...	...	...
101	71	...	...	...	...	...	...	...
101	72	...	...	...	...	...	...	...
101	73	...	...	...	...	...	...	...
101	74	...	...	...	...	...	...	...
101	75	...	...	...	...	...	...	...
101	76	...	...	...	...	...	...	...
101	77	...	...	...	...	...	...	...
101	78	...	...	...	...	...	...	...
101	79	...	...	...	...	...	...	...
101	80	...	...	...	...	...	...	...
101	81	...	...	...	...	...	...	...
101	82	...	...	...	...	...	...	...
101	83	...	...	...	...	...	...	...
101	84	...	...	...	...	...	...	...
101	85	...	...	...	...	...	...	...
101	86	...	...	...	...	...	...	...
101	87	...	...	...	...	...	...	...
101	88	...	...	...	...	...	...	...
101	89	...	...	...	...	...	...	...
101	90	...	...	...	...	...	...	...
101	91	...	...	...	...	...	...	...
101	92	...	...	...	...	...	...	...
101	93	...	...	...	...	...	...	...
101	94	...	...	...	...	...	...	...
101	95	...	...	...	...	...	...	...
101	96	...	...	...	...	...	...	...
101	97	...	...	...	...	...	...	...
101	98	...	...	...	...	...	...	...
101	99	...	...	...	...	...	...	...
101	100	...	...	...	...	...	...	...



March 15, 2007

Ross Dunning  
Kennedy/Jenks Consultants  
32001 32nd Ave S Ste 100  
Federal Way, WA/USA 98001

RE: BNSF-Wishram, WA

Enclosed are the results of analyses for samples received by the laboratory on 03/09/07 17:45.  
The following list is a summary of the Work Orders contained in this report, generated on 03/15/07  
15:49.

If you have any questions concerning this report, please feel free to contact me.

---

<u>Work Order</u>	<u>Project</u>	<u>ProjectNumber</u>
BQC0195	BNSF-Wishram, WA	[none]

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TestAmerica - Seattle, WA



Kate Haney, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report shall not be reproduced except in full, without the written approval of the laboratory.*



<b>Kennedy/Jenks Consultants</b> 32001 32nd Ave S Ste 100 Federal Way, WA/USA 98001	Project Name:	<b>BNSF-Wishram, WA</b>	Report Created: 03/15/07 15:49
	Project Number:	[none]	
	Project Manager:	Ross Dunning	

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DxA1-2	BQC0195-01	Soil	03/08/07 11:45	03/09/07 17:45
DxA2-2	BQC0195-02	Soil	03/08/07 11:50	03/09/07 17:45
DxA3-2	BQC0195-03	Soil	03/08/07 11:55	03/09/07 17:45
DxA4-2	BQC0195-04	Soil	03/08/07 12:00	03/09/07 17:45
DxA5-2	BQC0195-05	Soil	03/08/07 12:05	03/09/07 17:45
DxA6-2	BQC0195-06	Soil	03/08/07 12:10	03/09/07 17:45
DxA7-2	BQC0195-07	Soil	03/08/07 12:15	03/09/07 17:45

TestAmerica - Seattle, WA

*Kate Haney*

Kate Haney, Project Manager

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<b>Kennedy/Jenks Consultants</b> 32001 32nd Ave S Ste 100 Federal Way, WA/USA 98001	Project Name: <b>BNSF-Wishram, WA</b> Project Number: [none] Project Manager: Ross Dunning	Report Created: 03/15/07 15:49
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**Analytical Case Narrative**  
TestAmerica - Seattle, WA

**BQC0195**

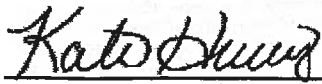
**SAMPLE RECEIPT**

The samples were received March 9th, 2007 by TestAmerica - Seattle. The temperature of the samples at the time of receipt was 4.7 degrees Celsius.

**PREPARATIONS AND ANALYSIS**

Semivolatile Petroleum Products by NWTPH-Dx (w/o Acid/Silica Gel Clean-up): No additional anomalies, discrepancies, or issues were associated with sample preparation, analysis and quality control other than those already qualified in the data and described in the Notes and Definitions page at the end of the report.

TestAmerica - Seattle, WA



Kate Hancy, Project Manager

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<b>Kennedy/Jenks Consultants</b> 32001 32nd Ave S Ste 100 Federal Way, WA/USA 98001	Project Name:	<b>BNSF-Wishram, WA</b>	Report Created: 03/15/07 15:49
	Project Number:	[none]	
	Project Manager:	Ross Dunning	

**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up**  
 TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BQC0195-01 (DxA1-2)</b>		<b>Soil</b>			<b>Sampled: 03/08/07 11:45</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	105	---	11.0	mg/kg dry	1x	7C13034	03/13/07 14:03	03/13/07 22:48	Q9
Lube Oil Range Hydrocarbons	"	295	---	27.6	"	"	"	"	"	
Surrogate(s):	2-FBP		78.5%		54 - 148 %	"				
	Octacosane		94.7%		62 - 142 %	"				
<b>BQC0195-02 (DxA2-2)</b>		<b>Soil</b>			<b>Sampled: 03/08/07 11:50</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	11.1	mg/kg dry	1x	7C13034	03/13/07 14:03	03/14/07 23:17	
Lube Oil Range Hydrocarbons	"	ND	---	27.8	"	"	"	"	"	
Surrogate(s):	2-FBP		77.1%		54 - 148 %	"				
	Octacosane		93.9%		62 - 142 %	"				
<b>BQC0195-03 (DxA3-2)</b>		<b>Soil</b>			<b>Sampled: 03/08/07 11:55</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	11.0	mg/kg dry	1x	7C13034	03/13/07 14:03	03/14/07 23:46	
Lube Oil Range Hydrocarbons	"	ND	---	27.4	"	"	"	"	"	
Surrogate(s):	2-FBP		83.5%		54 - 148 %	"				
	Octacosane		98.0%		62 - 142 %	"				
<b>BQC0195-04 (DxA4-2)</b>		<b>Soil</b>			<b>Sampled: 03/08/07 12:00</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	18.4	---	10.9	mg/kg dry	1x	7C13034	03/13/07 14:03	03/14/07 00:15	Q9
Lube Oil Range Hydrocarbons	"	55.4	---	27.3	"	"	"	"	"	
Surrogate(s):	2-FBP		77.6%		54 - 148 %	"				
	Octacosane		88.8%		62 - 142 %	"				
<b>BQC0195-05 (DxA5-2)</b>		<b>Soil</b>			<b>Sampled: 03/08/07 12:05</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	11.5	mg/kg dry	1x	7C13034	03/13/07 14:03	03/14/07 00:44	
Lube Oil Range Hydrocarbons	"	31.8	---	28.7	"	"	"	"	"	
Surrogate(s):	2-FBP		81.3%		54 - 148 %	"				
	Octacosane		97.9%		62 - 142 %	"				
<b>BQC0195-06 (DxA6-2)</b>		<b>Soil</b>			<b>Sampled: 03/08/07 12:10</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	78.3	---	11.1	mg/kg dry	1x	7C13034	03/13/07 14:03	03/14/07 02:40	Q9
Lube Oil Range Hydrocarbons	"	334	---	27.8	"	"	"	"	"	
Surrogate(s):	2-FBP		69.1%		54 - 148 %	"				
	Octacosane		87.2%		62 - 142 %	"				

TestAmerica - Seattle, WA

*Kate Haney*

Kate Haney, Project Manager

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<b>Kennedy/Jenks Consultants</b> 32001 32nd Ave S Ste 100 Federal Way, WA/USA 98001	Project Name:	<b>BNSF-Wishram, WA</b>	Report Created: 03/15/07 15:49
	Project Number:	[none]	
	Project Manager:	Ross Dunning	

**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up**  
 TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BQC0195-07 (DxA7-2)</b>		<b>Soil</b>			<b>Sampled: 03/08/07 12:15</b>					
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	11.0	mg/kg dry	1x	7C13034	03/13/07 14:03	03/14/07 03:09	
Lube Oil Range Hydrocarbons	"	ND	---	27.4	"	"	"	"	"	"
Surrogate(s):	2-FBP		86.4%		54 - 148 %	"				"
	Octacosane		102%		62 - 142 %	"				"

TestAmerica - Seattle, WA

*Kate Haney*

Kate Haney, Project Manager

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<b>Kennedy/Jenks Consultants</b> 32001 32nd Ave S Ste 100 Federal Way, WA/USA 98001	<b>Project Name:</b> BNSF-Wishram, WA <b>Project Number:</b> [none] <b>Project Manager:</b> Ross Dunning	<b>Report Created:</b> 03/15/07 15:49
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**Physical Parameters by APHA/ASTM/EPA Methods**  
TestAmerica - Seattle, WA

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
<b>BQC0195-01 (DxA1-2)</b>		<b>Soil</b>				<b>Sampled: 03/08/07 11:45</b>				
Dry Weight	BSOPSPLO03R0 8	90.1	---	1.00	%	1x	7C14036	03/14/07 13:50	03/15/07 00:00	
<b>BQC0195-02 (DxA2-2)</b>		<b>Soil</b>				<b>Sampled: 03/08/07 11:50</b>				
Dry Weight	BSOPSPLO03R0 8	89.9	---	1.00	%	1x	7C14036	03/14/07 13:50	03/15/07 00:00	
<b>BQC0195-03 (DxA3-2)</b>		<b>Soil</b>				<b>Sampled: 03/08/07 11:55</b>				
Dry Weight	BSOPSPLO03R0 8	90.8	---	1.00	%	1x	7C14036	03/14/07 13:50	03/15/07 00:00	
<b>BQC0195-04 (DxA4-2)</b>		<b>Soil</b>				<b>Sampled: 03/08/07 12:00</b>				
Dry Weight	BSOPSPLO03R0 8	91.3	---	1.00	%	1x	7C14036	03/14/07 13:50	03/15/07 00:00	
<b>BQC0195-05 (DxA5-2)</b>		<b>Soil</b>				<b>Sampled: 03/08/07 12:05</b>				
Dry Weight	BSOPSPLO03R0 8	88.5	---	1.00	%	1x	7C14036	03/14/07 13:50	03/15/07 00:00	
<b>BQC0195-06 (DxA6-2)</b>		<b>Soil</b>				<b>Sampled: 03/08/07 12:10</b>				
Dry Weight	BSOPSPLO03R0 8	89.0	---	1.00	%	1x	7C14036	03/14/07 13:50	03/15/07 00:00	
<b>BQC0195-07 (DxA7-2)</b>		<b>Soil</b>				<b>Sampled: 03/08/07 12:15</b>				
Dry Weight	BSOPSPLO03R0 8	91.4	---	1.00	%	1x	7C14036	03/14/07 13:50	03/15/07 00:00	

TestAmerica - Seattle, WA

*Kate Haney*

Kate Haney, Project Manager

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Kennedy/Jenks Consultants 32001 32nd Ave S Ste 100 Federal Way, WA/USA 98001	Project Name:	BNSF-Wishram, WA	Report Created: 03/15/07 15:49
	Project Number:	[none]	
	Project Manager:	Ross Dunning	

**Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Laboratory Quality Control Results**  
 TestAmerica - Seattle, WA

QC Batch: 7C13034      Soil Preparation Method: EPA 3550B

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes		
<b>Blank (7C13034-BLK1)</b>													Extracted: 03/13/07 14:03			
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	10.0	mg/kg wet	1x	--	--	--	--	--	--	03/13/07 20:22			
Lube Oil Range Hydrocarbons	"	ND	---	25.0	"	"	--	--	--	--	--	--	"			
Surrogate(s): 2-FBP		Recovery:		92.6%		Limits: 54-148%		"				03/13/07 20:22				
Octacosane		Recovery:		107%		Limits: 62-142%		"				"				
<b>LCS (7C13034-BS1)</b>													Extracted: 03/13/07 14:03			
Diesel Range Hydrocarbons	NWTPH-Dx	78.1	---	10.0	mg/kg wet	1x	--	66.7	117%	(78-129)	--	--	03/13/07 20:51			
Surrogate(s): 2-FBP		Recovery:		94.8%		Limits: 54-148%		"				03/13/07 20:51				
Octacosane		Recovery:		105%		Limits: 62-142%		"				"				
<b>Duplicate (7C13034-DUP1)</b>													QC Source: BQC0195-04		Extracted: 03/13/07 14:03	
Diesel Range Hydrocarbons	NWTPH-Dx	19.8	---	11.0	mg/kg dry	1x	18.4	--	--	--	7.33% (50)	--	03/13/07 21:20			
Lube Oil Range Hydrocarbons	"	56.9	---	27.5	"	"	55.4	--	--	--	2.67%	"	"			
Surrogate(s): 2-FBP		Recovery:		80.9%		Limits: 54-148%		"				03/13/07 21:20				
Octacosane		Recovery:		96.9%		Limits: 62-142%		"				"				
<b>Duplicate (7C13034-DUP2)</b>													QC Source: BQC0221-04		Extracted: 03/13/07 14:03	
Diesel Range Hydrocarbons	NWTPH-Dx	ND	---	10.3	mg/kg dry	1x	ND	--	--	--	NR (50)	--	03/13/07 21:50			
Lube Oil Range Hydrocarbons	"	ND	---	25.7	"	"	ND	--	--	--	1.29%	"	"	R4		
Surrogate(s): 2-FBP		Recovery:		82.4%		Limits: 54-148%		"				03/13/07 21:50				
Octacosane		Recovery:		96.6%		Limits: 62-142%		"				"				
<b>Matrix Spike (7C13034-MS1)</b>													QC Source: BQC0195-04		Extracted: 03/13/07 14:03	
Diesel Range Hydrocarbons	NWTPH-Dx	83.7	---	11.0	mg/kg dry	1x	18.4	73.5	88.8%	(46-155)	--	--	03/13/07 22:19			
Surrogate(s): 2-FBP		Recovery:		82.3%		Limits: 54-148%		"				03/13/07 22:19				
Octacosane		Recovery:		87.6%		Limits: 62-142%		"				"				

TestAmerica - Seattle, WA

*Kate Dunning*

Kate Haney, Project Manager

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<b>Kennedy/Jenks Consultants</b> 32001 32nd Ave S Ste 100 Federal Way, WA/USA 98001	Project Name:	<b>BNSF-Wishram, WA</b>	Report Created: 03/15/07 15:49
	Project Number:	[none]	
	Project Manager:	Ross Dunning	

**Physical Parameters by APHA/ASTM/EPA Methods - Laboratory Quality Control Results**  
 TestAmerica - Seattle, WA

QC Batch: 7C14036      Soil Preparation Method: Dry Weight

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
<b>Blank (7C14036-BLK1)</b>													Extracted: 03/14/07 13:50	
Dry Weight	BSOP&SPL00 3R08	99.7	--	1.00	%	1x	--	--	--	--	--	--	03/15/07 00:00	

TestAmerica - Seattle, WA

*Kate Haney*

Kate Haney, Project Manager

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**Kennedy/Jenks Consultants**

32001 32nd Ave S Ste 100  
Federal Way, WA/USA 98001

Project Name: **BNSF-Wishram, WA**

Project Number: [none]

Project Manager: Ross Dunning

Report Created:  
03/15/07 15:49

**Notes and Definitions**

Report Specific Notes:

- Q9 - Hydrocarbon pattern most closely resembles transformer oil range hydrocarbons..
- R4 - Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

Laboratory Reporting Conventions:

- DET - Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
- ND - Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
- NR/NA - Not Reported / Not Available
- dry - Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
- wet - Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' nor 'dry' are reported on a Wet Weight Basis.
- RPD - RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
- MRL - METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.
- MDL\* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. \*MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.
- Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.
- Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.
- Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy*. Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

TestAmerica - Seattle, WA



Kate Haney, Project Manager

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# TestAmerica

ANALYTICAL TESTING CORPORATION

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244  
 425-420-9200 FAX 420-9210  
 11922 E. First Ave, Spokane, WA 99206-5302 FAX 924-9290  
 9405 SW Nimbus Ave, Beaverton, OR 97008-7145 FAX 906-9210  
 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 FAX 563-9210

Excavation Samples

## CHAIN OF CUSTODY REPORT

Work Order #: **B000195**

CLIENT: <b>BNSF</b>		INVOICE TO: <b>BNSF</b>		TURNAROUND REQUEST	
REPORT TO: <b>Ross Dunning; Kennedy/Jenks</b>		ADDRESS: <b>WO: M07ZWA01-EN01</b>		in Business Days *	
PHONE: <b>253 874 0555</b> FAX: <b>253 952 3435</b>		PROJECT NAME: <b>BNSF Wishram</b>		<input type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1	
PROJECT NUMBER:		PRESERVATIVE		<input checked="" type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1	
SAMPLED BY: <b>Dean Matte</b>		REQUESTED ANALYSES		<input checked="" type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1	
CLIENT SAMPLE IDENTIFICATION		SAMPLING DATE/TIME		OTHER: _____ Specify: _____ * Turnaround Requested less than standard may incur Rush Charge.	
1. DXA1-2		3/6/07 1145		MATRIX (W, S, O)	
2. DXA2-2		1150		# OF CONT.	
3. DXA3-2		1155		LOCATION / COMMENTS	
4. DXA4-2		1200		TA WORD	
5. DXA5-2		1205		Soil 2 01	
6. DXA6-2		1210		↓ 02	
7. DXA7-2		1215		↓ 03	
8.				↓ 04	
9.				↓ 05	
10.				↓ 06	
RELEASED BY: <b>Linda Norton</b>		DATE: <b>3/9/07</b>		RECEIVED BY: <b>TA-S</b>	
PRINT NAME: <b>Linda Norton</b>		TIME: <b>3:52</b>		DATE: <b>3/9/07</b>	
RELEASED BY: <b>KP</b>		DATE: <b>3/9/07</b>		TIME: <b>1552</b>	
PRINT NAME: <b>Linda Norton</b>		DATE: <b>3/9/07</b>		TIME: <b>1552</b>	
ADDITIONAL REMARKS:		FRM: <b>KP</b>		FRM: <b>TA-S</b>	
COC REV 6/2006		FRM: _____		FRM: _____	

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and for any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice unless otherwise contracted. Sample(s) will be disposed of after 30 days unless otherwise contracted.

w/b Lab 17-18