

# **Site Assessment Report**

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**Wishram Railyard  
Wishram, Washington**

**The Burlington Northern and  
Santa Fe Railway Company**

**K/J 036026.00**

**August 2004**

**Kennedy/Jenks Consultants**

**SITE ASSESSMENT REPORT**

**WISHRAM RAILYARD  
WISHRAM, WASHINGTON**

Prepared for

**THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY**

Prepared by:



**Galen C. Davis  
Hydrogeologist**

Reviewed by:



**Nathan A. Graves  
Vice President**

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

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## **EXECUTIVE SUMMARY**

Kennedy/Jenks Consultants conducted a site assessment at The Burlington Northern and Santa Fe Railway Company (BNSF) railyard (site) in Wishram, Washington, between September 2003 and April 2004 (Figure 1). The purpose of the assessment was to characterize hydrogeologic conditions and evaluate soil and groundwater quality in nine former operations areas that were identified during an historical review of the site. One of the nine areas, the former location of an underground storage tank (UST) near the yard's boiler house, was assessed in September 2003. A report describing the removal of the UST and the September 2003 site assessment was submitted to the Washington State Department of Ecology (Ecology) in October 2003.

### **Hydrogeologic Conditions**

Wishram is located on alluvial fan and dune deposits overlying basalt bedrock that slopes southward beneath the site toward the Columbia River at depths ranging from 15 to 40 feet below ground surface (bgs). Groundwater appears to be present in the southern two thirds of the site on a year round basis and in the northern third during the wet season only. The groundwater flow direction measured at the site in April was south-southwest, with a gradient of 0.006 feet per foot (ft/ft).

### **Soil and Groundwater Analytical Results**

Soil and/or groundwater samples collected from three of the nine former operations areas contained chemicals of potential concern at concentrations exceeding Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels for soil at industrial properties or MTCA Method A cleanup levels for groundwater. These areas, summarized below, include the former location of the boiler house UST, the former powerhouse, and the fueling island.

Arsenic was also detected at concentrations slightly exceeding the MTCA Method A cleanup level in unfiltered groundwater samples collected at three locations outside of the operations areas described below. However, it is likely that dissolved arsenic concentrations in groundwater are below the MTCA Method A cleanup level as the samples with detections were unfiltered and slightly turbid.

Former Boiler House UST. In September 2003, petroleum hydrocarbons and naphthalene were detected at concentrations exceeding MTCA Method A cleanup levels in a soil sample collected southwest of the former location of the boiler house UST (WSB-2). Analytical results for several samples collected in this area suggest that chemicals of potential concern detected at location WSB-2 are present in a de minimis quantity of soil that was not excavated when the former tank was removed.

Former Powerhouse. Subsurface soil samples collected in the footprint of the former powerhouse contained diesel- and oil-range hydrocarbons at concentrations exceeding MTCA Method A soil cleanup levels for industrial properties. Groundwater samples collected in this same location contained diesel- and oil-range hydrocarbons, carcinogenic polynuclear aromatic hydrocarbons (CPAHs), benzene, and arsenic at concentrations exceeding MTCA Method A cleanup levels for groundwater (Figure 2). Dense, non-aqueous phase liquid (DNAPL) is present in a monitoring well that was installed in this location in September 2003. The affected soil and groundwater and DNAPL appear to be localized around the powerhouse's former foundation.

Fueling Island. Diesel- and gasoline-range hydrocarbons were detected in soil samples collected near the western end of the former fueling island at concentrations exceeding MTCA Method A soil cleanup levels for industrial properties. The affected soil appears to extend between the fueling island and the former location of a 5,000-gallon lubricating oil aboveground storage tank (AST), approximately 60 feet to the southwest (Figure 2). The condition of soil adjacent to the northern side of the fueling island, beneath the mainline tracks, was not evaluated. However, soil samples collected from a boring advanced north of the mainline tracks and west of the maintenance shop contained diesel-, oil-, and gasoline-range hydrocarbons at concentrations below MTCA Method A soil cleanup levels for industrial properties.

Analytical results for groundwater samples collected from monitoring wells upgradient (WMW-7, west of the maintenance shop) and downgradient (WMW-1) of the fueling island suggest potential seasonal migration of petroleum hydrocarbons along a narrow path beginning west of the maintenance shop, continuing under the former fueling island, and extending southward to the location of monitoring well WMW-1 (Figure 2). Approximately 1 inch of light non-aqueous phase liquid (LNAPL) was detected in monitoring well MW-7 in April 2004.

Based on the site assessment results, additional monitoring and remediation activities may be necessary at the fueling island and powerhouse. Conceptual recommendations for these activities have been provided in the cover letter of this report.



## 1.0 INTRODUCTION

Kennedy/Jenks Consultants completed a site assessment at The Burlington Northern and Santa Fe Railway Company (BNSF) railyard in Wishram, Washington (the site) between February and April 2004 (Figure 1). The assessment was conducted to characterize hydrogeologic conditions and evaluate soil and groundwater quality in and downgradient of locations where historical operations might have included the use of chemicals of potential concern. This report describes the site assessment activities and results and includes a summary of analytical data for samples collected in September 2003 for the assessment of one former underground storage tank (UST) location at the site. A report describing the previous UST investigation was submitted to BNSF and the Washington State Department of Ecology (Ecology) in October 2003 (Kennedy/Jenks Consultants 2003).

Objectives of the site assessment included the following:

- Conducting a historical review to identify former operations and storage tank areas.
- Collecting reconnaissance soil and groundwater samples in the vicinity of and/or downgradient of former USTs and aboveground storage tanks (ASTs), and equipment storage, fueling, and maintenance areas that were identified during the historical review.
- Installing and sampling groundwater monitoring wells. To date, two rounds of groundwater monitoring have been conducted. A third round is scheduled for July 2004.

## **2.0 SITE LOCATION AND DESCRIPTION**

### **2.1 SITE LOCATION**

Wishram is 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 site, consisting of the western half of the Wishram railyard, lies between the town of Wishram and the northern shoreline of the Columbia River, within the southwestern quarter of the southwestern quarter of Section 17, Township 2 north, Range 15, east of the Willamette Meridian. The site assessment focused on the western half of the railyard, shown on Figure 2, because the eastern half has historically contained only tracks and cattle pens.

### **2.2 SITE DESCRIPTION**

The site is approximately 2,000 feet long, ranges from 150 to 720 feet wide, and encompasses approximately 20 acres (including land no longer occupied by BNSF). The site is bounded by the town of Wishram to the north, the vacant portion of the railyard to the east, the Columbia River to the south and southwest, and railroad right-of-way to the west. Onsite structures include a small Amtrak depot, storage building, maintenance shop (office and tool storage), two mainline tracks, and three active track spurs. A former boiler house located 40 feet northwest of the maintenance shop is currently leased from BNSF by the Klickitat County Fire Protection District (Wishram Volunteer Fire Department) for use as an ambulance garage (Staubach 2004).

Historical photographs, BNSF records, and station maps dated 1932, 1960, and 1975 were reviewed to identify the former locations of structures, ASTs, USTs, maintenance and fueling areas, and water supply wells. Former features identified during the historical review and evaluated during the site assessment are shown on Figure 2.

### 2.2.1 ASTs and USTs

Descriptions of former ASTs and USTs identified during the historical review are summarized in Table 1. The former tank locations are shown on Figure 2.

Diesel used for locomotive fueling was most recently (1940s to 1970s) stored at the site in two 100,000-gallon ASTs located approximately 150 feet northwest of the maintenance shop in an area currently owned and occupied by the Wishram Post Office (BNSF 1960, Staubach 2004). The foundation of a pump house formerly associated with transferring fuel to and from the tanks is located approximately 80 feet west of the maintenance shop. A concrete fueling island associated with the former tanks is present south of the mainline tracks, approximately 100 feet southwest of the maintenance shop.

According to a 1932 station map, a 30,000-barrel (1,260,000 gallons), oil AST was located approximately 200 feet north of the maintenance shop prior to the 1940s (Spokane, Portland, and Seattle Railway Company 1932). The former tank location is partially covered with vegetation and extends into the intersection of Main Street and two unnamed gravel roads. BNSF currently owns an approximately 1.2-acre parcel (parcel 3) that abuts the southern side of Main Street, just downgradient of the former AST. As described above, the Klickitat County Fire Protection District leases a portion of Parcel 3 (the former boiler house) from BNSF and uses the property for storing the department's ambulance.

A 5,000-gallon lubricating oil AST was formerly located approximately 60 feet southwest of the concrete fueling island, which is described above and shown on Figure 2. Available records suggest that the tank was removed in the 1980s.

Other former ASTs and USTs, shown on Figure 2 and described in Table 1, appear to have been used for fueling onsite vehicles and/or boilers. Based on available records, the majority of these tanks were removed in or prior to 1988 (BNSF 1988). The former boiler house UST was removed in 2002. The removal date for the 1,000-gallon gasoline UST at the eastern end of the study area (eastern margin of Figure 2) was not determined during the historical review. However, during a utility survey conducted for the site assessment, evidence of a tank and/or

pipng was not detected in this location. It is assumed that the tank was removed along with the adjacent oil house in the 1970s or early 1980s.

### **2.2.2 Water Supply Wells**

Station maps indicate that two water supply wells were formerly located along the site's southern boundary. A 15-inch diameter well casing (reportedly 399 feet deep) surrounded by a large concrete pad is still present in one of the locations (Figure 2). Remnants of the second well could not be found during the site assessment.

Groundwater Rights Certificates for these two wells were obtained from the Ecology Central Regional Office. The certificates indicate that the Spokane, Portland, and Seattle Railway Company obtained water rights for the wells in 1945, and the Burlington Northern Portland Division filed water right claims for a second time in June 1974. The claims state that water from the wells was used for domestic purposes at railroad company houses and by the City of Wishram. Copies of the Certificates have been provided to BNSF under separate cover.

### **2.3 CURRENT AND HISTORICAL SITE OPERATIONS**

Currently, railyard operations include Amtrak passenger service at the depot and limited railcar switching on track spurs located just south of the depot (Figure 2). Historically, the railyard was used primarily for railcar switching, conducted on approximately 35 track spurs, which extended from the far eastern end of the railyard (east of the site assessment study area) to the engine house. Most of the track spurs have been removed.

Locomotives were repaired in the engine house and turned on the turntable located southeast of the engine house. Both of these structures were demolished in the early 1980's. Locomotive fueling and fuel offloading were formerly conducted at the fueling island southwest of the maintenance shop and on a fueling track that was located between the maintenance shop and

former boiler house. Locomotive repair and fueling activities have not been conducted at the site for at least 20 years.

## **2.4 HYDROGEOLOGY**

The town of Wishram and the site are located on several coalescing alluvial fan and dune deposits that form an approximately 0.75-mile-wide by 2-mile-long, relatively flat piece of land adjacent to the northern shoreline of the Columbia River (Figures 1 and 2). Based on field observations, the alluvial fan and dune deposits beneath the site are composed of fine to medium sand, range from approximately 15 to 40 feet thick, and overlie Columbia Plateau basalt. The basalt bedrock appears to range from a depth of approximately 40 feet below ground surface (bgs), at the Columbia River shoreline, to a depth of approximately 15 feet bgs, along the site's northern boundary (Figure 2). Just north of the town of Wishram and west of the site, the basalt crops out in nearly vertical cliffs that rise approximately 600 feet to the Columbia Plateau. It is assumed that the upper surface of bedrock beneath the site is relatively uneven, similar to the upper surface of basalt outcrops in the general area.

A relatively narrow, steep-sided canyon cuts through the basalt cliffs near the western end of Wishram, below a large spring (Wishram water supply) located on the plateau above the town. An intermittent stream in the channel is directed to an outfall on the Columbia River through a ditch that was constructed to circumnavigate the western end of the town and railyard.

During the September 2003 UST site assessment, groundwater was not encountered above bedrock (15 feet bgs) in soil borings advanced near the site's northern boundary but was encountered at approximately 12 to 15 feet bgs in soil borings and monitoring wells completed south of the mainline railroad tracks (Figure 2). In contrast, during the wet season in February and April 2004, groundwater was encountered in the majority of soil borings advanced north of the mainline tracks (9 to 13 feet bgs), as well as in borings advanced closer to the river. The groundwater elevation increased approximately 6 feet between the dry and wet season monitoring rounds suggesting that there is seasonal groundwater flow from the north and/or

increased recharge from the Columbia River due to an increase in the river's stage during the winter.

The results of groundwater monitoring in April 2004 indicate the groundwater flow direction at that time was south-southwest with a gradient of approximately 0.006 feet per foot (ft/ft) (Figure 2). A potentiometric contour map for April 2004, with relative groundwater elevations corresponding to an arbitrary benchmark established for the site assessment, is provided in Figure 3. Sufficient data were not available in September 2003 to evaluate the groundwater flow direction.

### **3.0 SITE ASSESSMENT**

Between 24 and 26 February and on 5 April 2004, soil and reconnaissance groundwater samples were collected from 28 accessible locations using direct-push or hollow-stem auger sampling techniques. Twelve of the 28 soil borings were located north of the mainline tracks in the approximate vicinity of and/or downgradient of former USTs and ASTs. The remaining 16 soil borings were advanced in accessible locations south of the mainline tracks around and downgradient of former storage tank locations, the engine house, powerhouse, fueling island, and transformer storage area. The locations of all soil borings completed since September 2003 are shown on Figure 2. The former locations of tanks and other site features were identified in the field based on survey coordinates recorded on historical station maps.

On 5 April 2004, three groundwater monitoring wells were installed using a hollow-stem auger drilling rig. The three new monitoring wells and four wells that were previously installed in September 2003 were sampled on 15 and 16 April 2004.

The proposal for the 2004 site assessment, prepared by Kennedy/Jenks Consultants and submitted to BNSF on 12 November 2003, provided for collecting soil and reconnaissance groundwater samples from up to 64 soil borings and installing up to six groundwater monitoring wells. Some of the proposed soil borings and monitoring wells (in downgradient locations) were deemed unnecessary because chemicals of potential concern were not encountered in former operations areas upgradient of the proposed borings. Several sampling locations proposed for the former engine house area were inaccessible because of ongoing rail maintenance activities and the presence of thick concrete foundations associated with former site structures.

#### **3.1 RECONNAISSANCE SOIL AND GROUNDWATER SAMPLING AND ANALYSIS**

Continuous soil samples were collected from all of the reconnaissance soil borings and from one of the monitoring well borings using a 4-foot-long, stainless steel, split-spoon sampler fitted

with disposable polyethylene liners. Soil samples for laboratory analysis were collected from various depths in the unsaturated zone or just above the groundwater table. Reconnaissance groundwater samples were collected from eight of the direct-push soil borings using a peristaltic pump and disposable polyethylene tubing. The groundwater sampling locations were selected at or downgradient of soil sampling locations where visual observations indicated the potential presence of chemicals of concern. Logs for all of the soil borings, including those completed in 2003, are provided in Appendix A.

Reconnaissance soil and groundwater samples collected in February and April 2004 were submitted to North Creek Analytical Services (NCA) of Beaverton, Oregon. The analyses selected for each sample were based on reported former uses of tanks or activities conducted in the sampling area and are described in Tables 2 through 5. Analytical reports prepared by the laboratory are provided in Appendix B. A limited quality assurance (QA) review indicated that the reconnaissance soil and groundwater data received from NCA are valid and acceptable for use.

## **3.2 MONITORING WELL INSTALLATION AND SAMPLING**

### **3.2.1 Well Installation and Development**

On 5 April 2004, Cascade Drilling, Inc. (Cascade) of Woodinville, Washington, installed monitoring wells WMW-5 through WMW-7 using a hollow-stem-auger drilling rig equipped with 9-inch diameter auger flights. Monitoring wells WMW-1 through WMW-4 were installed in September 2003 using the same techniques. The depths of the new wells ranged from 20 to 25 feet bgs. The locations of all monitoring wells at the site are shown on Figure 2. Monitoring well boring and completion logs are provided in Appendix A.

Each well was constructed with a 2-inch-diameter by 10-foot-long, 0.010-inch factory slotted, schedule 40, polyvinyl chloride (PVC) screen and schedule 40 PVC riser pipe. Filter pack material consisting of clean, size 10/20, silica sand was placed from the bottom of the well screen to two feet above the screened interval. Well seals consisting of hydrated bentonite



chips were placed from the tops of the filter packs to 2 feet bgs. The wells were completed at the surface with flush mount monuments surrounded by four square-foot concrete pads extending to 2 feet bgs.

On 15 and 16 April 2004, monitoring wells WMW-5 through WMW-7 were developed using a peristaltic pump and surge block until water discharged from the wells was free of suspended solids (based on visual observations). At the same time, a licensed surveyor surveyed the horizontal and vertical coordinates of each well casing relative to an arbitrary benchmark established for the site assessment (assigned an elevation of 100 feet).

Development water and soil cuttings from the monitoring well borings were stored onsite in Department of Transportation (DOT)-approved, 55-gallon, steel drums. The well development water will remain onsite until after the July 2004 groundwater monitoring event when it will be transported offsite and disposed of by MRP Services (MRP) of Portland, Oregon.

The drums of soil cuttings (including soil cuttings from the 2003 well installation event) were transported offsite and disposed by Rabanco, in Seattle, Washington, on 4 June 2004. Monitoring well development water and equipment decontamination water generated in 2003 were transported and disposed offsite by MRP on 25 February 2004.

### **3.2.2 Groundwater Sampling and Analysis**

On 15 and 16 April 2004, monitoring wells WMW-1 through WMW-7 were purged and sampled using minimal drawdown techniques. During purging, water quality parameters including temperature, pH, specific conductance, dissolved oxygen, and Eh were measured using a YSI® water quality meter and flow-through cell. The water quality parameters are summarized in Table 6.

Groundwater samples WMW-1 through WMW-7 (including a field blind duplicate collected at location WMW-5) were submitted to NCA for the analyses described in Table 6. Analytical reports prepared by the laboratory are provided in Appendix B. A limited QA review indicated that the groundwater data are valid and acceptable for use.

### **3.3 FIELD OBSERVATIONS AND ANALYTICAL RESULTS**

Site assessment field observations and analytical results are described below according to the former tank or operational area that was evaluated. Analytical results for compounds that were detected in soil and groundwater samples are summarized in Tables 2 through 6 along with Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels for groundwater and Method A soil cleanup levels for industrial properties (MTCA Method A cleanup levels) (Ecology 2001). MTCA Method A soil cleanup levels for industrial properties are applicable because it is anticipated that the site will be used as a railroad facility for the foreseeable future.

#### **3.3.1 Former 30,000-Barrel Oil AST**

Soil boring WSB-04-11 was advanced to a depth of 12 feet bgs on the southern edge of the former 30,000-barrel AST pad, and soil boring WSB-04-13 was advanced to a depth of 16 feet bgs, approximately 50 feet south of the former tank pad (Figure 2). Stains, sheens, and/or odors were not observed in unsaturated or saturated zone soil samples retrieved from these borings.

Soil samples were collected from 2 and 10 feet bgs from soil boring WSB-04-11 and submitted for laboratory analysis of diesel- and oil-range hydrocarbons. The sample from 10 feet bgs was also analyzed for polynuclear aromatic hydrocarbons (PAHs) and carcinogenic PAHs (cPAHs). One sample was collected from 16 feet bgs (just above the water table) from soil boring WSB-04-13 and analyzed for diesel- and oil-range hydrocarbons. No compounds were

detected in the samples at concentrations greater than laboratory reporting limits (Tables 2 and 3).

### **3.3.2 Former 600-Gallon Fuel Oil and 10,000-Gallon Gasoline/Oil USTs**

Soil boring WSB-04-14 was advanced in the location of the former 600-gallon fuel oil UST, approximately 30 feet east of the former boiler house. Boring WSB-04-17 was advanced approximately 100 feet southwest of the fuel oil UST (potentially downgradient). Soil boring WSB-04-15 was completed in the former location of the 10,000-gallon gasoline/oil UST, which is also downgradient of the former 600-gallon fuel oil UST. Soil samples were collected from 5 and 10 feet bgs at soil boring location WSB-04-14, from 10 feet bgs at location WSB-04-15, and from 9 feet bgs at location WSB-04-17. A reconnaissance groundwater sample was collected at location WSB-04-15. Stains, sheens, and/or odors were not observed in soil or groundwater retrieved from any of these borings.

Soil samples collected from the unsaturated zone and from just above the water table were analyzed for diesel-, oil-, or gasoline-range hydrocarbons, benzene, toluene, ethylbenzene, xylenes (BTEX), and/or PAHs and cPAHs (Tables 2 and 3). The reconnaissance groundwater sample collected from soil boring WSB-04-15 was analyzed for diesel-, oil-, and gasoline-range hydrocarbons and BTEX (Table 5). None of these chemicals were detected in the samples at concentrations greater than laboratory reporting or method detection limits. None of the detected concentrations exceeded MTCA Method A soil cleanup levels for industrial properties.

### **3.3.3 Former 5,000-Gallon Oil UST at Depot**

Soil boring WSB-04-18 was completed next to the southern edge of an asphalt patch where the 5,000-gallon oil UST was removed in 1988. Soil boring WSB-04-19 was completed next to the depot, approximately 50 feet south of the former tank location (presumably downgradient). Stains, sheens, and/or odors were not observed in unsaturated and saturated zone soil in either soil boring location.

At location WSB-04-18, a soil sample was collected from 10 feet bgs, just above the water table and below the former tank bottom, for laboratory analysis of diesel- and oil-range hydrocarbons (Table 2). Oil-range hydrocarbons were detected in the sample at a concentration of 110 milligrams per kilogram (mg/kg), which is below the MTCA Method A cleanup level of 2,000 mg/kg. Diesel-range hydrocarbons were not detected at a concentration greater than the laboratory reporting limit.

### **3.3.4 Former 1,000-Gallon Gasoline UST and Oil House**

Soil boring WSB-04-20 was advanced approximately 800 feet east of the depot in the former location of a 1,000-gallon gasoline UST and oil house (Figure 2). Unsaturated and saturated zone soil retrieved from the boring did not exhibit an odor or sheen. Therefore, additional samples were not collected south of the initial boring.

A soil sample collected from 10 feet bgs (just above the water table) was submitted for laboratory analysis of diesel-, oil-, and gasoline-range hydrocarbons, and BTEX. Diesel- and oil-range hydrocarbons and BTEX were not detected in the sample at concentrations greater than laboratory reporting limits. Gasoline-range hydrocarbons were detected at a concentration of 4.48 mg/kg, which is below the MTCA Method A cleanup level of 100 mg/kg.

### **3.3.5 Former Transformer Storage Area**

Station maps indicate that the transformer storage area in the southwestern corner of the site was 32 feet long by 18 feet wide and surrounded by a fence. Remnants of the storage pen are not present, and staining was not observed on the ground surface.

Soil boring WSB-04-25 was advanced to a depth of 16 feet bgs in the approximate center of the former storage area. Additional downgradient borings were not completed because of the

presence of large boulders in the berm on the Columbia River shoreline. Soil cores retrieved from the boring did not exhibit staining, odors, or sheens.

Soil samples were collected from 5 and 10 feet bgs and submitted for laboratory analysis of diesel- and oil-range hydrocarbons and polychlorinated biphenyls (PCBs). None of these compounds were detected at concentrations greater than laboratory reporting limits.

### **3.3.6 Former Engine House and Turntable**

A concrete slab foundation surrounded by a chain-link fence remains in the former footprint of the engine house and is used as an equipment storage area. Elongated concrete slabs extending west of the engine house foundation appear to follow the routes of former lead tracks. Remnants of the turntable formerly located near the southeastern corner of the engine house are no longer present.

Prior to conducting the site assessment, an attempt was made to establish a soil sampling grid over the engine house/turntable area. Approximately 32 potential sampling points, spaced 60 feet apart, were to be included in the grid. However, because of the presence of the engine house and lead track foundations and a large amount of track maintenance equipment parked in the area at the time of the assessment, only eight of the grid points were accessible to the direct-push sampling rig. Soil borings completed at these points included WSB-04-27, WSB-04-28, WSB-04-30, WSB-04-31, WSB-04-33, WSB-04-34, WSB-04-35, and WSB-04-36 (Figure 2). With one exception, soil samples were collected for laboratory analysis from all of the borings. Samples were not collected for analysis at location WSB-04-28, because the direct push sampling tools were lost in the boring (at 10 feet bgs) as a result of encountering cobbles or buried concrete. None of the soil retrieved from the engine house area borings exhibited stains, odors, or sheens.

Laboratory analyses conducted for each soil sample collected from the engine house area are listed in Tables 2 through 4. Diesel-, oil-, and gasoline-range hydrocarbons, PAHs, cPAHs, volatile organic compounds (VOCs), or metals were not detected in any of the soil samples at

concentrations greater than MTCA Method A cleanup levels. Oil-range hydrocarbons were detected in the soil sample collected from soil boring WSB-04-31, from a depth of 2 feet bgs, at a concentration of 111 mg/kg. However, this detection was likely due to recent surface staining from a parked vehicle.

Analytical results for reconnaissance groundwater samples collected in the engine house area (WSB-04-27, WSB-04-34, and WSB-04-35) are summarized in Table 5. Toluene was detected in the reconnaissance groundwater sample collected from soil boring WSB-04-35 at a trace concentration of 1.57 micrograms per liter ( $\mu\text{g/L}$ ), which is below the MTCA Method A cleanup level of 1,000  $\mu\text{g/L}$ . Apart from toluene, no other organic compounds were detected at concentrations greater than laboratory reporting limits. Arsenic was detected in the reconnaissance groundwater sample collected from WSB-04-34 at a concentration of 6.48  $\mu\text{g/L}$ , which is just slightly greater than the MTCA Method A cleanup level for groundwater of 5  $\mu\text{g/L}$ . Based on this result, it is unlikely that the dissolved arsenic concentration in this location exceeds the MTCA Method A cleanup level.

### **3.3.7 Former Powerhouse**

Remnants of the former powerhouse include a partially buried concrete wall and a concrete slab within the former building footprint as shown on Figure 2. One soil boring (WSB-5) and a monitoring well boring (WMW-2) were advanced within the foundation perimeter in September 2003. In April 2004, one boring (WSB-04-37) was drilled adjacent to the east side of the foundation, and one boring (WSB-04-38) was advanced approximately 20 feet to the north of the former building.

Soil samples retrieved from borings WSB-5 and WMW-2, from between approximately 3 and 10 feet bgs, contained wood and metal debris coated with a viscous, petroleum compound. A sample collected from 10 feet bgs from WSB-5 contained diesel- and oil-range hydrocarbons at concentrations of 21,000 and 21,600 mg/kg, respectively. Soil collected from WSB-04-37, just outside and east the foundation perimeter, exhibited a strong odor and sheen, but no debris and no visible evidence of petroleum. A sample from 7 feet bgs from soil boring WSB-04-37

contained diesel- and oil-range hydrocarbons at concentrations of 2,490 and 3,740 mg/kg, respectively. No evidence of petroleum hydrocarbons was observed in samples collected from WSB-04-38, 20 feet to the north. These observations and data suggest that the buried debris and petroleum compounds observed in the former powerhouse borings appear to be localized.

A groundwater sample collected from monitoring well WMW-2 on 18 September 2003 contained diesel- and oil-range hydrocarbons, benzene, and cPAHs at concentrations exceeding MTCA Method A cleanup levels as well as low concentrations of toluene, ethylbenzene, and xylenes (Table 6). In April 2004, a sample from this same well contained gasoline-range hydrocarbons at a concentration of 750 µg/L, diesel-range hydrocarbons at a concentration of 844 µg/L, benzene at a concentration of 17.4 µg/L, arsenic a concentration of 18.4 µg/L, and low concentrations of ethylbenzene, toluene, and xylenes. In addition, dense, non-aqueous phase liquid (DNAPL) was encountered in the well during sampling. In February, only the diesel-range hydrocarbon, benzene, and arsenic concentrations exceeded MTCA Method A cleanup levels for groundwater.

Petroleum hydrocarbons and BTEX observed in groundwater at WMW-2 appear to be localized. Groundwater samples collected upgradient of the powerhouse, from locations WMW-3, WMW-5, and WSB-04-27, and east of the powerhouse, from WSB-04-34, did not contain petroleum hydrocarbons at concentrations approaching the concentrations observed at WMW-2. Furthermore, WMW-2 was the only location where benzene was detected during the site assessment.

### **3.3.8 Former 100,000-Gallon Diesel ASTs, Pump House, and 500-Gallon Gasoline USTs**

Soil Boring WSB-04-1 was advanced approximately 5 feet south of the former 100,000-gallon diesel AST pads (Figure 2). Field observations of soil samples from the boring did not indicate the presence of petroleum hydrocarbons between the ground surface and the saturated zone. Soil samples collected from 2 and 12 feet bgs and submitted for laboratory analysis did not contain diesel- and oil-range hydrocarbons, PAHs, or cPAHs at concentrations above laboratory reporting limits (Tables 2 and 3).

Soil boring WSB-04-2 was advanced approximately 90 feet south of the former location of the 100,000-gallon diesel tanks, a few feet northeast of the former pump house foundation. Field observations of soil retrieved from just above the water table (12 feet bgs) indicated a slight odor. However, diesel- and oil-range hydrocarbons were not detected at concentrations exceeding laboratory reporting limits in soil samples collected from 2 and 12 feet bgs (Table 2).

Soil boring WSB-04-6 was completed just southwest and downgradient of the former pump house to a depth of 16 feet bgs. A slight odor and sheen were encountered in soil above groundwater at approximately 9 feet bgs. However, a soil sample collected from 8 feet bgs did not contain diesel- or oil-range hydrocarbons, PAHs, and/or cPAHs at concentrations greater than laboratory reporting limits (Tables 2 and 3). A reconnaissance groundwater sample from the soil boring contained gasoline-range hydrocarbons, ethylbenzene, and total xylenes at concentrations of 390, 5.10, and 18.2 µg/L, respectively, which are below MTCA Method A groundwater cleanup levels (Table 5).

Soil boring WSB-04-7 and monitoring well WMW-7 were completed between the former pump house and 500-gallon gasoline USTs (Figure 2). Soil retrieved from these borings, from approximately 10 feet bgs, exhibited a petroleum-like odor and sheen. A soil sample collected from boring WSB-04-7 from 12 feet bgs contained diesel-, oil-, and gasoline-range hydrocarbons, but at concentrations below MTCA Method A cleanup levels (Table 2). cPAHs were not detected. A groundwater sample collected from monitoring well WMW-7 contained gasoline- and diesel-range hydrocarbons at concentrations of 1,790 and 1,220 µg/L, respectively, which exceed MTCA Method A cleanup levels (Table 6).

In September 2003, soil samples were collected from borings WSB-1 through WSB-3 just northwest of the former location of the 500-gallon gasoline USTs and south of the former location of the boiler house heating oil UST (Figure 2). Diesel- and oil-range hydrocarbons were detected in samples collected from 8 and 14 feet bgs at location WSB-2 but were not detected at location WSB-3 (Table 2). Diesel- and oil-range hydrocarbons and naphthalene detected at location WSB-2, at concentrations exceeding MTCA Method A cleanup levels,



appear to represent an isolated stringer of affected soil that could not be removed when the UST and adjacent soil were removed in 2002.

Based on these field observations and analytical results, soil directly beneath and just downgradient of the former location of the 100,000-gallon diesel ASTs does not appear to have been affected by chemicals of potential concern. The petroleum-hydrocarbon detections in soil and groundwater at locations WSB-04-7 and WMW-7 suggest the localized presence of petroleum hydrocarbons in soil and groundwater in the vicinity of the former pump house and 500-gallon gasoline USTs. The absence of petroleum hydrocarbons in soil samples collected in September 2003 from soil boring WSB-3 indicate that petroleum hydrocarbons and naphthalene detected in soil at WSB-2 are isolated from those detected in the vicinity of the former 500-gallon gasoline USTs.

### **3.3.9 Former Fueling Island and 5,000-Gallon Lubricating Oil AST**

Soil and/or reconnaissance groundwater samples were collected from nine soil borings (WSB-4, WSB-6, WSB-7, WSB-04-9, WSB-04-26, WSB-04-16, WSB-04-12, WSB-04-29, and WSB-04-38), and groundwater monitoring was conducted at five monitoring wells (WMW-1 and WMW-3 through WMW-6) in the vicinity of and downgradient of the former fueling island foundation and 5,000-gallon lubricating oil AST (Figure 2). Although monitoring well WMW-2 is downgradient of the former fueling island, localized petroleum hydrocarbons in soil and groundwater around the former powerhouse preclude using data from this location for evaluating potential effects from the fueling area.

**3.3.9.1 Soil.** Soil adjacent to the northern side of the fueling island (WSB-04-9) between 3 and 16 feet bgs exhibited an odor and sheen. In a soil sample collected from 5-feet bgs, diesel-, oil-, and gasoline-range hydrocarbons were detected at 12,100 mg/kg, 604 mg/kg, and 1,210 mg/kg, respectively. The diesel- and gasoline-range hydrocarbon concentrations exceeded MTCA Method A cleanup levels. Diesel-, oil-, and gasoline-range hydrocarbons were also detected at 24, 602, and 977 mg/kg, respectively, in the soil sample from 10-feet bgs.

Only the gasoline-range hydrocarbon concentration exceeded the MTCA Method A cleanup level. Ethylbenzene and xylenes were detected at concentrations below MTCA Method A cleanup levels in both samples (Table 2).

At location WSB-04-26, adjacent to the former location of the lubricating oil tank and approximately 50 feet downgradient of the western end of the fueling island, soil from between approximately 8 and 16 feet bgs exhibited an odor and sheen. In a soil sample collected from 10-foot bgs, diesel-, oil-, and gasoline-range hydrocarbons were detected at concentrations of 21,100, 14,000, and 606 mg/kg, respectively, which are all above MTCA Method A cleanup levels. Toluene, ethylbenzene, and xylenes were detected in this sample at concentrations below MTCA Method A cleanup levels.

Soil retrieved from borings WSB-7 (September 2003) and WSB-16, approximately 50 feet downgradient of the eastern end of the fueling island, exhibited only a very slight odor. A sample collected from WSB-7 from 10 feet bgs contained diesel- and oil-range hydrocarbons at concentrations of 240 and 72.3 mg/kg, respectively, which are below MTCA Method A cleanup levels. Soil samples collected from borings further to the east, at locations WSB-04-12 and WSB-29, did not contain diesel-, oil-, or gasoline-range hydrocarbons. However, the soil sample collected from 10 feet bgs at location WSB-04-12 did contain PAHs and cPAHs at low concentrations, below MTCA Method A cleanup levels (Table 3).

Soil samples from downgradient borings WSB-04-38, WSB-4, and WSB-6 did not contain diesel- and oil-range hydrocarbons at concentrations exceeding MTCA Method A cleanup levels.

These field observations and analytical data suggest that diesel-, oil-, and/or gasoline-range hydrocarbons are present in soil at concentrations greater than MTCA Method A cleanup levels in a narrow area between the western end of the fueling island and the former location of the lubricating oil UST (WSB-04-9 and WSB-04-26).

3.3.9.2 Groundwater. Reconnaissance groundwater samples were collected from soil borings WSB-04-16 and WSB-04-26. Two rounds of groundwater monitoring have been conducted at wells WMW-1, WMW-3, and WMW-4. Wells WMW-5 and WMW-6 were sampled once, in April, shortly after they were installed (Figure 2).

No compounds were detected at concentrations greater than laboratory reporting limits in the reconnaissance groundwater sample collected from WSB-04-16. Diesel- and gasoline-range hydrocarbons were detected in the sample from WSB-04-26 at concentrations of 483 and 140 µg/L, respectively, which are below MTCA Method A cleanup levels. Ethylbenzene and xylenes were also detected at trace concentrations (Table 5).

Petroleum hydrocarbons, VOCs, and/or cPAHs were not detected at concentrations greater than MTCA Method A cleanup levels in samples collected from the monitoring wells closest to the fueling island (WMW-3 and WMW-6). Diesel-range hydrocarbons were detected at a concentration slightly greater than the MTCA Method A cleanup level in a sample collected from downgradient monitoring well WMW-1 in September 2003. A sample collected from this same well in April contained gasoline- and diesel-range hydrocarbons, xylenes, n-propylbenzene, and 1,2,4-trimethylbenzene, but at concentrations below MTCA Method A cleanup levels. Diesel-range hydrocarbons were detected at a concentration of 409 µg/L in the groundwater sample collected from WMW-4 in September 2003. No compounds were detected in the sample collected from this well in April 2004.

Total metals (unfiltered samples) analysis was conducted for groundwater samples collected in April 2004 from wells WMW-3, WMW-5, and WMW-6. Arsenic was detected in the sample from WMW-3 at a concentration of 8.54 µg/L and at a concentration of 7.03 µg/L in the sample from well WMW-5. Both concentrations were slightly greater than the MTCA Method A cleanup level of 5 µg/L. In the sample from well WMW-6, the detected total arsenic concentration was 4.30 µg/L. Based on the total arsenic concentrations detected, it is expected that dissolved arsenic concentrations in groundwater are below MTCA Method A cleanup levels.

## **4.0 SUMMARY**

The site assessment conducted in the western half of the Wishram railyard between September 2003 and April 2004 focused on characterizing hydrogeologic conditions and evaluating the potential presence of chemicals of concern in soil and groundwater.

### **4.1 HYDROGEOLOGIC CONDITIONS**

Wishram and the site are located on sandy, alluvial fan and dune deposits overlying basalt, which slopes southward toward the Columbia River from a depth of approximately 15 feet bgs along the site's northern boundary to a depth of 40 feet bgs along the river shoreline. Groundwater was encountered in the southern two thirds of the site in September 2003 and April 2004, but was encountered near the site's northern boundary in April (wet season) only. The groundwater elevation at the site increased by as much as 6 feet between September 2003 and April 2004 as a result of seasonal recharge from the north and/or increased recharge from the Columbia River. The groundwater flow direction measured at the site in April was south-southwest with a gradient of 0.006 ft/ft.

Wishram, currently and historically, has obtained its drinking water from a large spring located on the Columbia Plateau, north of and several hundred feet above the town. A 399-foot-deep water supply well is present onsite next to the Columbia River shoreline but appears to have not been used for several years.

### **4.2 SOIL AND GROUNDWATER ANALYTICAL RESULTS**

Chemicals of potential concern, primarily petroleum hydrocarbons, were detected in soil and/or groundwater at concentrations exceeding MTCA Method A soil cleanup level for industrial properties or MTCA Method A groundwater cleanup levels in three of the nine areas investigated at the site, as described below. Total arsenic was also detected in three groundwater samples collected from monitoring wells and one reconnaissance groundwater

sample at concentrations slightly exceeding the MTCA Method A cleanup level of 5 µg/L. However, groundwater samples collected during the investigation were slightly turbid and unfiltered. Dissolved arsenic concentrations in groundwater would likely be below MTCA Method A cleanup levels.

#### **4.2.1 Former Powerhouse**

Soil samples collected from borings advanced within the perimeter of the former powerhouse foundation contained oily debris and diesel- and oil-range hydrocarbons at concentrations up to 21,600 mg/kg. DNAPL has been encountered in monitoring well WMW-2 and groundwater samples collected from this well have contained petroleum hydrocarbons, benzene, cPAHs, and arsenic at concentrations exceeding MTCA Method A cleanup levels for groundwater. Oily debris was not encountered in a boring advanced a few feet east of the foundation (WSB-04-37), and diesel- and oil-range hydrocarbon concentrations detected in soil in this location were an order of magnitude lower than concentrations inside the foundation perimeter. As with soil, affected groundwater appears to be present only in the immediate vicinity of the powerhouse foundation.

#### **4.2.2 Fueling Island and Western Side of Maintenance Shop**

Petroleum hydrocarbons were detected in soil between the former fueling island and the former location of the 5,000-gallon lubricating oil AST at concentrations exceeding MTCA Method A soil cleanup levels for industrial properties. The affected area appears to be relatively localized between these two points but may extend northward toward the former location of the 500-gallon gasoline USTs west of the maintenance shop. Gasoline-, diesel-, and oil-range hydrocarbons were detected in a soil sample collected from 12 feet bgs in the location of the former gasoline USTs, but at concentrations below MTCA Method A cleanup levels.

Analytical results for groundwater samples collected upgradient (WMW-7), within (WMW-6), and downgradient (WMW-1 and WMW-4) of the fueling/lubricating oil AST area, suggest potential seasonal migration of petroleum hydrocarbons along a narrow path between the western end of the maintenance shop and monitoring well WMW-1. A groundwater sample collected from WMW-7, next to the former location of the gasoline USTs, contained gasoline- and diesel-range hydrocarbons at concentrations exceeding MTCA Method A cleanup levels for groundwater. Groundwater samples collected just downgradient of the fueling island in April 2004 (WMW-6 and WMW-3) did not contain petroleum hydrocarbons at concentrations exceeding MTCA Method A cleanup levels. A sample collected from WMW-1 in September 2003 contained diesel-range hydrocarbons at a concentration slightly exceeding the MTCA Method A cleanup level. A sample collected from this same well in April 2004 contained gasoline- and diesel-range hydrocarbons, but at concentrations below the MTCA Method A cleanup level.

#### **4.2.3 Former Boiler House UST**

In September 2003, petroleum hydrocarbons and naphthalene were detected at concentrations exceeding MTCA Method A soil cleanup levels for industrial properties at boring location WSB-2, southwest of the former location of the boiler house UST. Multiple soil borings were sampled in this area, but only the one sample from WSB-2 exhibited the elevated petroleum hydrocarbon concentrations. Therefore, it is assumed that the detections at this location are representative of only a very localized quantity of affected soil that remained in place after the UST was removed.

## 5.0 LIMITATIONS

Soil and groundwater sampling were limited to the sampling and testing described herein and did not include a comprehensive investigation of all possible substances subject to environmental regulation or potentially detrimental to human health or the environment. Any observations presented herein apply to the site conditions existing at the time services were performed.

Use or misuse of this report, or reliance upon its findings by parties other than BNSF without Kennedy/Jenks Consultants expressed written consent is at their own risk. Neither BNSF nor Kennedy/Jenks Consultants makes any representation or warranty to other parties as to the accuracy or completeness of this report or the suitability of its use by such parties for any purpose. Neither BNSF nor Kennedy/Jenks Consultants shall have any liability to, or indemnify, or hold harmless third parties for any losses incurred by the actual or purported use or misuse of this report.

## 6.0 REFERENCES

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## Tables

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**TABLE 1**  
**FORMER UNDERGROUND AND ABOVEGROUND STORAGE TANKS**  
**BNSF Wishram Railyard**

Tank Identification	Location	Reported Contents	Removal Date
Two 100,000-gallon ASTs	150 feet northwest of existing maintenance shop (current location of the Wishram Post Office)	Diesel	Late 1970s
30,000-barrel AST	200 feet north of the existing maintenance shop	Oil (type unknown)	Before 1940
5,000-gallon AST	60 feet southwest of fueling island	Lubricating Oil	1960s or 1970s
Two 500-gallon USTs	Southwestern corner of maintenance shop	Gasoline	1988
30,000-gallon UST	Adjacent to western side of former boiler house (Wishram Fire Department garage)	Heating Oil	2002
600-gallon UST	Approximately 40 feet east of the former boiler house	Fuel Oil	1988
10,000-gallon UST	Approximately 40 feet east of the maintenance shop	Gasoline and Oil	1988
5,000-gallon UST	Approximately 90 feet northwest of the depot	Heating Oil	1988
1,000-gallon UST	Approximately 800 feet east of the depot	Gasoline	unknown

**SOIL ANALYTICAL RESULTS FOR PETROLEUM HYDROCARBONS AND BTEX  
BNSF Wishram Railyard**

Sample	Depth (feet bgs)	Petroleum Hydrocarbons and BTEX (mg/kg) <sup>(a)</sup>						
		Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes
<b>Former 30,000-barrel Oil AST</b>								
WSB-04-11	2	<25.0 <sup>(b)</sup>	<50.0	NA <sup>(c)</sup>	NA	NA	NA	NA
	10	<25.0	<50.0	NA	NA	NA	NA	NA
WSB-04-13	16	<25.0	<50.0	NA	NA	NA	NA	NA
<b>Former 600-gallon Fuel Oil and 10,000-gallon Gasoline USTs</b>								
WSB-04-14	5	<25.0	51	NA	NA	NA	NA	NA
	10	<25.0	<50.0	<4.00	<0.0044	<0.050	<0.050	<0.100
WSB-04-15	10	<25.0	<50.0	<4.00	<0.0044	<0.050	<0.050	<0.100
WSB-04-17	9	<25.0	<50.0	NA	NA	NA	NA	NA
<b>Former 5,000-gallon Oil UST at Depot</b>								
WSB-04-18	10	<25.0	110	NA	NA	NA	NA	NA
<b>Former 1,000-gallon Gasoline UST and Oil House</b>								
WSB-04-20	10	<25.0	<50.0	4.48	<0.0044	<0.050	<0.050	<0.100
<b>Former Transformer Storage Area</b>								
WSB-04-25	5	<25.0	<50.0	NA	NA	NA	NA	NA
	10	<25.0	<50.0	NA	NA	NA	NA	NA
<b>Engine House and Turntable</b>								
WSB-04-27	10	<25.0	<50.0	NA	NA	NA	NA	NA
WSB-04-30	5	<25.0	<50.0	NA	NA	NA	NA	NA
	10	NA	NA	NA	<0.0044	<0.00629	<0.0094	<0.023
WSB-04-31	2	<25.0	111	NA	NA	NA	NA	NA
	5	NA	NA	<4.00	<0.0044	0.0118	<0.0094	<0.023
WSB-04-33	2	<25.0	<50.0	NA	NA	NA	NA	NA
	5	<25.0	<50.0	NA	NA	NA	NA	NA
	10	<25.0	<50.0	NA	<0.0044	<0.00629	<0.0094	<0.023
WSB-04-34	5	<25.0	<50.0	NA	NA	NA	NA	NA
WSB-04-35	5	<25.0	<50.0	NA	NA	NA	NA	NA
WSB-04-36	10	<25.0	<50.0	NA	<0.0044	<0.00629	<0.00940	<0.023
<b>Powerhouse</b>								
WSB-5	10	21,000	21,600	NA	<0.0088	0.153	0.221	1.65
WSB-04-37	7	2,490	3,740	NA	NA	NA	NA	NA
WSB-04-38	10	<25.0	<50.0	NA	NA	NA	NA	NA
<b>Former 100,000-gallon Diesel ASTs, Pumphouse, and 500-gallon Gasoline USTs</b>								
WSB-04-1	2	<25.0	<50.0	NA	NA	NA	NA	NA
	12	<25.0	<50.0	NA	NA	NA	NA	NA
WSB-04-2	2	<25.0	<50.0	NA	NA	NA	NA	NA
	12	<25.0	<50.0	<4.00	<0.0044	<0.050	<0.050	<0.100
WSB-04-6	8	<25.0	<50.0	NA	NA	NA	NA	NA
WSB-04-7	12	1,070	165	40.5	<0.0075	<0.050	<0.050	<0.05
<b>Former Fueling Island and 5,000-gallon Lubricating Oil AST</b>								
WSB-4	10	<25.0	<50.0	NA	<0.0088	<0.100	0.299	1.36
WSB-6	10	<25.0	<50.0	NA	<0.0044	<0.050	<0.050	<0.100
	14	265	75.4	NA	<0.0044	<0.050	<0.050	<0.100
WSB-7	10	240	72.3	NA	<0.0044	<0.050	<0.050	<0.100
WSB-04-9	5	12,100	604	1,210	<0.0044	<0.050	0.286	0.514
	10	24	602	977	<0.0044	<0.050	2.030	2.980
WSB-04-12	5	<25.0	<50.0	<4.00	<0.0044	<0.050	<0.050	<0.100
	10	<25.0	<50.0	<4.00	<0.0044	0.012	<0.050	<0.100
WSB-04-26	2	<25.0	<50.0	NA	NA	NA	NA	NA
	10	21,100	14,000	606	0.0393	0.087	0.623	1.470
WSB-04-29	2	<25.0	<50.0	NA	NA	NA	NA	NA
	5	<25.0	<50.0	NA	NA	NA	NA	NA
	10	<25.0	<50.0	NA	NA	NA	NA	NA

**SOIL ANALYTICAL RESULTS FOR PETROLEUM HYDROCARBONS AND BTEX  
BNSF Wishram Railyard**

Sample	Depth (feet bgs)	Petroleum Hydrocarbons and BTEX (mg/kg) <sup>(a)</sup>						
		Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes
<b>30,000-gallon UST at Former Boiler House</b>								
WSB-1	10	47.6	359	NA	<0.0044	<0.050	<0.050	<0.100
	15	<25.0	<50.0	NA	<0.0044	<0.050	<0.050	<0.100
WSB-2	8	<b>6,900</b>	<b>4,710</b>	NA	<0.0088	<0.100	0.178	<0.200
	14	<b>15,700</b>	<b>10,500</b>	NA	<0.0088	<0.100	0.687	0.739
WSB-3	10	<25.0	<50.0	NA	<0.0044	<0.050	<0.050	<0.100
	16	<25.0	<50.0	NA	<0.0044	<0.050	<0.050	<0.100
MTCA Method A <sup>(d)</sup>		2,000	2,000	100/30 <sup>(e)</sup>	0.03	7	6	9

## Notes:

## (a) Analysis:

- Diesel- and oil-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Diesel Extended (NWTPH-Dx) Method with silica gel cleanup.
- Gasoline-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Gasoline Extended Method (NWTPH-Gx).
- BTEX analyzed by either EPA Method 8021B or EPA Method 8260B.

(b) "<" indicates analyte was not detected at a concentration greater than the specified laboratory reporting limit. The method detection limit (MDL) is reported for benzene.

(c) "NA" indicates not analyzed.

(d) The Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels for Industrial Properties. MTCA Cleanup Regulation Chapter 173-340 Washington Administrative Code. Amended 12 February 2001.

(e) The MTCA Method A cleanup level for gasoline is 100 mg/kg where benzene is not present and 30 mg/kg for gasoline mixtures that include benzene.

**Bold values exceed the MTCA Method A Soil Cleanup Level for Industrial Properties.**

**TABLE 3**  
**SOIL ANALYTICAL RESULTS FOR POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) AND CARCINOGENIC PAHs**  
**BNSF Wishram Railway**

Sample Designation	WSB-2	WSB-4	WSB-04-1	WSB-04-6	WSB-04-7	WSB-04-11	WSB-04-12	WSB-04-14	WSB-04-17	WSB-04-30	WSB-04-31	WSB-04-36	MTCA Method A <sup>(a)</sup>
Depth (feet bgs)	14	10	12	8	12	10	5	10	9	10	5	10	
<b>PAHs (mg/kg)<sup>(b)</sup></b>													
Naphthalene	23.8	NA <sup>(c)</sup>	<0.0134 <sup>(d)</sup>	<0.0134	NA	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	5
2-Methylnaphthalene	61.9	NA	<0.0134	<0.0134	NA	<0.0134	<0.0134	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	5 <sup>(e)</sup>
Phenanthrene	41.0	NA	<0.0134	<0.0134	NA	<0.0134	0.0261	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	--
Anthracene	<16.5	NA	<0.0134	<0.0134	NA	<0.0134	<0.0134	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	--
Fluoranthene	<16.5	NA	<0.0134	<0.0134	NA	<0.0134	0.047	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	--
Pyrene	18.1	NA	<0.0134	<0.0134	NA	<0.0134	0.0474	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	--
Benz(a,h,i)perylene	<16.5	NA	<0.0134	<0.0134	NA	<0.0134	0.0218	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	--
<b>cPAHs (mg/kg)<sup>(b)</sup></b>													
Benz(a)anthracene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0262	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Chrysene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0390	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Benz(b)fluoranthene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0463	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Benz(k)fluoranthene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0336	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	0.1
Benz(a)pyrene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0365	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Indeno(1,2,3-cd)pyrene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0197	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Total cPAHs <sup>(f)</sup>							0.049						

**Notes:**

- (a) The Washington State Department of Ecology Model Toxics Control Act (MTCa) Method A Soil Cleanup Levels for Industrial Properties. MTCa Cleanup Regulation Chapter 173-340 Washington Administrative Code. Amended 12 February 2001.
  - (b) PAHs and cPAHs analyzed by EPA method 8270M-SIM.
  - (c) "NA" indicates the analysis was not conducted.
  - (d) "<" indicates the analyte was not detected at a concentration greater than the specified laboratory reporting limit.
  - (e) "-" indicates a MTCa Method A cleanup level is not available.
  - (f) Total cPAH value is equal to the sum of individual analyte concentrations multiplied by toxicity equivalency factors (TEFs) as described in WAC 173-340-708(f). Where analytes were not detected, but there is potential for their presence based on PAH results, a concentration equal to 0.5 the reporting limit was multiplied by the TEF. The total value was compared to the MTCa Method B cleanup level for benz(a)pyrene of 0.1 mg/kg.
- Bold Value exceeds the MTCa Method A cleanup level.**  
**Only detected compounds are summarized in the table.**

**TABLE 4**  
**SOIL ANALYTICAL RESULTS FOR METALS**  
**BNSF Wishram Railway**

Sample Location	Depth (feet bgs)	Total Metals <sup>(a)</sup> (mg/kg)										TCIP <sup>(b)</sup> Metals (mg/L)		
		Arsenic	Barium	Cadmium	Chromium	Hexavalent Chromium <sup>(c)</sup>	Lead	Mercury	Selenium	Silver	Barium	Lead	Chromium	
WSB-2	8	4.30	4,680	<0.289 <sup>(d)</sup>	12.3	NA <sup>(e)</sup>	387	0.148	0.457	<0.500	NA	NA	NA	
	14	5.27	6,500	<0.385	11.7	NA	37.1	<0.0781	0.411	<0.431	NA	NA	NA	
WSB-5	10	9.35	6,340	0.345	19.0	NA	29.4	0.0709	0.836	<0.500	NA	NA	NA	
	5	1.16	79.1	<0.500	8.44	<10.0	3.13	<0.0806	<0.500	<0.500	0.815	<0.0500	<0.0500	
WSB-04-30	5	1.16	79.1	<0.500	8.44	<10.0	3.13	<0.0806	<0.500	<0.500	0.815	<0.0500	<0.0500	
	10	1.89	98.6	<0.394	12.0	<10.0	5.72	<0.0625	<0.394	<0.394	0.734	<0.0500	<0.0500	
WSB-04-31	5	1.72	89.7	<0.373	11.1	<10.0	3.80	<0.0714	<0.373	<0.373	0.579	<0.0500	<0.0500	
	10	1.85	92.8	<0.345	11.7	<10.0	4.21	<0.0676	<0.345	<0.345	0.758	<0.0500	<0.0500	
WSB-04-36	10	1.69	83.7	<0.373	10.50	NA	3.34	<0.0641	<0.373	<0.373	NA	NA	NA	
	MTCA Method A <sup>(f)</sup>	20	-- <sup>(g)</sup>	2	2,000 <sup>(h)</sup>	19	1,000	2	--	--	--	--	--	

- Notes:
- (a) Total Metals by EPA 6020/6000/7000 Series Methods.
  - (b) Toxicity characteristic leaching procedure by EPA 1311/6000/7000 Series Methods.
  - (c) Hexavalent chromium analyzed by EPA Method 3060A.
  - (d) "<" indicates analyte was not detected at a concentration greater than the specified laboratory reporting limit.
  - (e) "NA" indicates the analysis was not conducted.
  - (f) The Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels for Industrial Properties. MTCA Cleanup Regulation Chapter 173-340 Washington Administrative Code. Amended 12 February 2001.
  - (g) "--" indicates a MTCA Method A cleanup level is not available.
  - (h) MTCA Method A value is for the predominant chromium III species.
- Bold value exceeds the MTCA Method A Soil Cleanup Level for Industrial Properties.**

**TABLE 5**  
**RECONNAISSANCE GROUNDWATER ANALYTICAL RESULTS**  
**BNSF Wishram Railyard**

Sample Date	WSB-04-6 2/26/2004	WSB-04-15 2/25/2004	WSB-04-16 2/26/2004	WSB-04-25 2/26/2004	WSB-04-26 2/25/2004	WSB-04-27 2/26/2004	WSB-04-34 2/25/2004	WSB-04-35 2/25/2004	MTCA Method A <sup>(a)</sup> (µg/L)
<b>Petroleum Hydrocarbons<sup>(b)</sup></b>									
Diesel (mg/L)	NA <sup>(c)</sup>	<250 <sup>(d)</sup>	<0.417	NA	483	NA	<250	<250	800
Oil (mg/L)	NA	<500	<0.833	NA	<500	NA	<500	<500	500
Gasoline (µg/L)	390	<80.0	<80.0	<80.0	140	<80.0	<80.0	NA	500
<b>BTEX - VOCs (µg/L)<sup>(e)</sup></b>									
Benzene	<0.300	<0.300	<0.300	<0.300	<0.300	<0.300	<0.147	<0.147	5
Toluene	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	1.57(2.14) <sup>(f)</sup>	<0.155	1,000
Ethylbenzene	5.10	<0.500	<0.500	<0.500	0.709	<0.500	<0.500	<0.110	700
Total Xylenes	18.2	<1.00	<1.00	<1.00	6.40	<1.00	<1.00	<0.482	1,000
<b>Metals (µg/L)<sup>(g)</sup></b>									
Arsenic	NA	NA	NA	NA	NA	NA	<b>6.48</b>	NA	5
Barium	NA	NA	NA	NA	NA	NA	13.4	NA	— <sup>(h)</sup>
Cadmium	NA	NA	NA	NA	NA	NA	<1.0	NA	5
Chromium	NA	NA	NA	NA	NA	NA	10.4	NA	50
Lead	NA	NA	NA	NA	NA	NA	6.33	NA	15
Mercury	NA	NA	NA	NA	NA	NA	<0.20	NA	2
Selenium	NA	NA	NA	NA	NA	NA	1.46	NA	—
Silver	NA	NA	NA	NA	NA	NA	<1.0	NA	—

**Notes:**

- (a) The Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A Cleanup Level for Groundwater. MTCA Cleanup Regulation Chapter 173-340 Washington Administrative Code. Amended 12 February 2001.
  - (b) Analyses:
    - Diesel- and oil-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Diesel Extended (NWTPH-Dx) Method with silica gel cleanup.
    - Gasoline-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Gasoline Extended Method (NWTPH-Gx).
    - BTEX for sample WSB-04-35 analyzed by EPA Method 8260B.
  - (c) "NA" indicates not analyzed.
  - (d) "<" indicates analyte was not detected at a concentration greater than the specified laboratory reporting limit. The method detection limit is reported for benzene.
  - (e) Benzene, toluene, ethylbenzene and xylenes analyzed by EPA Method 8021B, except where noted.
  - (f) The second concentration was detected during VOC analysis by EPA Method 8260B.
  - (g) Total Metals by EPA 6020/6000/7000 Series Methods.
  - (h) "—" indicates a MTCA Method A cleanup level is not available.
- Bold value exceeds the MTCA Method A groundwater cleanup level.**

TABLE 6

GROUNDWATER ANALYTICAL RESULTS FOR MONITORING WELLS  
BNSF Wishram Railyard

Sample ID	WMW-1		WMW-2		WMW-3		WMW-4		WMW-5	WMW-6	WMW-7	MTCA Method A <sup>(a)</sup>
	Date	9/17/2003	4/15/2004	9/18/2003	4/15/2004	9/17/2003	4/16/2004	9/18/2003	4/15/2004	4/16/2004	4/16/2004	
Petroleum Hydrocarbons (µg/L) <sup>(b)</sup>												
Gasoline-Range Hydrocarbons	NA <sup>(c)</sup>	329	NA	750	NA	NA	NA	NA	NA	NA	NA	800
Diesel-Range Hydrocarbons	593 [605] <sup>(e)</sup>	426	4,170	844	253	<250	409	<250	<250	454	1,220	500
Oil-Range Hydrocarbons	<500	<500	2,450	<500	<500	<500	<500	<500	<500	<500	<500	500
BTEX (µg/L) <sup>(b)</sup>												
Benzene	<0.500 [0.500]	<0.500	5.71	17.4	<0.500	NA	<0.500	<0.500	<0.500	<0.500	<0.500	5
Toluene	<0.500 [0.500]	<0.500	23.5	3.66	<0.500	NA	<0.500	<0.500	<0.500	<0.500	<0.500	1,000
Ethylbenzene	<0.500 [0.500]	<0.500	5.84	17.4	<0.500	NA	<0.500	<0.500	<0.500	<0.500	<0.500	700
Total Xylenes	<1.00 [1.02]	2.33	11.8	37.2	<1.00	NA	<1.00	<1.50	<1.50	<1.50	<15.0 <sup>(b)</sup>	1,000
VOCs (µg/L) <sup>(b)</sup>												
n-Propylbenzene	NA	1.63	NA	NA	NA	NA	NA	NA	<1.00	NA	<1.00	- <sup>(d)</sup>
1,2,4-Trimethylbenzene	NA	15.0	NA	NA	NA	NA	NA	NA	<1.00	NA	11.2	-
sec-Butylbenzene	NA	<1.00	NA	NA	NA	NA	NA	NA	<1.00	NA	3.47	-
PAHs/cPAHs (µg/L) <sup>(f)</sup>												
Acenaphthene	NA	NA	NA	<10.0	NA	NA	NA	NA	<0.100	<0.100	1.65	-
Fluorene	NA	NA	NA	<10.0	NA	NA	NA	NA	<0.100	<0.100	0.839	-
Benzof(a)anthracene	<0.100	<0.100	0.304	<10.0	<0.100	NA	<0.100	NA	<0.100	<0.100	<0.400	-
Benzof(a)pyrene	<0.100	<0.100	<0.200	<10.0	<0.100	NA	<0.100	NA	<0.100	<0.100	<0.400	-
Benzof(b)fluoranthene	<0.100	<0.100	<0.200	<10.0	<0.100	NA	<0.100	NA	<0.100	<0.100	<0.400	-
Benzof(k)fluoranthene	<0.100	<0.100	<0.200	<10.0	<0.100	NA	<0.100	NA	<0.100	<0.100	<0.400	-
Chrysene	<0.100	<0.100	0.516	<10.0	<0.100	NA	<0.100	NA	<0.100	<0.100	<0.400	0.1 <sup>(h)</sup>
Dibenz(a,h)anthracene	<0.200	<0.200	<0.400	<20.0	<0.200	NA	<0.200	NA	<0.200	<0.200	<0.800	-
Indeno(1,2,3-cd)pyrene	<0.100	<0.100	<0.200	<10.0	<0.100	NA	<0.100	NA	<0.100	<0.100	<0.400	-
Total cPAHs <sup>(h)</sup>			0.25									
Metals (µg/L) <sup>(i)</sup>												
Arsenic	NA	NA	NA	18.4	NA	8.54	NA	NA	7.03 (7.05)	4.30	NA	5
Barium	NA	NA	NA	16.4	NA	55.9	NA	NA	58.0 (58.0)	122	NA	-
Cadmium	NA	NA	NA	<1.0	NA	<1.0	NA	NA	<1.0	<1.0	NA	5
Chromium (total)	NA	NA	NA	4.39	NA	<1.0	NA	NA	<1.0	<1.0	NA	50
Lead	NA	NA	NA	<1.0	NA	<1.0	NA	NA	<1.0	<1.0	NA	15
Mercury	NA	NA	NA	<0.20	NA	<0.20	NA	NA	<0.20	<0.20	NA	2
Selenium	NA	NA	NA	4.28	NA	<1.0	NA	NA	<1.0	1.51	NA	-
Silver	NA	NA	NA	<1.0	NA	<1.0	NA	NA	<1.0	<1.0	NA	-
Water Quality Parameters												
Groundwater Elevation (feet) <sup>(m)</sup>	78.47	83.89	NM <sup>(n)</sup>	84.15	78.5	84.55	78.51	83.92	84.32	84.46	85.52	-
Temperature (°C)	19.8	17.2	14.9	NM	20.0	17.4	18.3	15.9	15.9	17.5	18.4	-
pH (standard units)	6.8	7.4	7.5	NM	7.4	7.5	7.5	7.7	7.7	7.1	7.2	-
Specific Conductance (mS/cm)	1,561	1,375	3,018	NM	980	1,106	969	920	416	1,009	1,397	-
Dissolved Oxygen (mg/L)	0.37	0.35	0.78	NM	0.56	0.62	0.42	0.36	0.79	0.97	1.41	-
Eh (millivolts)	330	117	200	NM	310	222	320	200	261	211	236	-



## TABLE 6

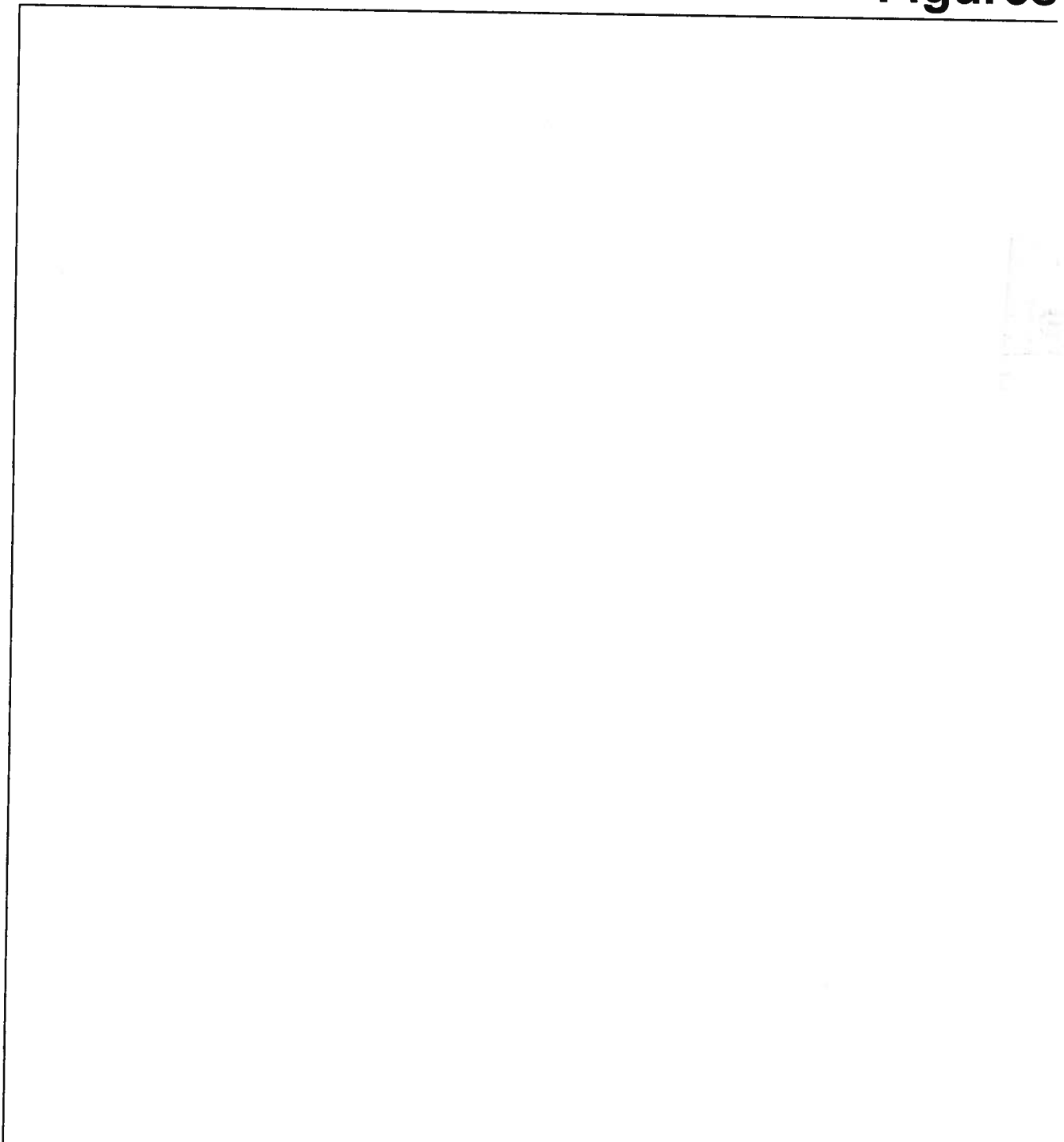
Page 2 of 2

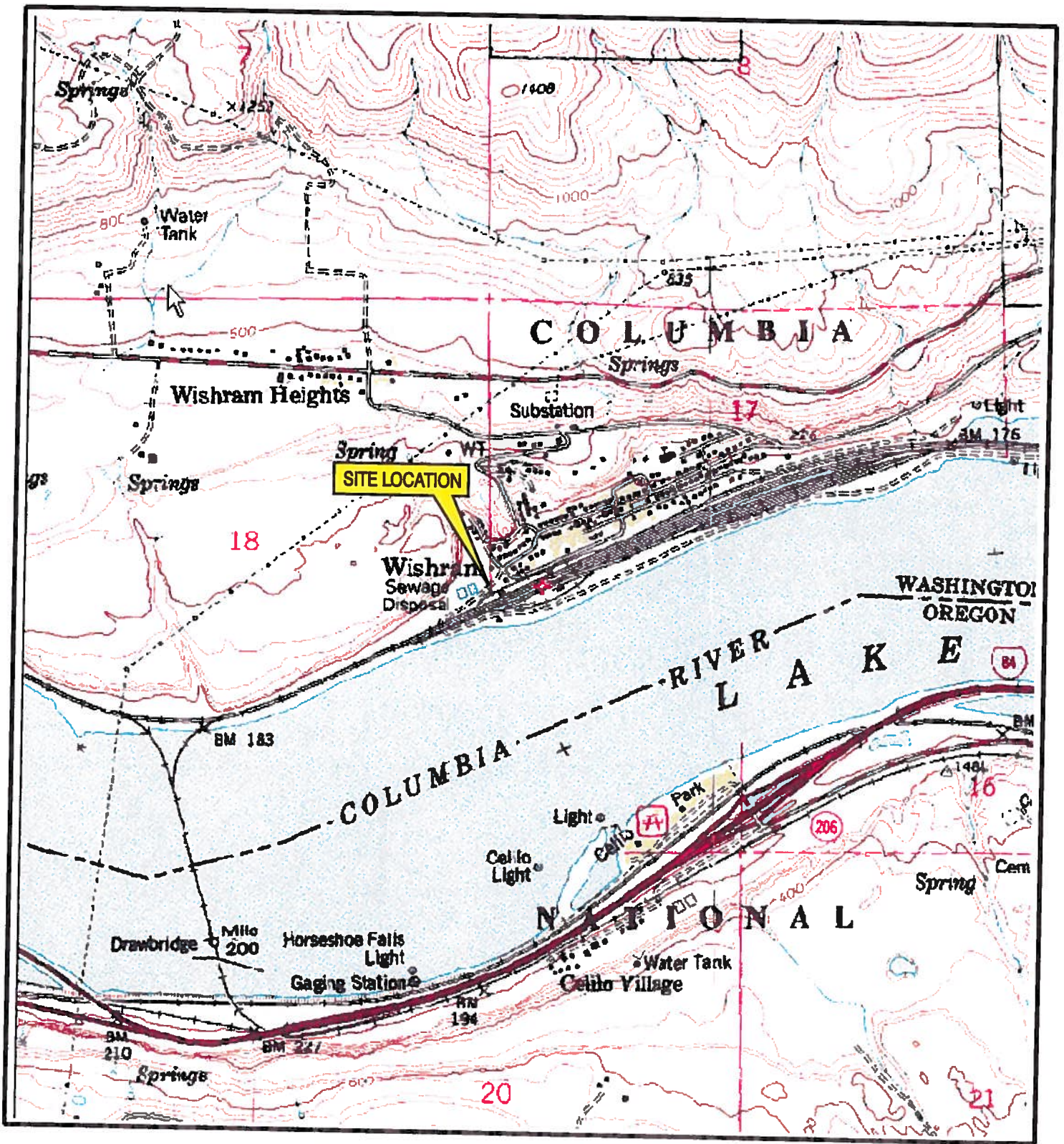
### GROUNDWATER ANALYTICAL RESULTS FOR MONITORING WELLS BNSF Wishram Railway

#### Notes:

- (a) Values are from The Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A Cleanup Level for Groundwater unless otherwise stated.  
MTCA Cleanup Regulation Chapter 173-340 Washington Administrative Code. Amended 12 February 2001.
  - (b) Analytes:
    - Diesel- and oil-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Diesel Extended (NWTPH-Dx) Method with silica gel cleanup.
    - Gasoline-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Gasoline Extended Method (NWTPH-Gx).
  - (c) "NA" indicates not analyzed.
  - (d) "<" indicates analyte was not detected at a concentration greater than the specified reporting limit.
  - (e) "T" indicates result for field blind duplicate analysis.
  - (f) BTEX analyzed by EPA Method 8021B.
  - (g) Reporting limit raised because of dilution necessary for analysis.
  - (h) VOCs analyzed by EPA Method 8260B.
  - (i) "—" indicates that a MTCA Method A cleanup level is not available for the analyte or field measured parameter.
  - (j) PAHs and cPAHs analyzed by EPA Method 8270M-SIM.  
Total cPAH value is equal to the sum of individual analyte concentrations multiplied by toxicity equivalency factors (TEFs) as described in WAC 173-340-708(8).  
Where analytes were not detected, but there is potential for their presence based on PAH results, a concentration equal to 0.5 the reporting limit was multiplied by the TEF.  
The total value was compared to the MTCA Method B cleanup level for benzo(a)pyrene of 0.1 µg/L.
  - (k) Metals analyzed by EPA 6000/7000 series methods.
  - (m) Monitoring well casings were surveyed relative to a benchmark established at the railway for the site assessment. The benchmark was assigned an arbitrary elevation of 100 feet.
  - (n) "NM" indicates not measured.
- Table includes only those analytes that were detected in one or more samples.**

# Figures





**Kennedy/Jenks Consultants**

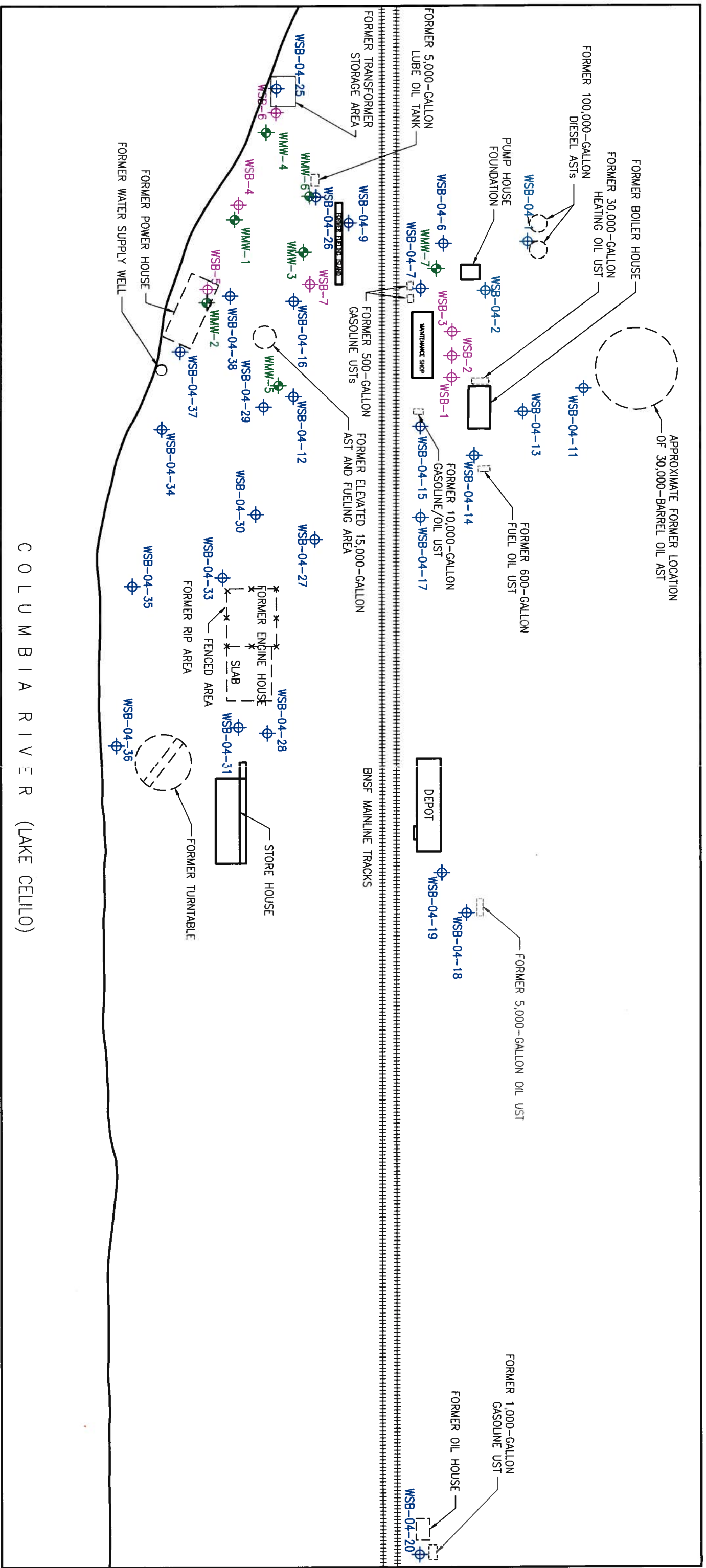
THE BURLINGTON NORTHERN AND  
SANTA FE RAILWAY CO.  
WISHRAM, WA

**SITE LOCATION MAP**

036026.00/FIG\_1.CDR

**FIGURE 1**





C O L U M B I A R I V E R (LAKE CELILO)

**LEGEND**

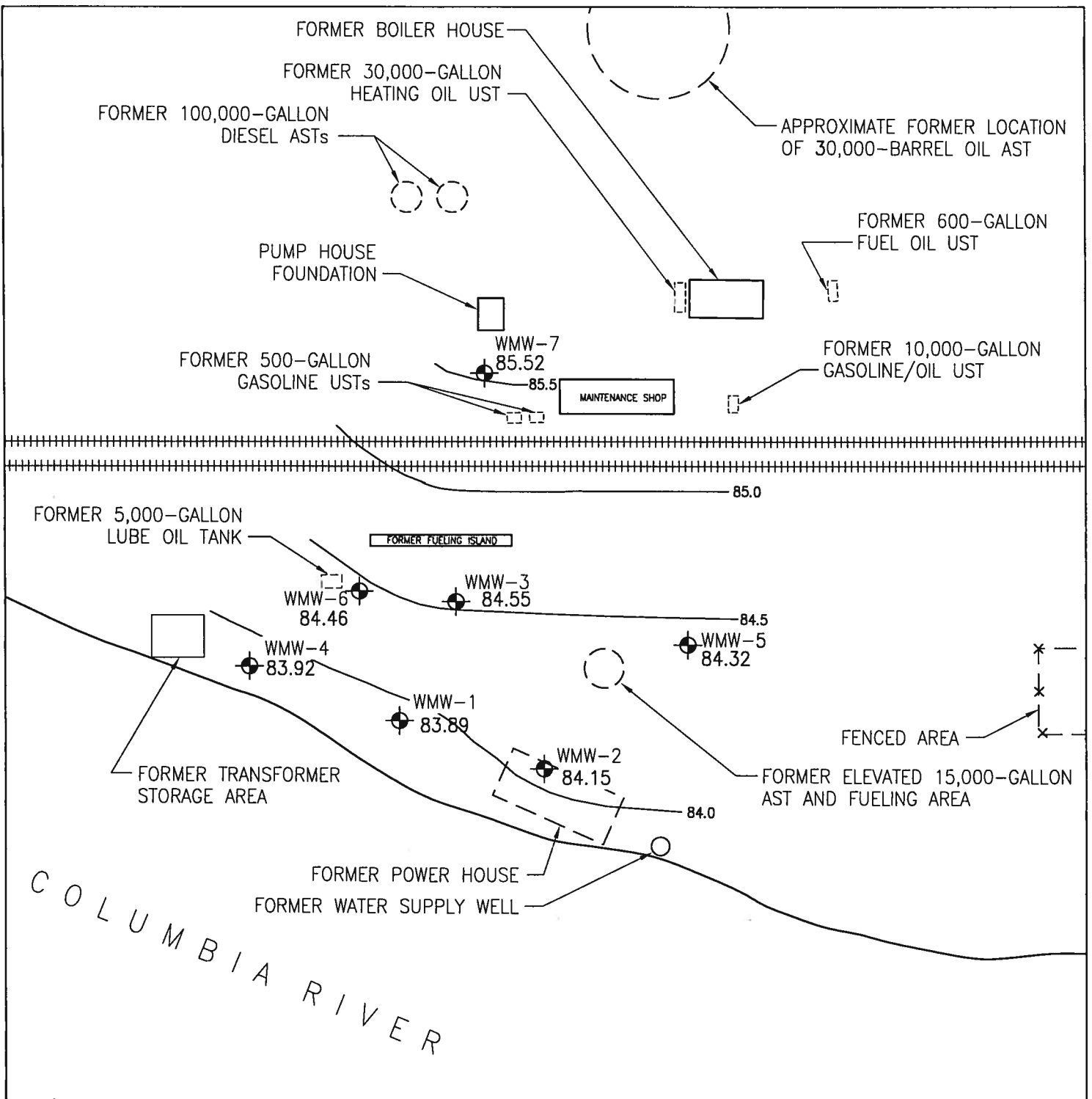
- WSB-05 SOIL BORING LOCATION (SEPT 2003)
- WSB-04-2 SOIL BORING LOCATION (FEB 2004)
- WMW-1 MONITORING WELL LOCATION

APPROX SCALE IN FEET



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 WISHRAM, WA

**SEPTEMBER 2003 AND  
 FEBRUARY 2004 SOIL BORING  
 AND MONITORING WELL LOCATIONS**

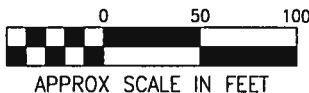
036026.00\Fig\_2  
**FIGURE 2**



**LEGEND**

-  MONITORING WELL LOCATION
-  GROUNDWATER ELEVATION CONTOUR (Interval = 0.5 foot)

**NOTE:**  
GROUNDWATER ELEVATIONS ARE RELATIVE TO AN ARBITRARY BENCHMARK OF 100ft MSL ESTABLISHED AT THE RAILYARD FOR THE SITE ASSESSMENT.



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WISHRAM, WA

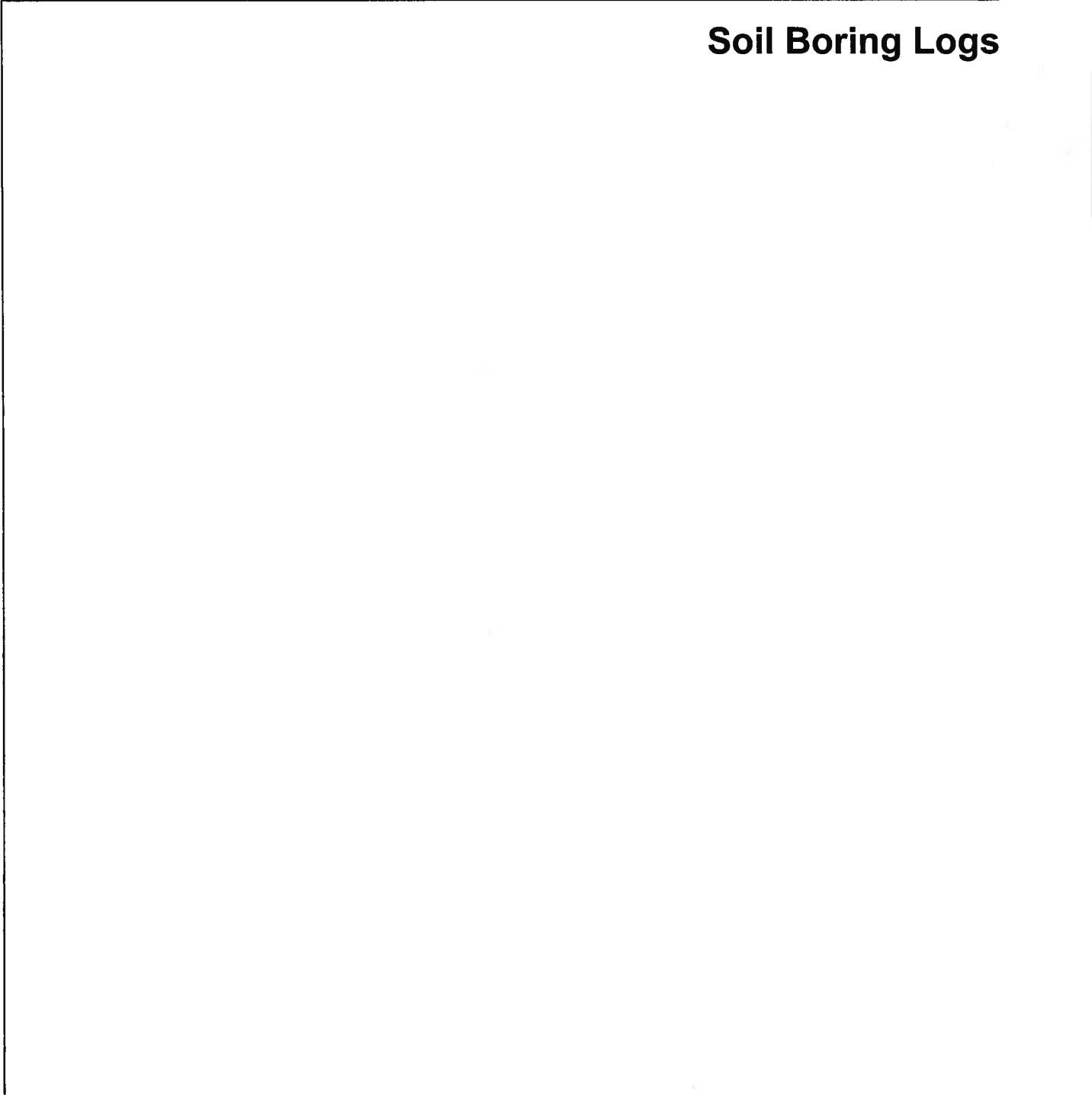
**GROUNDWATER ELEVATION CONTOURS**

036026.00\Fig\_3

**FIGURE 3**

# **Appendix A**

## **Soil Boring Logs**



# Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION Wishram Yard, Wishram, WA		Well Name <u>WMW-1</u>	
DRILLING COMPANY Cascade Drilling		DRILLER N/A	
DRILLING METHOD(S) HSA		DRILL BIT(S) SIZE 9 inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING 2-inch Sechedule 40 PVC Pipe		FROM TO FT. 0 10	
SLOTTED CASING 2-inch Schedule 40 PVC Pipe, 0.010-inch slot		FROM TO FT. 10 20	
SIZE AND TYPE OF FILTER PACK 10/20 Silica Sand		FROM TO FT. 8 20	
SEAL Bentonite Chips		FROM TO FT. 2 8	
GROUT Concrete		FROM TO FT. 0 2	
ELEVATION AND DATUM 94.35 (toc)		TOTAL DEPTH 20.0 ft. bgs	
DATE STARTED 9/12/03		DATE COMPLETED 9/12/03	
INITIAL WATER DEPTH (FT) N/A		STATIC WATER ELEV. (FT) N/A	
LOGGED BY GCD			
SAMPLING METHODS Shelby Tube		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'						
SH	1.5		5	WMW-1-5		1.5	SM	<b>Silty SAND</b> Brown, silty fine sand, loose, dry.
			10				SM	<b>Silty SAND</b> Gray, silty fine sand, loose, wet.
			15					
			20					

KJ PNW WISHRAM 036026.00.GPJ KJ PNW.GDT 11/10/03

# Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION Wishram Yard, Wishram, WA		Well Name <u>WMW-3</u>	
DRILLING COMPANY Cascade Drilling		DRILLER N/A	
DRILLING METHOD(S) HSA		DRILL BIT(S) SIZE 9 inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING 2-inch Schedule 40 PVC Pipe		FROM <u>0</u> TO <u>10</u> FT.	
SLOTTED CASING 2-inch Schedule 40 PVC Pipe, 0.010-inch slot		FROM <u>10</u> TO <u>20</u> FT.	
SIZE AND TYPE OF FILTER PACK 10/20 Silica Sand		FROM <u>8</u> TO <u>20</u> FT.	
SEAL Bentonite Chips		FROM <u>2</u> TO <u>8</u> FT.	
GROUT Concrete		FROM <u>0</u> TO <u>2</u> FT.	
		ELEVATION AND DATUM 94.87 (toc)	
		TOTAL DEPTH 20.0 ft. bgs	
		DATE STARTED 9/12/03	
		DATE COMPLETED 9/12/03	
		INITIAL WATER DEPTH (FT) N/A	
		STATIC WATER ELEV. (FT) N/A	
		LOGGED BY GCD	
		SAMPLING METHODS Shelby Tube	
		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'						
							GP	Poorly graded GRAVEL Railroad ballast
								Well-graded SAND with silt Brown, fine to medium sand with silt, loose to medium dense, dry.
SH	1.5		5	WMW-3-5			SW/SM	
								Well-graded SAND with silt Gray, fine to medium sand with silt, loose to medium dense, wet.
			10					
			15				SW/SM	
			20					

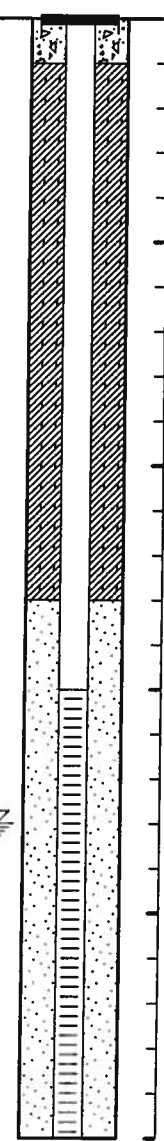
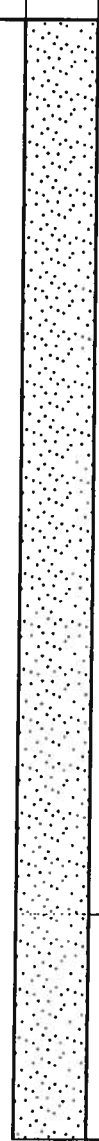
KJ PNW WISHRAM 036026.00.GPJ KJ PNW.GDT 11/10/03



# Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION Midway between fueling area and engine house		Well Name <u>WMW-5</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Darryl	
DRILLING METHOD(S) 9 inch HSA		DRILL BIT(S) SIZE 9 inch OD	
ISOLATION CASING N/A		FROM	TO FT.
BLANK CASING 2 inch Sch. 40 PVC		N/A	N/A
SLOTTED CASING 2 inch Sch. 40 PVC 0.010 inch slot		FROM	TO FT.
SIZE AND TYPE OF FILTER PACK 10/20 Colorado Silica		0	15
SEAL 3/8 inch Bentonite		FROM	TO FT.
GROUT Concrete		13	25
		FROM	TO FT.
		0	1
		ELEVATION AND DATUM	
		TOTAL DEPTH 25.0 ft. bgs	
		DATE STARTED 4/5/04	
		DATE COMPLETED 4/5/04	
		INITIAL WATER DEPTH (FT) 18	
		LOGGED BY GCD	
		SAMPLING METHODS	
		WELL COMPLETION	
		<input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'						
			5				SP	<p><b>Poorly graded SAND</b> Brown, fine to medium sand with some coarse gravel, moist. No odor or sheen.</p>
			10				SP	
			15					
			20					<p><b>Poorly graded SAND</b> Same as above with some silt, wet.</p>
			25					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/8/04

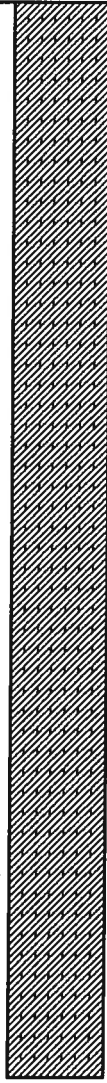

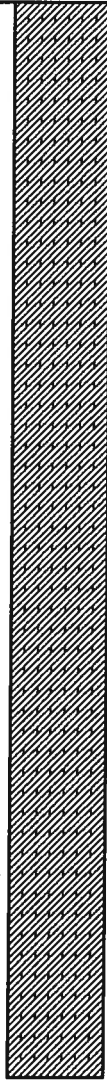

BORING LOCATION 50 feet west of west end of maintenance shop		Well Name <u>WMW-7</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Darryl	
DRILLING METHOD(S) HSA		DRILL BIT(S) SIZE 9 inch OD	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING 2 inch Sch. 40 PVC		FROM TO FT. 0 10	
SLOTTED CASING 2 inch Sch. 40 PVC 0.010 inch slot		FROM TO FT. 10 20	
SIZE AND TYPE OF FILTER PACK 10/20 Colorado Silica		FROM TO FT. 8 20	
SEAL 3/8 inch Bentonite		FROM TO FT. 1 8	
GROUT Concrete		FROM TO FT. 0 1	
		ELEVATION AND DATUM	
		TOTAL DEPTH 20.0 ft. bgs	
		DATE STARTED 4/5/04	
		DATE COMPLETED 4/5/04	
		INITIAL WATER DEPTH (FT) 10.5	
		LOGGED BY GCD	
		SAMPLING METHODS	
		1.5 inch Macro Core	
		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'						
							GW	Well-graded GRAVEL with sand Sandy coarse gravel.
			5				SP	Poorly graded SAND Brown, fine to medium sand, damp. No odor or sheen.
			10				SP	Poorly graded SAND Gray, fine to medium sand with little silt, wet. Strong odor and sheen.
			15				SP	
			20					

KJ.PNW.WISHRAM.FEB.04.036026.00.GPJ.KJ.PNW.GDT.6/8/04

# Boring Log

BORING LOCATION 70 feet southeast of former 100,000-gallon ASTs		Boring Name	WSB-04-02
DRILLING COMPANY Cascade Drilling, Inc.		Project Name	Wishram
DRILLING METHOD(S) GeoProbe		Project Number	036026.00
ISOLATION CASING N/A		FROM	TO FT.
BLANK CASING N/A		FROM	TO FT.
SLOTTED CASING N/A		FROM	TO FT.
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO FT.
SEAL 3/8 inch Bentonite		FROM	TO FT.
GROUT N/A		FROM	TO FT.
		ELEVATION AND DATUM	TOTAL DEPTH 16.0 ft. bgs
		DATE STARTED 2/26/04	DATE COMPLETED 2/26/04
		INITIAL WATER DEPTH (FT) 13	
		LOGGED BY SCS	
		SAMPLING METHODS 1.5 inch Macro Core	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	WSB-04-2-2			GW	Well-graded GRAVEL Gravel fill.		
			2					Silty SAND Moderately yellowish brown, silty sand, trace coarse gravel, damp. No odor or sheen.		
SS	3.5		6						SM	
			7							
SS	4		10	WSB-04-2-12			SM			
			11							
			12					Silty SAND Same as above, wet. Slight odor and sheen at 12-13 feet.		
SS	4		14							
			15							
			16							

KJ PNW WISHRAM FEB.04.036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring Log

BORING LOCATION Former 500-gallon Gas USTS		Boring Name <u>WSB-04-7</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Darryl	
DRILLING METHOD(S) 9 inch HSA		DRILL BIT(S) SIZE 9 inches	
ISOLATION CASING N/A		FROM	TO FT.
BLANK CASING N/A		N/A	N/A
SLOTTED CASING N/A		FROM	TO FT.
SIZE AND TYPE OF FILTER PACK N/A		N/A	N/A
SEAL 3/8 inch Bentonite		FROM	TO FT.
GROUT N/A		FROM	TO FT.
		N/A	N/A
ELEVATION AND DATUM		TOTAL DEPTH 15.0 ft. bgs	
DATE STARTED 4/5/04		DATE COMPLETED 4/5/04	
INITIAL WATER DEPTH (FT) 11		LOGGED BY GCD	
SAMPLING METHODS 1.5 inch Macro Core		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				GW	Well-graded GRAVEL with sand Well graded gravel with sand.
			2					Poorly graded SAND Brown, poorly graded sand, fine to medium sand, damp. No odor or sheen.
			3					
			4					
			5				SP	
			6					
			7					
			8					
			9					Poorly graded SAND Gray, poorly graded sand, fine to medium sand with little silt, wet. Strong odor and sheen.
			10					
SS	4		11					
			12	WSB-04-7-12				
			13					
			14					
			15					

KJ PNW WISHRAM FEB 04 036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring Log

BORING LOCATION Southside of former 30,000-bbl AST		Boring Name <u>WSB-04-11</u>	
DRILLING COMPANY Cascade Drilling, Inc.	DRILLER Arlo Terletter	Project Name <u>Wishram</u>	
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches	Project Number <u>036026.00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM	TOTAL DEPTH 12.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 2/24/04	DATE COMPLETED 2/24/04
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) N/A	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY SCS	
SEAL 3/8 inch Bentonite	FROM <u>0</u> TO <u>12</u> FT.	SAMPLING METHODS 1.5 inch Macro Core	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> 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 2	WSB-04-11-2		GW	Well-graded GRAVEL Gravel fill, slightly damp.	
SS	4		3 4 5 6			SM	Silty SAND Moderately yellowish brown, silty fine sand, damp. No odor or sheen.	
SS	4		7 8 9 10	WSB-04-11-10		ML/CL	Clayey SILT Dark yellowish brown, clayey silt, slight plasticity, damp to very damp. No sheen or odor.	
			11 12					

**NOTES**

- Groundwater not encountered.

KJ.PNW WISHRAM FEB.04 036026.00.GPJ KJ.PNW.GDT 6/1/04

# Boring Log

BORING LOCATION 50 feet south of former 30,000-bbl AST		Boring Name <u>WSB-04-13</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		FROM	TO FT.
BLANK CASING N/A		N/A	N/A
SLOTTED CASING N/A		N/A	N/A
SIZE AND TYPE OF FILTER PACK N/A		N/A	N/A
SEAL 3/8 inch Bentonite		FROM	TO FT.
GROUT N/A		FROM	TO FT.
		N/A	N/A
		ELEVATION AND DATUM	
		TOTAL DEPTH 16.0 ft. bgs	
		DATE STARTED 2/24/04	
		DATE COMPLETED 2/24/04	
		INITIAL WATER DEPTH (FT) N/A	
		LOGGED BY SCS	
		SAMPLING METHODS	
		1.3 inch Macro Core	
		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				GW	Well-graded GRAVEL Gravel fill.
SS	3		2					Silty SAND Moderately yellowish brown, silty fine sand, slightly damp. No odor or sheen.
			3					
			4					
SS	0		5					
			6					
			7					
			8					
SS	0		9				SM	
			10					
			11					
			12					
SS	0		13					
			14					
			15					
			16	WSB-04-13-16				

**NOTES**

- Groundwater not encountered.

KJ PNW WISHRAM FEB 04 036026.00.GPJ KJ.PNW.GDT 8/1/04

# Boring Log

BORING LOCATION Former location of 10,000-gallon gas/oil UST		Boring Name	WSB-04-15
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER	Arlo Terletter
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE	2 inches
ISOLATION CASING N/A		FROM TO FT.	N/A N/A
BLANK CASING N/A		FROM TO FT.	N/A N/A
SLOTTED CASING N/A		FROM TO FT.	N/A N/A
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT.	N/A N/A
SEAL Bentonite		FROM TO FT.	0.5 16
GROUT N/A		FROM TO FT.	N/A N/A
ELEVATION AND DATUM		TOTAL DEPTH 16.0 ft. bgs	
DATE STARTED 2/25/04		DATE COMPLETED 2/25/04	
INITIAL WATER DEPTH (FT) 10.5		LOGGED BY SCS	
SAMPLING METHODS 1.5 inch Macro Core		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/FT						
SS	3		1			GW	Well-graded GRAVEL with gravel. Gravel fill and asphalt.	
			2				Silty SAND Moderately yellowish brown, silty fine sand, slightly damp. No odor or sheen.	
			3					
			4					
SS	3		5			SM		
			6					
			7					
			8					
SS	3.5		9	WSB-04-15-10				
			10					
			11				Silty SAND Same as above with some coarse gravel, wet. No odor or sheen.	
			12					
			13					
SS	4		14	WSB-04-15-GW		SM		
			15					
			16					

KJ PNW WISHRAM FEB.04 036025.00.GPJ KJ PNW/GDT 6/1/04

# Boring Log

BORING LOCATION Downgradient of 600-gallon fuel oil UST		Boring Name	WSB-04-17
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER	Arlo Terletter
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE	2 inches
ISOLATION CASING N/A	FROM	TO	FT.
	N/A	N/A	N/A
BLANK CASING N/A	FROM	TO	FT.
	N/A	N/A	N/A
SLOTTED CASING N/A	FROM	TO	FT.
	N/A	N/A	N/A
SIZE AND TYPE OF FILTER PACK N/A	FROM	TO	FT.
	N/A	N/A	N/A
SEAL 3/8 inch Bentonite	FROM	TO	FT.
	0.25	12	
GROUT N/A	FROM	TO	FT.
	N/A	N/A	N/A
ELEVATION AND DATUM		TOTAL DEPTH 16.0 ft. bgs	
DATE STARTED 2/26/04		DATE COMPLETED 2/26/04	
INITIAL WATER DEPTH (FT) 10			
LOGGED BY SCS			
SAMPLING METHODS 1.5 inch Macro Core		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	4		1				GW	Well-graded GRAVEL with asphalt. Gravel fill, asphalt.
			2					Silty SAND Moderately yellowish brown, silty sand, dry to slightly damp. No odor or sheen.
			3					
			4					
SS	4		5				SM	
			6					
			7					
			8					
			9	WSB-04-17-9				
SS	4		10				SM	Silty SAND Same as above, wet.
			11					
			12					
			13					
			14					
			15					
			16					

KJ.PNW WISHRAM FEB.04 036026.00.GPJ KJ.PNW.GDT 6/1/04





# Boring Log

BORING LOCATION Former transformer storage area		Boring Name <u>WSB-04-25</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		Project Name <u>Wishram</u>	
BLANK CASING N/A		Project Number <u>036026.00</u>	
SLOTTED CASING N/A		ELEVATION AND DATUM	
SIZE AND TYPE OF FILTER PACK N/A		TOTAL DEPTH 16.0 ft. bgs	
SEAL 3/8 inch Bentonite		DATE STARTED 2/25/04	
GROUT N/A		DATE COMPLETED 2/25/04	
		INITIAL WATER DEPTH (FT) 11	
		LOGGED BY SCS	
		SAMPLING METHODS 1.3 inch Macro Core, 3/4 inch PVC/Parostaltic	
		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				GW	Well-graded GRAVEL Gravel fill, dry.
			2					Silty SAND Moderately yellowish brown to olive gray, silty sand, slightly damp. No odor or sheen.
			3					
			4	WSB-04-25-5				
			5					
SS	4		6				SM	
			7					
			8					
			9	WSB-04-25-10				
SS	4		10					
			11	WSB-04-25-GW				Silty SAND Same as above, wet. No odor or sheen.
			12					
			13					
SS	4		14				SM	
			15					
			16					

KJ PNW WISHRAM FEB.04 036026.00.GPJ\_KJ PNW.GDT 6/1/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Northwest corner of engine house		Boring Name	WSB-04-27	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER	Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE	2 inches	
ISOLATION CASING N/A		FROM	TO	FT.
BLANK CASING N/A		FROM	TO	FT.
SLOTTED CASING N/A		FROM	TO	FT.
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO	FT.
SEAL 3/8 inch Bentonite		FROM	TO	FT.
GROUT N/A		FROM	TO	FT.
		ELEVATION AND DATUM		TOTAL DEPTH 16.0 ft. bgs
		DATE STARTED 2/26/04		DATE COMPLETED 2/26/04
		INITIAL WATER DEPTH (FT) 11		
		LOGGED BY SCS		
		SAMPLING METHODS 1.3 inch Macro Core, Parostaltic pump		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/FT						
			1					Gravel fill, ballast.
SS	2		2					Sandy SILT Moderately yellowish brown, sandy silt, damp. No odor, or sheen.
			3					
			4					
SS	3.5		5				ML	
			6					
			7					
			8					
SS	4		9	WSB-04-27-10				
			10					
			11	WSB-04-27-GW				Sandy SILT Same as above, wet. No odor or sheen.
			12					
			13					
SS	4		14				ML	
			15					
			16					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring Log

Kennedy/Jenks Consultants

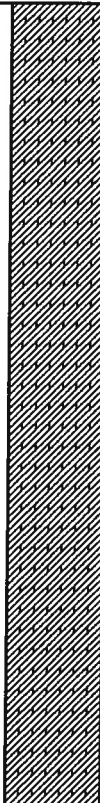

BORING LOCATION Western end of former engine house		Boring Name <u>WSB-04-30</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING N/A		FROM <u>N/A</u> TO <u>N/A</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 3/8 inch Bentonite		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 2/25/04		DATE COMPLETED 2/25/04	
INITIAL WATER DEPTH (FT) 10		LOGGED BY SCS	
SAMPLING METHODS 1.5 inch Macro Core		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			•	GP	Poorly graded GRAVEL Gravel fill, dry.
SS	2.5		2					Silty SAND Moderately yellowish brown, silty sand, slightly damp to damp. No odor or sheen.
			3					
			4	WSB-04-30-5				
			5					
SS	3.5		6				SM	
			7					
			8					
			9	WSB-04-30-10				
SS	3.5		10				SM	Silty SAND Same as above, wet. No odor or sheen.
			11					
			12					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ.PNW.GDT 6/7/04

# Boring Log

BORING LOCATION Southwest corner of former engine house		Boring Name	WSB-04-33
DRILLING COMPANY Cascade Drilling, Inc.	DRILLER Arlo Terletter	Project Name	Wishram
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches	Project Number	036026.00
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM	TOTAL DEPTH 12.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 2/25/04	DATE COMPLETED 2/25/04
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 8	LOGGED BY SCS
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	SAMPLING METHODS 1.5 inch Macro Core	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
SEAL 3/8 inch Bentonite	FROM TO FT. 0 12		
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES				SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS			
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"	DEPTH (FEET)								
SS	3		1-2	WSB-04-33-2			GP	Poorly graded GRAVEL Gravel fill, dry.			
			2-4								Silty SAND Moderately yellowish brown, silty sand, damp. No odor or sheen.
SS	3.5		4-5	WSB-04-33-5						SM	
			5-7								
			7-8								
			8-9								
SS	4		9-10	WSB-04-33-10						SM	Silty SAND Same as above, wet. No odor or sheen.
			10-11								
			11-12								

KJ.PNW.WISHRAM.FEB.04.036026.00.GPJ.KJ.PNW.GDT.6/1/04

# Boring Log

BORING LOCATION 100 feet south of engine house		Boring Name <u>WSB-04-35</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		FROM	TO FT.
BLANK CASING N/A		FROM	TO FT.
SLOTTED CASING N/A		FROM	TO FT.
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO FT.
SEAL 3/8 inch Bentonite		FROM	TO FT.
GROUT N/A		FROM	TO FT.
		ELEVATION AND DATUM	
		TOTAL DEPTH 16.0 ft. bgs	
		DATE STARTED 2/25/04	
		DATE COMPLETED 2/25/04	
		INITIAL WATER DEPTH (FT) 11	
		LOGGED BY SCS	
		SAMPLING METHODS	
		1.5 inch Macro Core	
		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					<b>Silty SAND</b> Moderately yellowish brown, silty sand, with some coarse gravel, damp. No odor or sheen.
			2					
			3					
			4					
			4	WSB-04-35-5				<b>Silty SAND</b> Same as above, wet. No odor or sheen.
SS	4		5				SM	
			6					
			7					
			8					<b>Silty SAND</b> Same as above, wet. No odor or sheen.
SS	3		9					
			10					
			11	WSB-04-35-GW				
			12					<b>Silty SAND</b> Same as above, wet. No odor or sheen.
			13					
SS	3.5		14				SM	
			15					
			16					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ.PNW.GDT 6/1/04

# Boring Log

BORING LOCATION Adjacent to west side of former powerhouse		Boring Name <u>WSB-04-37</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Darryl	
DRILLING METHOD(S) Hollow-stem Auger		DRILL BIT(S) SIZE 9 inches	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL 3/8 inch Bentonite		FROM TO FT. 0 10	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM	
		TOTAL DEPTH 10.0 ft. bgs	
		DATE STARTED 4/5/04	
		DATE COMPLETED 4/5/04	
		INITIAL WATER DEPTH (FT) 9	
		LOGGED BY GCD	
		SAMPLING METHODS	
		1.5 inch Macro Core	
		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>Silty SAND</b> Moderately yellowish brown, silty sand with some gravel, cobbles, and woody debris, damp. Moderate odor with petroleum residue.
			2					
			3					
			4					
			5				SM	
			6					
			7					<b>Silty SAND</b> Same as above, wet. NAPL present on groundwater.
SS	4		8	WSB-04-37-7				
			9					
			10				SM	

KJ.PNW.WISHRAM.FEB.04.036026.00.GPJ.KJ.PNW.GDT.6/8/04

# Boring Log

BORING LOCATION Wishram Yard, Wishram, WA		Boring Name <u>WSB-1</u>	
DRILLING COMPANY Cascade Drilling		DRILLER	
DRILLING METHOD(S) Direct Push		DRILL BIT(S) SIZE	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL Bentonite Chips		FROM TO FT. 0.5 17	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM N/A	
		TOTAL DEPTH 17.0 ft. bgs	
		DATE STARTED 9/2/03	
		DATE COMPLETED 9/2/03	
		INITIAL WATER DEPTH (FT) N/A	
		LOGGED BY GCD	
		SAMPLING METHODS 4 foot split spoon with 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					Asphalt
			2					Silty SAND (fill) Brown, silty fine sand with some pea gravel, loose, dry.
SS	2.5		3				SM	
			4					
			5					Silty SAND Brown, silty fine sand, loose, slightly moist.
SS	3		6					
			7					
			8					
			9					
SS	4		10					SM
			11	WSB-1-10				
			12					
			13					
SS	4		14					
			15					
			16	WSB-1-15				SP/SM Poorly graded SAND with silt Gray, fine sand with silt, loose, wet.
			17					

**NOTES**  
1. Bedrock encountered at 17 feet bgs, boring terminated due to refusal.

KJPNW WISHRAM II 03026.00.GPJ KJ PNW.GDT 11/10/03



# Boring Log

BORING LOCATION Wishram Yard, Wishram, WA		Boring Name <u>WSB-3</u>	
DRILLING COMPANY Cascade Drilling		DRILLER	
DRILLING METHOD(S) Direct Push		DRILL BIT(S) SIZE	
ISOLATION CASING N/A		FROM	TO FT.
BLANK CASING N/A		N/A	N/A
SLOTTED CASING N/A		FROM	TO FT.
SIZE AND TYPE OF FILTER PACK N/A		N/A	N/A
SEAL Bentonite Chips		FROM	TO FT.
GROUT N/A		0.5	16
		FROM	TO FT.
		N/A	N/A
		ELEVATION AND DATUM N/A	
		TOTAL DEPTH 16.0 ft. bgs	
		DATE STARTED 9/2/03	
		DATE COMPLETED 9/2/03	
		INITIAL WATER DEPTH (FT) N/A	
		LOGGED BY GCD	
		SAMPLING METHODS 4 foot split spoon with 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					Asphalt
SS	3		2					Poorly graded SAND with silt Brown, fine sand with silt, loose, dry.
SS	3		3					
SS	3		4					
SS	3		5					
SS	3		6				SP/SM	
SS	3		7					
SS	3		8					
SS	3		9					
SS	3		10					
SS	3		11	WSB-3-10				
SS	3		12					
SS	3		13					Poorly graded SAND with silt Brown, fine sand with silt, loose, moist.
SS	2.5		14				SP/SM	
SS	2.5		15					
SS	2.5		16	WSB-3-15.5				Weathered bedrock material, moist.

**NOTES**

1. Bedrock encountered at 15.5 feet bgs, weathered surface, boring terminated at 16 feet due to refusal.

KJ PNW WISHRAM II 03026.00.GPJ KJ PNW.GDT 11/10/03

# Boring Log

BORING LOCATION Wishram Yard, Wishram, WA		Boring Name <u>WSB-5</u>	
DRILLING COMPANY Cascade Drilling		DRILLER	
DRILLING METHOD(S) Direct Push		DRILL BIT(S) SIZE	
ISOLATION CASING N/A		FROM	TO
BLANK CASING N/A		FROM	TO
SLOTTED CASING N/A		FROM	TO
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO
SEAL Bentonite Chips		FROM	TO
GROUT N/A		FROM	TO
		ELEVATION AND DATUM N/A	TOTAL DEPTH 10.0 ft. bgs
		DATE STARTED 9/2/03	DATE COMPLETED 9/2/03
		INITIAL WATER DEPTH (FT) N/A	STATIC WATER ELEV. (FT) N/A
		LOGGED BY GCD	
		SAMPLING METHODS 4 foot split spoon with liner	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

TYPE	SAMPLES		DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
	RECOV (FEET)	PENETR. RESIST. BLOWS/6'						
			1				GW	Well-graded GRAVEL Gravel road material.
			2					Debris (fill) Gravelly sandy debris including railroad ties, metal, and concrete, loose.
SS	3		3					
			4					
			5					
SS	3		7					
			8					
SS	.5		9				SM	Silty SAND Gray, fine silty sand, medium dense.
			10	WSB-5-9.5				Wet.

**NOTES**  
1. Boring terminated at 10' bgs due to refusal.

KJ PNW WISHRAM II 03026.00.GPJ KJ PNW.GDT 11/10/03



# Boring Log

BORING LOCATION Wishram Yard, Wishram, WA		Boring Name <u>WSB-7</u>	
DRILLING COMPANY Cascade Drilling		DRILLER	
DRILLING METHOD(S) Direct Push		Project Name <u>BNSF Wishram</u>	
ISOLATION CASING N/A		Project Number <u>036026.00</u>	
BLANK CASING N/A		ELEVATION AND DATUM N/A	
SLOTTED CASING N/A		TOTAL DEPTH 20.0 ft. bgs	
SIZE AND TYPE OF FILTER PACK N/A		DATE STARTED 9/2/03	
SEAL Bentonite Chips		DATE COMPLETED 9/2/03	
GROUT N/A		INITIAL WATER DEPTH (FT) N/A	
		STATIC WATER ELEV. (FT) N/A	
		LOGGED BY GCD	
		SAMPLING METHODS 4 foot split spoon with 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"						
							GP	Poorly graded GRAVEL Ballast.
SS	3		5					Poorly graded SAND with silt Brown, fine sand with silt, dry.
SS	3							
SS	3		10	WSB-7-10			SP/SM	
SS	3		15					
SS	2.5		20					

**NOTES**

1. Boring terminated at 20' bgs, NOT due to refusal.

KJ PNW WISHRAM II 03026.00.GPJ KJ PNW.GDT 11/10/03

# Boring Log

BORING LOCATION Wishram Yard, Wishram, WA		Boring Name <b>WSB-6</b>	
DRILLING COMPANY Cascade Drilling		DRILLER	
DRILLING METHOD(S) Direct Push		Project Name <b>BNSF Wishram</b>	
ISOLATION CASING N/A		Project Number <b>036026.00</b>	
BLANK CASING N/A		ELEVATION AND DATUM N/A	
SLOTTED CASING N/A		TOTAL DEPTH 17.0 ft. bgs	
SIZE AND TYPE OF FILTER PACK N/A		DATE STARTED 9/2/03	
SEAL Bentonite Chips		DATE COMPLETED 9/2/03	
GROUT N/A		INITIAL WATER DEPTH (FT) N/A	
		STATIC WATER ELEV. (FT) N/A	
		LOGGED BY <b>GCD</b>	
		SAMPLING METHODS 4 foot split spoon with 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				GW	Well-graded GRAVEL Gravel road material.
			2					Poorly graded SAND with silt Brown, fine sand with silt, medium dense, dry.
SS	3		3					
			4					
			5					
SS	3		6				SP/SM	
			7					
			8					
			9					
SS	3		10	WSB-6-10				Moist to wet.
			11					Well-graded SAND Gray, fine to medium sand, loose, moist.
			12					
			13					
SS	3		14	WSB-6-14			SW	
			15					
			16					
			17					

**NOTES**

- Boring terminated at 17' due to refusal (apparent cobble).

KJ PNW WISHRAM II 03026.00.GPJ KJ PNW.GDT 11/10/03

Boring Log

BORING LOCATION Wishram Yard, Wishram, WA		Boring Name <u>WSB-4</u>	
DRILLING COMPANY Cascade Drilling		DRILLER	
DRILLING METHOD(S) Direct Push		Project Name <u>BNSF Wishram</u>	
ISOLATION CASING N/A		Project Number <u>036026.00</u>	
BLANK CASING N/A		ELEVATION AND DATUM N/A	
SLOTTED CASING N/A		TOTAL DEPTH 32.0 ft. bgs	
SIZE AND TYPE OF FILTER PACK N/A		DATE STARTED 9/2/03	
SEAL Bentonite Chips		DATE COMPLETED 9/2/03	
GROUT N/A		INITIAL WATER DEPTH (FT) N/A	
		STATIC WATER ELEV. (FT) N/A	
		LOGGED BY GCD	
		SAMPLING METHODS 4 foot split spoon with 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/5'						
							GW	Well-graded GRAVEL Gravel road material.
SS	3						SM	Silty SAND with gravel (fill) Gray/brown, gravely silty sand, dense, dry.
			5					Well-graded SAND with silt Gray, fine sand with silt, loose, dry.
SS	3							
			10	WSB-4-9				Wet.
SS	3							
			15					
SS	3						SW/SM	
			20					
SS	3							
			25					
SS	3							
			30					
SS	2.5							

NOTES

1. Refusal at 32' possibly due to large cobble or bedrock.

KJ PNW WISHRAM II 03026.00.GPJ KJ.PNW.GDT. 11/10/03

# Boring Log

BORING LOCATION Wishram Yard, Wishram, WA		Boring Name <u>WSB-2</u>	
DRILLING COMPANY Cascade Drilling		DRILLER	
DRILLING METHOD(S) Direct Push		Project Name <u>BNSF Wishram</u>	
ISOLATION CASING N/A		Project Number <u>036026.00</u>	
BLANK CASING N/A		ELEVATION AND DATUM N/A	
SLOTTED CASING N/A		TOTAL DEPTH 15.0 ft. bgs	
SIZE AND TYPE OF FILTER PACK N/A		DATE STARTED 9/2/03	
SEAL Bentonite Chips		DATE COMPLETED 9/2/03	
GROUT N/A		INITIAL WATER DEPTH (FT) N/A	
		LOGGED BY GCD	
		SAMPLING METHODS 4 foot split spoon with 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					Asphalt
			2				SM	Silty SAND with gravel (fill) Brown, gravelly fine sand with silt and woody debris, medium dense.
SS	3		3					Poorly graded SAND with gravel Brown, fine sand with little gravel, medium dense, dry.
			4					
			5				SP	
			6					
SS	3		7					
			8	WSB-2-8				Poorly graded SAND Gray, fine sand, loose, moist.
			9					
			10				SP	
SS	3		11					
			12					
			13					Poorly graded SAND Gray, fine sand, loose, moist.
			14	WSB-2-15			SP	
SS	1.5		15					

**NOTES**

1. Bedrock encountered at 15 feet bgs, boring terminated due to refusal.

KJ PNW WISHRAM II 03026.00.GPJ KJ PNW GDT 11/10/03

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION 20 feet north of former powerhouse		Boring Name <u>WSB-04-38</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Darryl	
DRILLING METHOD(S) Hollow-stem Auger		DRILL BIT(S) SIZE 9 inches	
ISOLATION CASING N/A		FROM _____ TO _____ FT. N/A N/A	
BLANK CASING N/A		FROM _____ TO _____ FT. N/A N/A	
SLOTTED CASING N/A		FROM _____ TO _____ FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM _____ TO _____ FT. N/A N/A	
SEAL 3/8 inch Bentonite		FROM _____ TO _____ FT. 0 10	
GROUT N/A		FROM _____ TO _____ FT. N/A N/A	
		ELEVATION AND DATUM	
		TOTAL DEPTH 10.0 ft. bgs	
		DATE STARTED 4/5/04	
		DATE COMPLETED 4/5/04	
		INITIAL WATER DEPTH (FT) 10	
		LOGGED BY GCD	
		SAMPLING METHODS 1.5 inch Macro Core	
		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>Silty SAND</b> Moderately yellowish brown, silty sand, damp. No odor or sheen.
			2					
			3					
			4					
			5			SM		
			6					
SS			7					<b>Silty SAND</b> Same as above, wet. No odor or sheen.
			8					
			9	WSB-04-38-10				
			10			SM		

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ.PNW.GDT. 6/1/04



# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Southside of former turntable		Boring Name <u>WSB-04-36</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL 3/8 inch Bentonite		FROM TO FT. 0 12	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM	
		TOTAL DEPTH 12.0 ft. bgs	
		DATE STARTED 2/25/04	
		DATE COMPLETED 2/25/04	
		INITIAL WATER DEPTH (FT) 11	
		LOGGED BY SCS	
		SAMPLING METHODS	
		1.5 inch Macro Core	
		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				GP	Poorly graded GRAVEL Gravel fill, dry.
			2					Silty SAND Moderately yellowish brown, silty sand, with some coarse sand, slightly damp. No odor or sheen.
			3					
			4					
			5	WSB-04-36-5				
SS	1.5		6				SM	
			7					
			8					
SS	3		9					
			10					
			11					
			12				SM	Silty SAND Same as above, wet. No odor or sheen.

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# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION 50 feet west of former powerhouse		Boring Name <u>WSB-04-34</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL 3/8 inch Bentonite		FROM 0 TO 16 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM	
		TOTAL DEPTH 16.0 ft. bgs	
		DATE STARTED 2/25/04	
		DATE COMPLETED 2/25/04	
		INITIAL WATER DEPTH (FT) 11	
		LOGGED BY SCS	
		SAMPLING METHODS 1.5 inch Macro Core, Parostaltic	
		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		1					Silty SAND Moderately yellowish brown, silty sand, with some coarse gravel, slightly damp. No odor or sheen.
			2					
			3					
			4	WSB-04-34-5				
SS	3		5					SM  Same as above, wet. No odor or sheen.
			6					
			7					
			8					
SS	2.5		9					
			10					
			11	WSB-04-34-GW				
			12					
SS	NR		13					
			14					
			15					
			16					

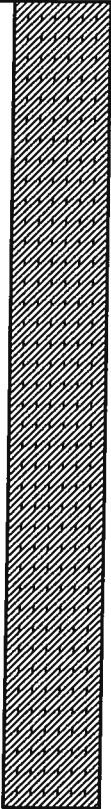
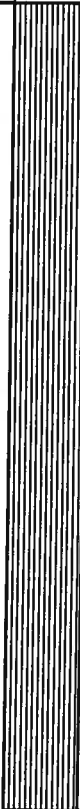
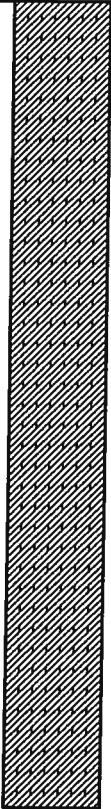
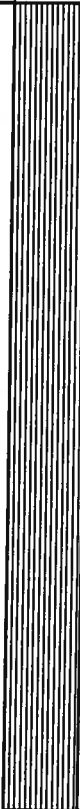
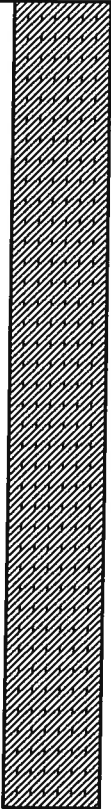
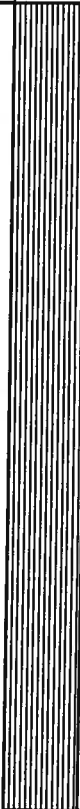

**NOTES**

- At ~9 feet, driller observed large cobbles.

KJ.PNW.WISHRAM.FEB.04.036026.00.GPJ.KJ.PNW.GDT.6/1/04

# Boring Log

BORING LOCATION Between former engine house and store house		Boring Name	WSB-04-31	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER	Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE	2 inches	
ISOLATION CASING N/A		FROM	TO	FT.
BLANK CASING N/A		FROM	TO	FT.
SLOTTED CASING N/A		FROM	TO	FT.
SIZE AND TYPE OF FILTER PACK N/A		FROM	TO	FT.
SEAL 3/8 inch Bentonite		FROM	TO	FT.
GROUT N/A		FROM	TO	FT.
		ELEVATION AND DATUM		TOTAL DEPTH
				12.0 ft. bgs
		DATE STARTED		DATE COMPLETED
		2/25/04		2/25/04
		INITIAL WATER DEPTH (FT)		
		9.5		
		LOGGED BY		
		SCS		
		SAMPLING METHODS		WELL COMPLETION
		1.5 inch Macro Core		<input type="checkbox"/> SURFACE HOUSING
				<input type="checkbox"/> STAND PIPE _____ FT.

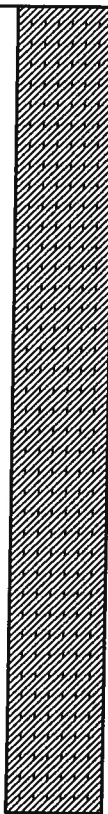

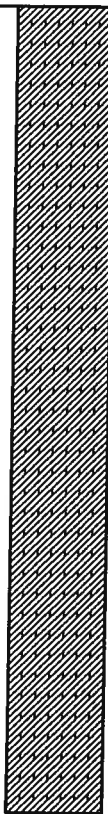

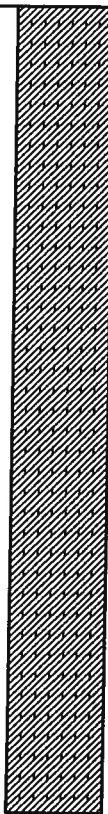

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6"						
SS	2.5	X	1	WSB-04-31-2				<b>Silty SAND</b> Moderately yellowish brown, silty sand with trace coarse gravel, damp. No odor or sheen.
			2					
			3					
SS	3.5	X	4	WSB-04-31-5			SM	
			5					
			6					
SS	4		7				SM	<b>Silty SAND</b> Same as above, wet. No odor or sheen.
			8					
			9					
			10					
			11					
			12					

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# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Between former fueling area and engine house		Boring Name <u>WSB-04-29</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING N/A		FROM TO FT. N/A N/A	
SLOTTED CASING N/A		FROM TO FT. N/A N/A	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A	
SEAL 3/8 inch Bentonite		FROM TO FT. 0 12	
GROUT N/A		FROM TO FT. N/A N/A	
		ELEVATION AND DATUM	
		TOTAL DEPTH 12.0 ft. bgs	
		DATE STARTED 2/25/04	
		DATE COMPLETED 2/25/04	
		INITIAL WATER DEPTH (FT) 9.5	
		LOGGED BY SCS	
		SAMPLING METHODS 1.5 inch Macro Core	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

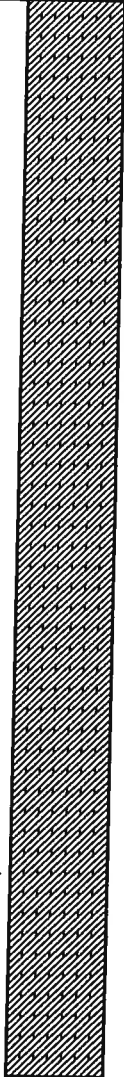
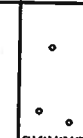
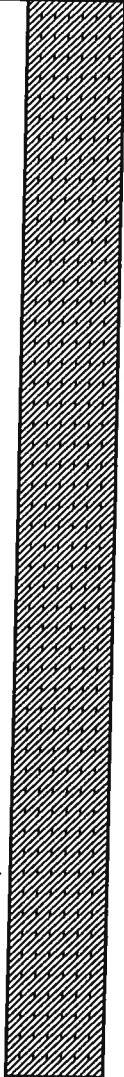

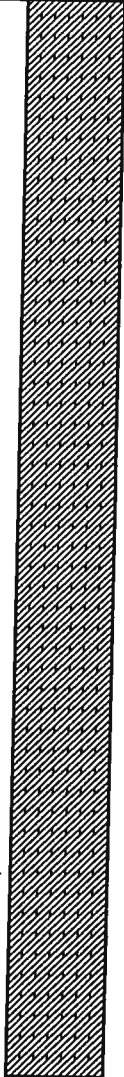

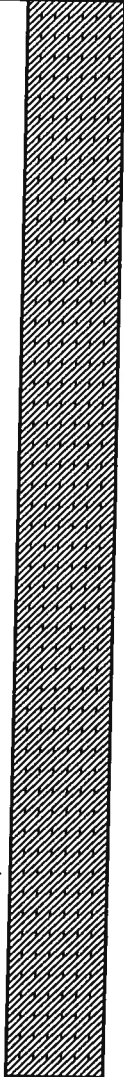

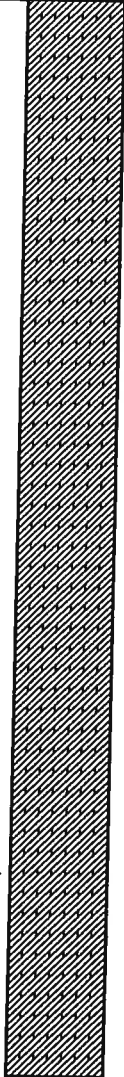

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS			
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6"									
SS	2.5		1	WSB-04-29-2			GP	Poorly graded GRAVEL Gravel fill.			
			2								Sandy SILT Moderately yellowish brown, sandy silt. No odor or sheen.
			3								
SS	3.5		4	WSB-04-29-5			ML				
			5								
			6								
SS	3.75		9	WSB-04-29-10			ML	Sandy SILT Same as above, wet. No odor or sheen.			
			10								
			11								
			12								

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT. 8/1/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Former 5,000-gallon lube oil AST		Boring Name <u>WSB-04-26</u>	
DRILLING COMPANY Cascade Drilling, Inc.	DRILLER Arlo Terletter	Project Name <u>Wishram</u>	
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches	Project Number <u>036026.00</u>	
ISOLATION CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	ELEVATION AND DATUM	TOTAL DEPTH 16.0 ft. bgs
BLANK CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	DATE STARTED 2/25/04	DATE COMPLETED 2/25/04
SLOTTED CASING N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	INITIAL WATER DEPTH (FT) 13	
SIZE AND TYPE OF FILTER PACK N/A	FROM <u>N/A</u> TO <u>N/A</u> FT.	LOGGED BY SCS	
SEAL 3/8 inch Bentonite	FROM <u>0</u> TO <u>16</u> FT.	SAMPLING METHODS 1.5 Inch Macro Core, Parostaltic	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
GROUT N/A	FROM <u>N/A</u> TO <u>N/A</u> 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	WSB-04-26-2			GP	Poorly graded GRAVEL and sand. Gravel and sand fill.			
			2								
SS	3.5		3	WSB-04-26-10			SM	Silty SAND Moderately yellowish brown, silty sand, slightly damp. No odor or sheen.			
			4								
			5								
			6								
SS	4		7	WSB-04-26-10			SM	Silty SAND with gravel Dark olive gray, silty sand, with little coarse gravel, damp to moist.			
			8								
			9	WSB-04-26-GW			SM				
			10								
			11								
			12								
SS	4		13	WSB-04-26-GW			SM	Silty SAND Same as above, wet. Slight odor and sheen at ~13 feet.			
			14								
			15								
			16								

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION 1,000-gallon gasoline UST		Boring Name <u>WSB-04-20</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
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 3/8 inch Bentonite		FROM <u>0</u> TO <u>22</u> FT.	
GROUT N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
		ELEVATION AND DATUM	
		TOTAL DEPTH 22.0 ft. bgs	
		DATE STARTED 2/24/04	
		DATE COMPLETED 2/24/04	
		INITIAL WATER DEPTH (FT) 9	
		LOGGED BY SCS	
		SAMPLING METHODS	
		1.5 inch Macro Core	
		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						SP	Poorly graded SAND with gravel Moderately yellowish brown, sand with little gravel damp.
SS	4		5				SM	Silty SAND Moderately yellowish brown, silty fine sand, damp. No odor or sheen.
SS	1.75		10	WSB-04-20-10			SM	Silty SAND Moderately yellowish brown, silty fine sand, wet. No odor or sheen.
SS	4		15				SM	
SS	4		20					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ.PNW.GDT 6/1/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION 5,000-gallon oil UST at depot		Boring Name <u>WSB-04-18</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
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 3/8 inch Bentonite		FROM <u>0.25</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 2/24/04	
		DATE COMPLETED 2/24/04	
		INITIAL WATER DEPTH (FT) 10	
		LOGGED BY SCS	
		SAMPLING METHODS 1.5 inch Macro Core	
		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	4		1				GW	Well-graded GRAVEL with asphalt.
			2					Gravel fill.
			3					Silty SAND
			4					Moderately yellowish brown, silty sand, wet. No odor or sheen.
SS	3.75		5				SM	
			6					
			7					
			8					
SS	4		9	WSB-04-18-10				
			10					
			11					
			12					

KJ.PNW.WISHRAM.FEB.04.036026.00.GPJ.KJ.PNW.GDT.6/1/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION 60 feet southwest of former fueling island		Boring Name	WSB-04-16
DRILLING COMPANY Cascade Drilling, Inc.	DRILLER Arlo Terletter	Project Name	Wishram
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches	Project Number	036026.00
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 2/26/04	DATE COMPLETED 2/26/04
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 11	LOGGED BY SCS
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	SAMPLING METHODS 1.5 inch Macro Core	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
SEAL 3/8 inch Bentonite	FROM 0 TO 16 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	0.5		1				GW	Well-graded GRAVEL Gravel fill.
			2					Sandy SILT Moderately yellowish brown, sandy silt, damp. No odor or sheen.
			3					
			4					
SS	0.5		5				ML	
			6					
			7					
			8					
SS	3.5		9					
			10					
			11					Sandy SILT Same as above, wet. No odor or sheen.
			12					
			13					
SS	4		14				ML	
			15					
			16	WSB-04-16-GW				

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/1/04



# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Former location of 600-gallon fuel oil UST		Boring Name	WSB-04-14
DRILLING COMPANY Cascade Drilling, Inc.	DRILLER Arlo Terletter	Project Name	Wishram
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches	Project Number	036026.00
ISOLATION CASING N/A	FROM N/A TO N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH 12.0 ft. bgs
BLANK CASING N/A	FROM N/A TO N/A FT.	DATE STARTED 2/24/04	DATE COMPLETED 2/24/04
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 9	
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	LOGGED BY SCS	
SEAL 3/8 inch Bentonite	FROM 0 TO 12 FT.	SAMPLING METHODS 1.5 inch Macro Core	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		1				GW	Well-graded GRAVEL
			2					Gravel fill, dry.
			3					Silty SAND
			4					Moderately yellowish brown, silty fine sand, slightly damp. No odor or sheen.
			5	WSB-04-14-5			SM	
SS	3		6					
			7					
			8					
			9					
SS	4		10	WSB-04-14-10			SM	Silty SAND
			11					Same as above, wet. No odor or sheen.
			12					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION Midway between former fueling area and engine house		Boring Name	WSB-04-12
DRILLING COMPANY Cascade Drilling, Inc.	DRILLER Arlo Terletter	Project Name	Wishram
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches	Project Number	036026.00
ISOLATION CASING N/A	FROM TO FT. N/A N/A	ELEVATION AND DATUM	TOTAL DEPTH 12.0 ft. bgs
BLANK CASING N/A	FROM TO FT. N/A N/A	DATE STARTED 2/26/04	DATE COMPLETED 2/26/04
SLOTTED CASING N/A	FROM TO FT. N/A N/A	INITIAL WATER DEPTH (FT) 11	LOGGED BY SCS
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT. N/A N/A	SAMPLING METHODS 1.5 inch Macro Core	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
SEAL 3/8 inch Bentonite	FROM TO FT. 0 12		
GROUT N/A	FROM TO FT. N/A N/A		

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'						
			1				GW	Well-graded GRAVEL Gravel fill.
SS	2		2					Silty SAND Moderately yellowish brown, silty fine sand, damp. No odor or sheen.
			3					
			4					
			5	WSB-04-12-5				
SS	2		6				SM	
			7					
			8					
			9					
SS	2		10	WSB-04-12-10				
			11				SM	Silty SAND Same as above, wet.
			12					

KJ PNW WISHRAM FEB.04.036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION North side of former fueling island		DRILLER Arlo Terletter		Boring Name WSB-04-09	
DRILLING COMPANY Cascade Drilling, Inc.		DRILL BIT(S) SIZE 2 inches		Project Name Wishram	
DRILLING METHOD(S) GeoProbe		FROM TO FT. N/A N/A		Project Number 036026.00	
ISOLATION CASING N/A		FROM TO FT. N/A N/A		ELEVATION AND DATUM TOTAL DEPTH 16.0 ft. bgs	
BLANK CASING N/A		FROM TO FT. N/A N/A		DATE STARTED 2/25/04	
SLOTTED CASING N/A		FROM TO FT. N/A N/A		DATE COMPLETED 2/25/04	
SIZE AND TYPE OF FILTER PACK N/A		FROM TO FT. N/A N/A		INITIAL WATER DEPTH (FT) 10	
SEAL 3/8 inch Bentonite		FROM TO FT. 0 16		LOGGED BY SCS	
GROUT N/A		FROM TO FT. N/A N/A		SAMPLING METHODS 1.3 inch Macro Core	
				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				GW	Well-graded GRAVEL Gravel fill.
SS	3		2					Silty SAND Moderately yellowish brown to olive gray, silty sand, slightly damp. Slight odor, no sheen.
			3					
			4	WSB-04-09-5				
SS	4		5				SM	
			6					
			7					
			8					
			9	WSB-04-09-10				
SS	4		10					Silty SAND Same as above with some coarse gravel, wet. Slight odor, no sheen.
			11					
			12					
			13				SM	
			14					
			15					
			16					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring Log

BORING LOCATION 85 feet west of maintenance shop, south of former pump house.		Boring Name <u>WSB-04-06</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Arlo Terletter	
DRILLING METHOD(S) GeoProbe		DRILL BIT(S) SIZE 2 inches	
ISOLATION CASING N/A		FROM N/A TO N/A FT.	
BLANK CASING N/A		FROM N/A TO N/A FT.	
SLOTTED CASING N/A		FROM N/A TO N/A FT.	
SIZE AND TYPE OF FILTER PACK N/A		FROM N/A TO N/A FT.	
SEAL 3/8 inch Bentonite		FROM 0 TO 16 FT.	
GROUT N/A		FROM N/A TO N/A FT.	
		ELEVATION AND DATUM	
		TOTAL DEPTH 16.0 ft. bgs	
		DATE STARTED 2/26/04	
		DATE COMPLETED 2/26/04	
		INITIAL WATER DEPTH (FT) 9	
		LOGGED BY SCS	
		SAMPLING METHODS 1.5 inch Macro Core	
		WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

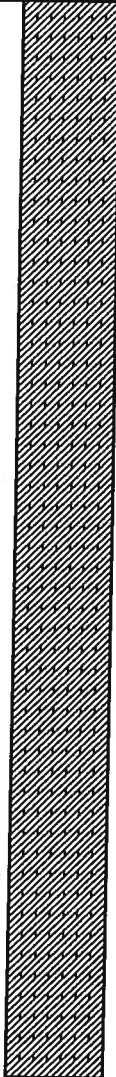

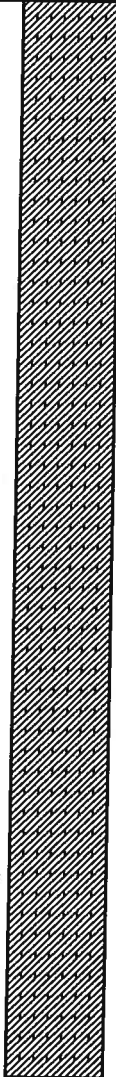

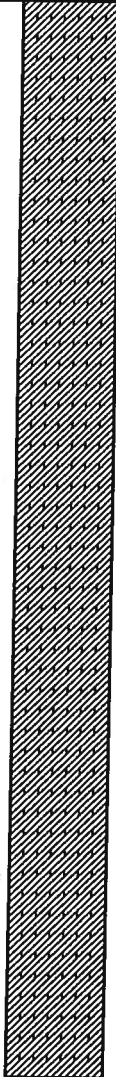

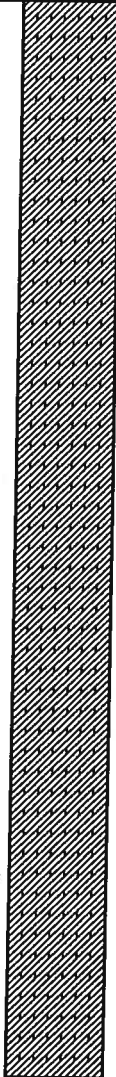

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6'						
SS	2.5		1				GW	Well-graded GRAVEL Gravel fill.
			2					Silty SAND Moderately yellowish brown, silty sand, damp. No odor or sheen.
			3					
			4					
SS	4		5					
			6				SM	
			7	WSB-04-6-8				
			8					
SS	4		9					
			10					
			11					
			12					
SS	4		13					Silty SAND Same as above, gray at ~11 feet, wet. Slight odor and sheen.
			14				SM	
			15					
			16	WSB-04-6-GW				

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ.PNW.GDT 6/8/04

# Boring Log

Kennedy/Jenks Consultants

BORING LOCATION 5 feet south of former 100,000-gallon ASTs		Boring Name	WSB-04-01
DRILLING COMPANY Cascade Drilling, Inc.	DRILLER Arlo Terletter	Project Name	Wishram
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches	Project Number	036026.00
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 2/26/04	DATE COMPLETED 2/26/04
SLOTTED CASING N/A	FROM N/A TO N/A FT.	INITIAL WATER DEPTH (FT) 13	LOGGED BY SCS
SIZE AND TYPE OF FILTER PACK N/A	FROM N/A TO N/A FT.	SAMPLING METHODS 1.5 inch Macro Core	WELL COMPLETION <input type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.
SEAL 3/8 inch Bentonite	FROM 0 TO 16 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		1	WSB-04-1-2			GW	Well-graded GRAVEL Gravel fill. Silty SAND Moderately yellowish brown, silty sand, damp. No odor or sheen.
			2					
			3					
SS	3.5		4	WSB-04-1-10			SM	
			5					
			6					
SS	4		8	WSB-04-1-10			SM	
			9					
			10					
SS	4		13	WSB-04-1-10			SM	Silty SAND Same as above with trace coarse gravel at ~13-16 feet, wet. No odor or sheen.
			14					
			15					
			16					

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/1/04

# Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION South of former fueling island		Well Name <u>WMW-6</u>	
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Darryl	
DRILLING METHOD(S) HSA		DRILL BIT(S) SIZE 9 inch OD	
ISOLATION CASING N/A		Project Name <u>Wishram</u>	
BLANK CASING 2 inch Sch. 40 PVC		Project Number <u>036026.00</u>	
SLOTTED CASING 2 inch Sch. 40 PVC 0.010 inch slot		FROM N/A TO N/A FT.	ELEVATION AND DATUM
SIZE AND TYPE OF FILTER PACK 10/20 Colorado Silica		FROM 0 TO 14 FT.	TOTAL DEPTH 24.0 ft. bgs
SEAL 3/8 inch Bentonite		FROM 14 TO 24 FT.	DATE STARTED 4/5/04
GROUT Concrete		FROM 12 TO 24 FT.	DATE COMPLETED 4/5/04
		FROM 1 TO 12 FT.	INITIAL WATER DEPTH (FT) 17
		FROM 0 TO 1 FT.	LOGGED BY GCD
			SAMPLING METHODS
			WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'						
								Cobbles and broken concrete.
			5				SP	Poorly graded SAND Brown, fine to medium sand with little coarse gravel, damp. No odor or sheen.
			10				SP	Poorly graded SAND Black, similar to above with viscous waxy petroleum in matrix. Moderate odor and sheen.
			15				SP	Poorly graded SAND Gray, fine to medium sand with some silt, wet. Strong odor and sheen.
			20				SP	Bedrock at ~24 feet.

KJ PNW WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT 6/8/04

# Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION Wishram Yard, Wishram, WA		Well Name <b>WMW-4</b>	
DRILLING COMPANY Cascade Drilling		DRILLER N/A	
DRILLING METHOD(S) HSA		DRILL BIT(S) SIZE 9 inch	
ISOLATION CASING N/A		FROM TO FT. N/A N/A	
BLANK CASING 2-inch Schedule 40 PVC Pipe		FROM TO FT. 0 10	
SLOTTED CASING 2-inch Schedule 40 PVC Pipe, 0.010-inch slot		FROM TO FT. 10 20	
SIZE AND TYPE OF FILTER PACK 10/20 Silica Sand		FROM TO FT. 8 20	
SEAL Bentonite Chips		FROM TO FT. 2 8	
GROUT Concrete		FROM TO FT. 0 2	
ELEVATION AND DATUM 95.02 (toc)		TOTAL DEPTH 20.0 ft. bgs	
DATE STARTED 9/12/03		DATE COMPLETED 9/12/03	
INITIAL WATER DEPTH (FT) N/A		STATIC WATER ELEV. (FT) N/A	
LOGGED BY GCD			
SAMPLING METHODS Shelby Tube		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV. (FEET)	PENETR. RESIST. BLOWS/6'						
			0				GW	Well-graded GRAVEL Road gravel.
			5				SW/SM	Well-graded SAND with silt Brown, fine to medium sand with silt, loose, dry.
			10					Poorly graded SAND with silt Gray, fine to medium sand with silt, loose wet.
			15				SP/SM	
			20					

KJ.PNW.WISHRAM.036026.00.GPJ.KJ.PNW.GDT.11/10/03

# Boring & Well Construction Log

Kennedy/Jenks Consultants

BORING LOCATION Wishram Yard, Wishram, WA		Well Name <u>WMW-2</u>	
DRILLING COMPANY Cascade Drilling		DRILLER N/A	
DRILLING METHOD(S) HSA		DRILL BIT(S) SIZE 9 inch	
ISOLATION CASING N/A		FROM <u>N/A</u> TO <u>N/A</u> FT.	
BLANK CASING 2-inch Schedule 40 PVC Pipe		FROM <u>0</u> TO <u>10</u> FT.	
SLOTTED CASING 2-inch Schedule 40 PVC Pipe, 0.010-inch slot		FROM <u>10</u> TO <u>20</u> FT.	
SIZE AND TYPE OF FILTER PACK 10/20 Silica Sand		FROM <u>8</u> TO <u>20</u> FT.	
SEAL Bentonite Chips		FROM <u>2</u> TO <u>8</u> FT.	
GROUT Concrete		FROM <u>0</u> TO <u>2</u> FT.	
ELEVATION AND DATUM 94.65 (toc)		TOTAL DEPTH 20.0 ft. bgs	
DATE STARTED 9/12/03		DATE COMPLETED 9/12/03	
INITIAL WATER DEPTH (FT) N/A		STATIC WATER ELEV. (FT) N/A	
LOGGED BY GCD			
SAMPLING METHODS Shelby Tube		WELL COMPLETION <input checked="" type="checkbox"/> SURFACE HOUSING <input type="checkbox"/> STAND PIPE _____ FT.	

SAMPLES			DEPTH (FEET)	SAMPLE NUMBER	WELL CONSTRUCTION	LITHOLOGY	USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/FT						
			0				GP	Poorly graded GRAVEL Road gravel. Debris Buried Debris including railroad ties, logs, brick, concrete.
			10				SW	Well-graded SAND Gray, fine to medium sand, medium dense, wet.
			15					
			20					

KJ.PNW.WISHRAM.036026.00.GPJ.KJ.PNW.GDT.11/10/03



# **Appendix B**

## **Laboratory Analytical Reports**



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

19 August 2004

Galen Davis  
Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003  
RE: BNSF-Wishram

Enclosed are the results of analyses for samples received by the laboratory on 09/04/03 10:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Domenighini  
Project Manager



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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:53

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WSB-1-10	P3I0207-01	Soil	09/02/03 11:30	09/04/03 10:00
WSB-1-15	P3I0207-02	Soil	09/02/03 11:45	09/04/03 10:00
WSB-2-14	P3I0207-03	Soil	09/02/03 12:50	09/04/03 10:00
WSB-2-8	P3I0207-04	Soil	09/02/03 12:30	09/04/03 10:00
WSB-3-10	P3I0207-05	Soil	09/02/03 13:10	09/04/03 10:00
WSB-3-16	P3I0207-06	Soil	09/02/03 13:30	09/04/03 10:00
WSB-4-10	P3I0207-07	Soil	09/02/03 14:00	09/04/03 10:00
WSB-5-10	P3I0207-08	Soil	09/02/03 14:45	09/04/03 10:00
WSB-6-10	P3I0207-09	Soil	09/02/03 15:20	09/04/03 10:00
WSB-7-10	P3I0207-10	Soil	09/02/03 16:00	09/04/03 10:00
WSB-6-14	P3I0207-11	Soil	09/02/03 15:30	09/04/03 10:00

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-1-10 (P3I0207-01) Soil</b> Sampled: 09/02/03 11:30 Received: 09/04/03 10:00										
Diesel Range Organics	47.6		25.0 mg/kg dry		1	3090351	09/09/03	09/10/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	359		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	98.4 %		50-150			"	"	"	"	
<b>WSB-1-15 (P3I0207-02) Soil</b> Sampled: 09/02/03 11:45 Received: 09/04/03 10:00										
Diesel Range Organics	ND		25.0 mg/kg dry		1	3090351	09/09/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	81.3 %		50-150			"	"	"	"	
<b>WSB-2-14 (P3I0207-03) Soil</b> Sampled: 09/02/03 12:50 Received: 09/04/03 10:00										
Diesel Range Organics	15700		2500 mg/kg dry		100	3090351	09/09/03	09/09/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	10500		5000	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	%		50-150			"	"	"	"	S-01
<b>WSB-2-8 (P3I0207-04) Soil</b> Sampled: 09/02/03 12:30 Received: 09/04/03 10:00										
Diesel Range Organics	6900		250 mg/kg dry		10	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	4710		500	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	244 %		50-150			"	"	"	"	S-01
<b>WSB-3-10 (P3I0207-05) Soil</b> Sampled: 09/02/03 13:10 Received: 09/04/03 10:00										
Diesel Range Organics	ND		25.0 mg/kg dry		1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	90.8 %		50-150			"	"	"	"	
<b>WSB-3-16 (P3I0207-06) Soil</b> Sampled: 09/02/03 13:30 Received: 09/04/03 10:00										
Diesel Range Organics	ND		25.0 mg/kg dry		1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	85.6 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 Environmental Laboratory Network



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 425.420.9200 fax 425.420.9210  
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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-4-10 (P3I0207-07) Soil</b> Sampled: 09/02/03 14:00 Received: 09/04/03 10:00										
Diesel Range Organics	ND		25.0 mg/kg dry		1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	82.9 %		50-150			"	"	"	"	
<b>WSB-5-10 (P3I0207-08) Soil</b> Sampled: 09/02/03 14:45 Received: 09/04/03 10:00										
Diesel Range Organics	21000		1000 mg/kg dry		20	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	21600		2000	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	%		50-150			"	"	"	"	S-01
<b>WSB-6-10 (P3I0207-09) Soil</b> Sampled: 09/02/03 15:20 Received: 09/04/03 10:00										
Diesel Range Organics	ND		25.0 mg/kg dry		1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	88.4 %		50-150			"	"	"	"	
<b>WSB-7-10 (P3I0207-10) Soil</b> Sampled: 09/02/03 16:00 Received: 09/04/03 10:00										
Diesel Range Organics	240		25.0 mg/kg dry		1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	72.3		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	89.8 %		50-150			"	"	"	"	
<b>WSB-6-14 (P3I0207-11) Soil</b> Sampled: 09/02/03 15:30 Received: 09/04/03 10:00										
Diesel Range Organics	265		25.0 mg/kg dry		1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	75.4		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	99.1 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Total Metals per EPA 6000/7000 Series Methods**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
			Limit	Units						
<b>WSB-2-14 (P3I0207-03) Soil</b> <b>Sampled: 09/02/03 12:50</b> <b>Received: 09/04/03 10:00</b>										
Silver	ND		0.431	mg/kg dry	1	3120913	12/23/03	12/24/03	EPA 6020	
Arsenic	5.27		0.385	"	"	3120748	12/18/03	12/19/03	"	
Barium	6500		19.2	"	50	"	"	12/19/03	"	B
Cadmium	ND		0.385	"	1	"	"	12/19/03	"	
Chromium	11.7		0.385	"	"	"	"	"	"	
Mercury	ND		0.0781	"	"	3120687	12/17/03	12/17/03	EPA 7471A	I-08
Lead	37.1		0.385	"	"	3120748	12/18/03	12/19/03	EPA 6020	
Selenium	0.411		0.385	"	"	"	"	12/19/03	"	
<b>WSB-2-8 (P3I0207-04) Soil</b> <b>Sampled: 09/02/03 12:30</b> <b>Received: 09/04/03 10:00</b>										
Silver	ND		0.500	mg/kg dry	1	3120913	12/23/03	12/24/03	EPA 6020	
Arsenic	4.30		0.289	"	"	3120748	12/18/03	12/19/03	"	
Barium	4680		5.78	"	20	"	"	12/19/03	"	B
Cadmium	ND		0.289	"	1	"	"	12/19/03	"	
Chromium	12.3		0.289	"	"	"	"	"	"	
Mercury	0.148		0.100	"	"	3120687	12/17/03	12/17/03	EPA 7471A	I-08
Lead	387		5.78	"	20	3120748	12/18/03	12/19/03	EPA 6020	
Selenium	0.457		0.289	"	1	"	"	12/19/03	"	
<b>WSB-5-10 (P3I0207-08) Soil</b> <b>Sampled: 09/02/03 14:45</b> <b>Received: 09/04/03 10:00</b>										
Silver	ND		0.500	mg/kg dry	1	3120913	12/23/03	12/24/03	EPA 6020	
Arsenic	9.35		0.338	"	"	3120748	12/18/03	12/19/03	"	
Barium	6340		6.76	"	20	"	"	12/19/03	"	B
Cadmium	0.345		0.338	"	1	"	"	12/19/03	"	
Chromium	19.0		0.338	"	"	"	"	"	"	
Mercury	0.0709		0.0641	"	"	3120687	12/17/03	12/17/03	EPA 7471A	I-08
Lead	29.4		0.338	"	"	3120748	12/18/03	12/19/03	EPA 6020	
Selenium	0.836		0.338	"	"	"	"	12/19/03	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Selected Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-1-10 (P3I0207-01) Soil</b> Sampled: 09/02/03 11:30 Received: 09/04/03 10:00										
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	U
Toluene	14.7	6.29	50.0	"	"	"	"	"	"	J
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	93.3 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	109 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	101 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	112 %		42.1-144			"	"	"	"	
<b>WSB-1-15 (P3I0207-02) Soil</b> Sampled: 09/02/03 11:45 Received: 09/04/03 10:00										
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	83.1 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	96.1 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	87.8 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	99.2 %		42.1-144			"	"	"	"	
<b>WSB-2-14 (P3I0207-03) Soil</b> Sampled: 09/02/03 12:50 Received: 09/04/03 10:00										
Benzene	ND	8.88	100	ug/kg dry	2	3090383	09/10/03	09/16/03	EPA 8260B	D, U
Toluene	ND	12.6	100	"	"	"	"	"	"	D, U
Ethylbenzene	687	18.8	100	"	"	"	"	"	"	D
Xylenes (total)	739	52.4	200	"	"	"	"	"	"	D
Surrogate: 4-BFB	73.2 %		42.6-130			"	"	"	"	D
Surrogate: 1,2-DCA-d4	80.9 %		57.3-144			"	"	"	"	D
Surrogate: Dibromofluoromethane	74.8 %		45.5-130			"	"	"	"	D
Surrogate: Toluene-d8	74.4 %		42.1-144			"	"	"	"	D

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:53

**Selected Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-2-8 (P3I0207-04) Soil</b> Sampled: 09/02/03 12:30 Received: 09/04/03 10:00										<b>R-05</b>
Benzene	ND	8.88	100	ug/kg dry	2	3090383	09/10/03	09/16/03	EPA 8260B	D, U
Toluene	ND	12.6	100	"	"	"	"	"	"	D, U
Ethylbenzene	178	18.8	100	"	"	"	"	"	"	D
Xylenes (total)	81.7	52.4	200	"	"	"	"	"	"	J, D
Surrogate: 4-BFB	80.5 %		42.6-130			"	"	"	"	D
Surrogate: 1,2-DCA-d4	82.8 %		57.3-144			"	"	"	"	D
Surrogate: Dibromofluoromethane	73.5 %		45.5-130			"	"	"	"	D
Surrogate: Toluene-d8	82.3 %		42.1-144			"	"	"	"	D
<b>WSB-3-10 (P3I0207-05) Soil</b> Sampled: 09/02/03 13:10 Received: 09/04/03 10:00										
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	91.4 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	102 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	93.2 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	106 %		42.1-144			"	"	"	"	
<b>WSB-3-16 (P3I0207-06) Soil</b> Sampled: 09/02/03 13:30 Received: 09/04/03 10:00										
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	80.3 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	90.2 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	82.6 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	95.1 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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 Environmental Laboratory Network





**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Selected Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-4-10 (P3I0207-07) Soil</b> Sampled: 09/02/03 14:00 Received: 09/04/03 10:00										
Benzene	ND	8.88	100	ug/kg dry	2	3090383	09/10/03	09/16/03	EPA 8260B	D, U
Toluene	ND	12.6	100	"	"	"	"	"	"	D, U
Ethylbenzene	299	18.8	100	"	"	"	"	"	"	D
Xylenes (total)	1360	52.4	200	"	"	"	"	"	"	D
Surrogate: 4-BFB	76.2 %		42.6-130			"	"	"	"	D
Surrogate: 1,2-DCA-d4	83.2 %		57.3-144			"	"	"	"	D
Surrogate: Dibromofluoromethane	82.0 %		45.5-130			"	"	"	"	D
Surrogate: Toluene-d8	77.0 %		42.1-144			"	"	"	"	D
<b>WSB-5-10 (P3I0207-08) Soil</b> Sampled: 09/02/03 14:45 Received: 09/04/03 10:00 <span style="float:right">I-02</span>										
Benzene	ND	8.88	100	ug/kg dry	2	3090383	09/10/03	09/17/03	EPA 8260B	D, U
Toluene	153	12.6	100	"	"	"	"	"	"	D
Ethylbenzene	221	18.8	100	"	"	"	"	"	"	D
Xylenes (total)	1650	52.4	200	"	"	"	"	"	"	D
Surrogate: 4-BFB	77.2 %		42.6-130			"	"	"	"	D
Surrogate: 1,2-DCA-d4	85.8 %		57.3-144			"	"	"	"	D
Surrogate: Dibromofluoromethane	82.3 %		45.5-130			"	"	"	"	D
Surrogate: Toluene-d8	77.6 %		42.1-144			"	"	"	"	D
<b>WSB-6-10 (P3I0207-09) Soil</b> Sampled: 09/02/03 15:20 Received: 09/04/03 10:00										
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	94.8 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	101 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	98.3 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	109 %		42.1-144			"	"	"	"	

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Emplre Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Selected Volatile Organic Compounds per EPA Method 8260B  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-7-10 (P3I0207-10) Soil</b> Sampled: 09/02/03 16:00 Received: 09/04/03 10:00										
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	96.4 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	105 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	96.4 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	109 %		42.1-144			"	"	"	"	
<b>WSB-6-14 (P3I0207-11) Soil</b> Sampled: 09/02/03 15:30 Received: 09/04/03 10:00										
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	86.6 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	92.9 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	87.9 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	97.3 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

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North Creek Analytical, Inc.  
 Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Semivolatile Organic Compounds per EPA Method 8270C**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-2-14 (P3I0207-03) Soil Sampled: 09/02/03 12:50 Received: 09/04/03 10:00 <span style="float:right">R-05</span>										
Acenaphthene	ND		16.5	mg/kg dry	5	3090304	09/08/03	09/17/03	EPA 8270C	
Acenaphthylene	ND		16.5	"	"	"	"	"	"	
Anthracene	ND		16.5	"	"	"	"	"	"	
Benzo (a) anthracene	ND		16.5	"	"	"	"	"	"	
Benzo (a) pyrene	ND		16.5	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		16.5	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		16.5	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		16.5	"	"	"	"	"	"	
Benzoic Acid	ND		50.0	"	"	"	"	"	"	
Benzyl alcohol	ND		16.5	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND		16.5	"	"	"	"	"	"	
Butyl benzyl phthalate	ND		16.5	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND		16.5	"	"	"	"	"	"	
4-Chloroaniline	ND		100	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND		16.5	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND		16.5	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND		16.5	"	"	"	"	"	"	
2-Chloronaphthalene	ND		16.5	"	"	"	"	"	"	
2-Chlorophenol	ND		16.5	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND		16.5	"	"	"	"	"	"	
Chrysene	ND		16.5	"	"	"	"	"	"	
Di-n-butyl phthalate	ND		50.0	"	"	"	"	"	"	
Di-n-octyl phthalate	ND		16.5	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		16.5	"	"	"	"	"	"	
Dibenzofuran	ND		16.5	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND		50.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND		50.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND		50.0	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND		50.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND		16.5	"	"	"	"	"	"	
Diethyl phthalate	ND		16.5	"	"	"	"	"	"	
2,4-Dimethylphenol	ND		50.0	"	"	"	"	"	"	
Dimethyl phthalate	ND		16.5	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND		50.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND		100	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND		25.0	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND		25.0	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.  
 Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:53

**Semivolatile Organic Compounds per EPA Method 8270C**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-2-14 (P3I0207-03) Soil Sampled: 09/02/03 12:50 Received: 09/04/03 10:00</b>										
Bis(2-ethylhexyl)phthalate	ND		100	mg/kg dry	5	3090304	09/08/03	09/17/03	EPA 8270C	
Fluoranthene	ND		16.5	"	"	"	"	"	"	
Fluorene	ND		16.5	"	"	"	"	"	"	
Hexachlorobenzene	ND		16.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND		50.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND		50.0	"	"	"	"	"	"	
Hexachloroethane	ND		50.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		16.5	"	"	"	"	"	"	
Isophorone	ND		16.5	"	"	"	"	"	"	
<b>2-Methylnaphthalene</b>	<b>61.9</b>		16.5	"	"	"	"	"	"	
2-Methylphenol	ND		16.5	"	"	"	"	"	"	
3,4-Methylphenol	ND		16.5	"	"	"	"	"	"	
<b>Naphthalene</b>	<b>23.8</b>		16.5	"	"	"	"	"	"	
2-Nitroaniline	ND		16.5	"	"	"	"	"	"	
3-Nitroaniline	ND		50.0	"	"	"	"	"	"	
4-Nitroaniline	ND		16.5	"	"	"	"	"	"	
Nitrobenzene	ND		16.5	"	"	"	"	"	"	
2-Nitrophenol	ND		16.5	"	"	"	"	"	"	
4-Nitrophenol	ND		50.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND		16.5	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND		16.5	"	"	"	"	"	"	
Pentachlorophenol	ND		50.0	"	"	"	"	"	"	
<b>Phenanthrene</b>	<b>41.0</b>		16.5	"	"	"	"	"	"	
Phenol	ND		16.5	"	"	"	"	"	"	
<b>Pyrene</b>	<b>18.1</b>		16.5	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND		16.5	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND		16.5	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND		16.5	"	"	"	"	"	"	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>125 %</i>		<i>44-146</i>							<i>J</i>
<i>Surrogate: 2-Fluorophenol</i>	<i>95.6 %</i>		<i>42-126</i>							<i>J</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>112 %</i>		<i>42-126</i>							<i>J</i>
<i>Surrogate: Phenol-d6</i>	<i>87.6 %</i>		<i>42-131</i>							<i>J</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>106 %</i>		<i>49-150</i>							<i>J</i>
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>71.3 %</i>		<i>48-119</i>							<i>J</i>

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 Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-4-10 (P3I0207-07) Soil Sampled: 09/02/03 14:00 Received: 09/04/03 10:00</b>										
Benzo (a) anthracene	ND		13.4	ug/kg dry	1	3090359	09/09/03	09/15/03	EPA 8270m	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	88.1 %		40-150			"	"	"	"	

North Creek Analytical - Portland

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 Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:53

**Percent Dry Weight (Solids) per Standard Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-1-10 (P3I0207-01) Soil</b> Sampled: 09/02/03 11:30 Received: 09/04/03 10:00										
% Solids	95.5		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-1-15 (P3I0207-02) Soil</b> Sampled: 09/02/03 11:45 Received: 09/04/03 10:00										
% Solids	78.7		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-2-14 (P3I0207-03) Soil</b> Sampled: 09/02/03 12:50 Received: 09/04/03 10:00										
% Solids	81.5		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-2-8 (P3I0207-04) Soil</b> Sampled: 09/02/03 12:30 Received: 09/04/03 10:00										
% Solids	93.0		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-3-10 (P3I0207-05) Soil</b> Sampled: 09/02/03 13:10 Received: 09/04/03 10:00										
% Solids	90.6		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-3-16 (P3I0207-06) Soil</b> Sampled: 09/02/03 13:30 Received: 09/04/03 10:00										
% Solids	75.8		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-4-10 (P3I0207-07) Soil</b> Sampled: 09/02/03 14:00 Received: 09/04/03 10:00										
% Solids	78.2		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-5-10 (P3I0207-08) Soil</b> Sampled: 09/02/03 14:45 Received: 09/04/03 10:00										
% Solids	86.1		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-6-10 (P3I0207-09) Soil</b> Sampled: 09/02/03 15:20 Received: 09/04/03 10:00										
% Solids	86.8		1.00% by Weigh		1	3090385	09/09/03	09/10/03	NCA SOP	

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:53

**Percent Dry Weight (Solids) per Standard Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-7-10 (P3I0207-10) Soil</b> Sampled: 09/02/03 16:00 Received: 09/04/03 10:00										
% Solids	79.2		1.00%	by Weigh	1	3090385	09/09/03	09/10/03	NCA SOP	
<b>WSB-6-14 (P3I0207-11) Soil</b> Sampled: 09/02/03 15:30 Received: 09/04/03 10:00										
% Solids	89.4		1.00%	by Weigh	1	3090385	09/09/03	09/10/03	NCA SOP	

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 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:53

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090351: Prepared 09/09/03 Using EPA 3550 Fuels**

**Blank (3090351-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	4.30			"	4.80		89.6	50-150			

**LCS (3090351-BS1)**

Diesel Range Organics	80.5		25.0	mg/kg	125		64.4	50-150			
Heavy Oil Range Hydrocarbons	54.5		50.0	"	75.0		72.7	50-150			
Surrogate: 1-Chlorooctadecane	3.59			"	4.80		74.8	50-150			

**Duplicate (3090351-DUP1)**

**Source: P3I0189-01**

Diesel Range Organics	ND		25.0	mg/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	4.59			"	5.29		86.8	50-150			

**Duplicate (3090351-DUP2)**

**Source: P3I0189-02**

Diesel Range Organics	ND		25.0	mg/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	4.24			"	5.18		81.9	50-150			

**Batch 3090412: Prepared 09/10/03 Using EPA 3550 Fuels**

**Blank (3090412-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	4.39			"	4.80		91.5	50-150			

**LCS (3090412-BS1)**

Diesel Range Organics	84.9		25.0	mg/kg	125		67.9	50-150			
Heavy Oil Range Hydrocarbons	74.4		50.0	"	75.0		99.2	50-150			
Surrogate: 1-Chlorooctadecane	4.48			"	4.80		93.3	50-150			

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 503.906.9200 fax 503.906.9210  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090412: Prepared 09/10/03 Using EPA 3550 Fuels**

**Duplicate (3090412-DUP1)**

**Source: P3I0103-03**

Diesel Range Organics	50.4		25.0 mg/kg dry			53.2			5.41	50	
Heavy Oil Range Hydrocarbons	489		50.0 "			485			0.821	50	
<i>Surrogate: 1-Chlorooctadecane</i>	4.25			"	5.48		77.6	50-150			

**Duplicate (3090412-DUP2)**

**Source: P3I0103-04**

Diesel Range Organics	44.2		25.0 mg/kg dry			86.8			65.0	50	Q-14
Heavy Oil Range Hydrocarbons	ND		50.0 "			ND			NA	50	
<i>Surrogate: 1-Chlorooctadecane</i>	6.40			"	6.90		92.8	50-150			

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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
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 Project Number: 036026.00  
 Project Manager: Galen Davis

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**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3120687: Prepared 12/17/03 Using EPA 7471**

**Blank (3120687-BLK1)**

Mercury ND 0.100 mg/kg

**LCS (3120687-BS1)**

Mercury 1.03 0.100 mg/kg 1.00 103 80-120

**Duplicate (3120687-DUP1)**

**Source: P3I0207-03**

Mercury 0.0475 0.100 mg/kg dry 0.0558 16.1 40

**Matrix Spike (3120687-MS1)**

**Source: P3I0207-03**

Mercury 1.14 0.0862 mg/kg dry 1.06 0.0558 102 75-125

**Batch 3120748: Prepared 12/18/03 Using EPA 3050**

**Blank (3120748-BLK2)**

Arsenic ND 0.500 mg/kg  
 Barium 0.775 0.500 "  
 Cadmium ND 0.500 "  
 Chromium ND 0.500 "  
 Lead ND 0.500 "  
 Selenium ND 0.500 "

B

**LCS (3120748-BS2)**

Arsenic 11.1 0.500 mg/kg 10.0 111 80-120  
 Barium 10.9 0.500 " 10.0 109 80-120  
 Cadmium 10.8 0.500 " 10.0 108 80-120  
 Chromium 11.2 0.500 " 10.0 112 80-120  
 Lead 10.1 0.500 " 10.0 101 80-120  
 Selenium 11.4 0.500 " 10.0 114 80-120

B

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003

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Project Number: 036026.00  
Project Manager: Galen Davis

Reported:  
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**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3120748: Prepared 12/18/03 Using EPA 3050**

**Duplicate (3120748-DUP1)**

Source: P310207-03

Arsenic	6.69		0.500 mg/kg dry			5.27			23.7	40	
Barium	7780		25.0 "			6500			17.9	40	B
Cadmium	ND		0.500 "			0.274				40	
Chromium	14.8		0.500 "			11.7			23.4	40	
Lead	33.7		0.500 "			37.1			9.60	40	
Selenium	0.608		0.500 "			0.411			38.7	40	

**Matrix Spike (3120748-MS1)**

Source: P310207-03

Arsenic	15.0		0.403 mg/kg dry		9.90	5.27	98.3	75-125			
Barium	8520		20.2 "		9.90	6500	20400	75-125			B, Q-07
Cadmium	11.9		0.403 "		9.90	0.274	117	75-125			
Chromium	26.9		0.403 "		9.90	11.7	154	75-125			Q-14
Lead	38.5		0.403 "		9.90	37.1	14.1	75-125			Q-02
Selenium	12.5		0.403 "		9.90	0.411	122	75-125			

**Matrix Spike (3120748-MS2)**

Source: P310207-04

Arsenic	11.3		0.292 mg/kg dry		6.29	4.30	111	75-125			
Barium	5700		5.85 "		6.29	4680	16200	75-125			B, Q-07
Cadmium	7.31		0.292 "		6.29	0.134	114	75-125			
Chromium	17.3		0.292 "		6.29	12.3	79.5	75-125			
Lead	25.7		5.85 "		6.29	387	-5740	75-125			Q-07
Selenium	7.53		0.292 "		6.29	0.457	112	75-125			

**Batch 3120913: Prepared 12/23/03 Using EPA 3050**

**Blank (3120913-BLK2)**

Silver	ND		0.500 mg/kg								
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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
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 907.563.9200 fax 907.563.9210

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 Project Number: 036026.00  
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**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 3120913: Prepared 12/23/03 Using EPA 3050</b>											
<b>LCS (3120913-BS2)</b>											
Silver	4.98		0.500	mg/kg	5.00		99.6	80-120			
<b>Duplicate (3120913-DUP1)</b>											
Silver	0.0986		0.500	mg/kg dry		0.0905			8.57	40	
<b>Matrix Spike (3120913-MS1)</b>											
Silver	4.74		0.355	mg/kg dry	4.72	0.0905	98.5	75-125			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
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 Project Manager: Galen Davis

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**Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090383: Prepared 09/10/03 Using EPA 5035**

**Blank (3090383-BLK1)**

1,2-Dibromoethane	ND	11.6	50.0	ug/kg							U
1,2-Dichloroethane	ND	11.2	50.0	"							U
Benzene	ND	4.44	50.0	"							U
Toluene	ND	6.29	50.0	"							U
Ethylbenzene	ND	9.40	50.0	"							U
Xylenes (total)	ND	26.2	100	"							U
Methyl tert-butyl ether	ND	11.9	200	"							U
Naphthalene	20.0	14.1	200	"							J
1,2,4-Trimethylbenzene	ND	6.75	100	"							U
1,3,5-Trimethylbenzene	ND	9.33	50.0	"							U
Isopropylbenzene	ND	9.55	200	"							U
n-Propylbenzene	ND	9.89	50.0	"							U
Surrogate: 4-BFB	1770			"	2000		88.5	42.6-130			
Surrogate: 1,2-DCA-d4	2190			"	2000		110	57.3-144			
Surrogate: Dibromofluoromethane	1950			"	2000		97.5	45.5-130			
Surrogate: Toluene-d8	2200			"	2000		110	42.1-144			

**LCS (3090383-BS1)**

Benzene	2760	4.44	50.0	ug/kg	2500	ND	110	81.9-125			
Toluene	2660	6.29	50.0	"	2500	14.7	106	80-125			
Surrogate: 4-BFB	1920			"	2000		96.0	42.6-130			
Surrogate: 1,2-DCA-d4	2320			"	2000		116	57.3-144			
Surrogate: Dibromofluoromethane	2170			"	2000		108	45.5-130			
Surrogate: Toluene-d8	2340			"	2000		117	42.1-144			

**Matrix Spike (3090383-MS1)**

Source: P3I0207-01

Benzene	2670	4.44	50.0	ug/kg dry	2620	ND	102	68.5-125			
Toluene	2640	6.29	50.0	"	2620	14.7	100	70.3-125			
Surrogate: 4-BFB	1910			"	2090		91.4	42.6-130			
Surrogate: 1,2-DCA-d4	2260			"	2090		108	57.3-144			
Surrogate: Dibromofluoromethane	2070			"	2090		99.0	45.5-130			
Surrogate: Toluene-d8	2250			"	2090		108	42.1-144			

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**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

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**Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting		Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
			Limit	Units							

**Batch 3090383: Prepared 09/10/03 Using EPA 5035**

**Matrix Spike Dup (3090383-MSD1)**

**Source: P3I0207-01**

Benzene	2690	4.44	50.0 ug/kg dry	2620	ND	103	68.5-125	0.746	25	
Toluene	2600	6.29	50.0 "	2620	14.7	98.7	70.3-125	1.53	25	
<i>Surrogate: 4-BFB</i>	<i>2000</i>		<i>"</i>	<i>2090</i>		<i>95.7</i>	<i>42.6-130</i>			
<i>Surrogate: 1,2-DCA-d4</i>	<i>2310</i>		<i>"</i>	<i>2090</i>		<i>111</i>	<i>57.3-144</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>2150</i>		<i>"</i>	<i>2090</i>		<i>103</i>	<i>45.5-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>2340</i>		<i>"</i>	<i>2090</i>		<i>112</i>	<i>42.1-144</i>			

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 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**Semivolatile Organic Compounds per EPA Method 8270C - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090304: Prepared 09/08/03 Using EPA 3550**

**Blank (3090304-BLK1)**

Acenaphthene	ND		0.330	mg/kg							
Acenaphthylene	ND		0.330	"							
Anthracene	ND		0.330	"							
Benzo (a) anthracene	ND		0.330	"							
Benzo (a) pyrene	ND		0.330	"							
Benzo (b) fluoranthene	ND		0.330	"							
Benzo (ghi) perylene	ND		0.330	"							
Benzo (k) fluoranthene	ND		0.330	"							
Benzoic Acid	ND		1.00	"							
Benzyl alcohol	ND		0.330	"							
4-Bromophenyl phenyl ether	ND		0.330	"							
Butyl benzyl phthalate	ND		0.330	"							
4-Chloro-3-methylphenol	ND		0.330	"							
4-Chloroaniline	ND		2.00	"							
Bis(2-chloroethoxy)methane	ND		0.330	"							
Bis(2-chloroethyl)ether	ND		0.330	"							
Bis(2-chloroisopropyl)ether	ND		0.330	"							
2-Chloronaphthalene	ND		0.330	"							
2-Chlorophenol	ND		0.330	"							
4-Chlorophenyl phenyl ether	ND		0.330	"							
Chrysene	ND		0.330	"							
Di-n-butyl phthalate	ND		1.00	"							
Di-n-octyl phthalate	ND		0.330	"							
Dibenzo (a,h) anthracene	ND		0.330	"							
Dibenzofuran	ND		0.330	"							
1,2-Dichlorobenzene	ND		1.00	"							
1,3-Dichlorobenzene	ND		1.00	"							
1,4-Dichlorobenzene	ND		1.00	"							
3,3'-Dichlorobenzidine	ND		1.00	"							
2,4-Dichlorophenol	ND		0.330	"							
Diethyl phthalate	ND		0.330	"							
2,4-Dimethylphenol	ND		1.00	"							

North Creek Analytical - Portland

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Semivolatile Organic Compounds per EPA Method 8270C - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090304: Prepared 09/08/03 Using EPA 3550**

**Blank (3090304-BLK1)**

Dimethyl phthalate	ND		0.330	mg/kg							
4,6-Dinitro-2-methylphenol	ND		1.00	"							
2,4-Dinitrophenol	ND		2.00	"							
2,4-Dinitrotoluene	ND		0.500	"							
2,6-Dinitrotoluene	ND		0.500	"							
Bis(2-ethylhexyl)phthalate	ND		2.00	"							
Fluoranthene	ND		0.330	"							
Fluorene	ND		0.330	"							
Hexachlorobenzene	ND		0.330	"							
Hexachlorobutadiene	ND		1.00	"							
Hexachlorocyclopentadiene	ND		1.00	"							
Hexachloroethane	ND		1.00	"							
Indeno (1,2,3-cd) pyrene	ND		0.330	"							
Isophorone	ND		0.330	"							
2-Methylnaphthalene	ND		0.330	"							
2-Methylphenol	ND		0.330	"							
3-,4-Methylphenol	ND		0.330	"							
Naphthalene	ND		0.330	"							
2-Nitroaniline	ND		0.330	"							
3-Nitroaniline	ND		1.00	"							
4-Nitroaniline	ND		0.330	"							
Nitrobenzene	ND		0.330	"							
2-Nitrophenol	ND		0.330	"							
4-Nitrophenol	ND		1.00	"							
N-Nitrosodi-n-propylamine	ND		0.330	"							
N-Nitrosodiphenylamine	ND		0.330	"							
Pentachlorophenol	ND		1.00	"							
Phenanthrene	ND		0.330	"							
Phenol	ND		0.330	"							
Pyrene	ND		0.330	"							
1,2,4-Trichlorobenzene	ND		0.330	"							
2,4,5-Trichlorophenol	ND		0.330	"							

North Creek Analytical - Portland

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 907.563.9200 fax 907.563.9210

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 Federal Way, WA 98003

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Reported:  
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**Semivolatile Organic Compounds per EPA Method 8270C - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090304: Prepared 09/08/03 Using EPA 3550**

**Blank (3090304-BLK1)**

2,4,6-Trichlorophenol	ND		0.330	mg/kg							
Surrogate: 2-Fluorobiphenyl	2.15			"	2.50		86.0	44-146			
Surrogate: 2-Fluorophenol	4.27			"	5.00		85.4	42-126			
Surrogate: Nitrobenzene-d5	2.09			"	2.50		83.6	42-126			
Surrogate: Phenol-d6	4.07			"	5.00		81.4	42-131			
Surrogate: p-Terphenyl-d14	2.10			"	2.50		84.0	49-150			
Surrogate: 2,4,6-Tribromophenol	3.70			"	5.00		74.0	48-119			

**LCS (3090304-BS1)**

Acenaphthene	2.05		0.330	mg/kg	2.50		82.0	30-115			
4-Chloro-3-methylphenol	4.07		0.330	"	5.00		81.4	40-110			
2-Chlorophenol	4.53		0.330	"	5.00		90.6	40-100			
1,4-Dichlorobenzene	1.72		1.00	"	2.50		68.8	10-100			
2,4-Dinitrotoluene	2.16		0.500	"	2.50		86.4	30-110			
4-Nitrophenol	3.95		1.00	"	5.00		79.0	30-130			
N-Nitrosodi-n-propylamine	2.37		0.330	"	2.50		94.8	30-110			
Pentachlorophenol	3.22		1.00	"	5.00		64.4	14-120			
Phenol	4.59		0.330	"	5.00		91.8	35-100			
Pyrene	2.03		0.330	"	2.50		81.2	30-115			
1,2,4-Trichlorobenzene	1.75		0.330	"	2.50		70.0	18-100			
Surrogate: 2-Fluorobiphenyl	2.15			"	2.50		86.0	44-146			
Surrogate: 2-Fluorophenol	4.50			"	5.00		90.0	42-126			
Surrogate: Nitrobenzene-d5	2.19			"	2.50		87.6	42-126			
Surrogate: Phenol-d6	4.62			"	5.00		92.4	42-131			
Surrogate: p-Terphenyl-d14	2.06			"	2.50		82.4	49-150			
Surrogate: 2,4,6-Tribromophenol	4.14			"	5.00		82.8	48-119			

**Matrix Spike (3090304-MS1)**

**Source: P310004-18**

Acenaphthene	2.25		0.330	mg/kg dry	2.87	ND	78.4	40-110			
4-Chloro-3-methylphenol	4.41		0.330	"	5.74	ND	76.8	40-110			
2-Chlorophenol	4.70		0.330	"	5.74	ND	81.9	40-100			
1,4-Dichlorobenzene	1.45		1.00	"	2.87	ND	50.5	10-100			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Semivolatile Organic Compounds per EPA Method 8270C - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090304: Prepared 09/08/03 Using EPA 3550**

**Matrix Spike (3090304-MS1)**

**Source: P3I0004-18**

2,4-Dinitrotoluene	2.40		0.500 mg/kg dry		2.87	ND	83.6	40-110			
4-Nitrophenol	4.18		1.00	"	5.74	ND	72.8	40-125			
N-Nitrosodi-n-propylamine	2.54		0.330	"	2.87	ND	88.5	30-110			
Pentachlorophenol	2.89		1.00	"	5.74	ND	50.3	25-110			
Phenol	7.26		1.32	"	5.74	ND	126	35-100			Q-14
Pyrene	2.25		0.330	"	2.87	ND	78.4	40-110			
1,2,4-Trichlorobenzene	1.69		0.330	"	2.87	ND	58.9	30-101			
Surrogate: 2-Fluorobiphenyl	2.33			"	2.87		81.2	44-146			
Surrogate: 2-Fluorophenol	4.70			"	5.74		81.9	42-126			
Surrogate: Nitrobenzene-d5	2.26			"	2.87		78.7	42-126			
Surrogate: Phenol-d6	4.75			"	5.74		82.8	42-131			
Surrogate: p-Terphenyl-d14	2.23			"	2.87		77.7	49-150			
Surrogate: 2,4,6-Tribromophenol	4.60			"	5.74		80.1	48-119			

**Matrix Spike Dup (3090304-MSD1)**

**Source: P3I0004-18**

Acenaphthene	2.37		0.330 mg/kg dry		2.87	ND	82.6	40-110	5.19	40	
4-Chloro-3-methylphenol	4.73		0.330	"	5.74	ND	82.4	40-110	7.00	40	
2-Chlorophenol	5.14		0.330	"	5.74	ND	89.5	40-100	8.94	40	
1,4-Dichlorobenzene	1.73		1.00	"	2.87	ND	60.3	10-100	17.6	60	
2,4-Dinitrotoluene	2.39		0.500	"	2.87	ND	83.3	40-110	0.418	40	
4-Nitrophenol	4.01		1.00	"	5.74	ND	69.9	40-125	4.15	40	
N-Nitrosodi-n-propylamine	2.75		0.330	"	2.87	ND	95.8	30-110	7.94	40	
Pentachlorophenol	3.63		1.00	"	5.74	ND	63.2	25-110	22.7	60	
Phenol	6.21		0.330	"	5.74	ND	108	35-100	15.6	40	Q-14
Pyrene	2.32		0.330	"	2.87	ND	80.8	40-110	3.06	40	
1,2,4-Trichlorobenzene	1.96		0.330	"	2.87	ND	68.3	30-101	14.8	60	
Surrogate: 2-Fluorobiphenyl	2.39			"	2.87		83.3	44-146			
Surrogate: 2-Fluorophenol	5.19			"	5.74		90.4	42-126			
Surrogate: Nitrobenzene-d5	2.45			"	2.87		85.4	42-126			
Surrogate: Phenol-d6	5.27			"	5.74		91.8	42-131			
Surrogate: p-Terphenyl-d14	2.31			"	2.87		80.5	49-150			
Surrogate: 2,4,6-Tribromophenol	4.61			"	5.74		80.3	48-119			

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425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100 Federal Way, WA 98003	Project: BNSF-Wishram Project Number: 036026.00 Project Manager: Galen Davis	Reported: 08/19/04 07:53
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**Semivolatile Organic Compounds per EPA Method 8270C - Quality Control  
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090304: Prepared 09/08/03 Using EPA 3550**

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:53

**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090359: Prepared 09/09/03 Using EPA 3550**

**Blank (3090359-BLK1)**

Acenaphthene	ND		13.4	ug/kg							
Acenaphthylene	ND		13.4	"							
Anthracene	ND		13.4	"							
Benzo (a) anthracene	ND		13.4	"							
Benzo (a) pyrene	ND		13.4	"							
Benzo (b) fluoranthene	ND		13.4	"							
Benzo (ghi) perylene	ND		13.4	"							
Benzo (k) fluoranthene	ND		13.4	"							
Chrysene	ND		13.4	"							
Dibenzo (a,h) anthracene	ND		13.4	"							
Fluoranthene	ND		13.4	"							
Fluorene	ND		13.4	"							
Indeno (1,2,3-cd) pyrene	ND		13.4	"							
Naphthalene	ND		13.4	"							
Phenanthrene	ND		13.4	"							
Pyrene	ND		13.4	"							
<i>Surrogate: Fluorene-d10</i>	<i>66.1</i>			"	<i>83.3</i>		<i>79.4</i>	<i>40-150</i>			
<i>Surrogate: Pyrene-d10</i>	<i>91.1</i>			"	<i>83.3</i>		<i>109</i>	<i>40-150</i>			
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>78.8</i>			"	<i>83.3</i>		<i>94.6</i>	<i>40-150</i>			

**LCS (3090359-BS1)**

Acenaphthene	140		13.4	ug/kg	167		83.8	33-139			
Benzo (a) pyrene	161		13.4	"	167		96.4	45-149			
Pyrene	151		13.4	"	167		90.4	39-138			
<i>Surrogate: Fluorene-d10</i>	<i>63.2</i>			"	<i>83.3</i>		<i>75.9</i>	<i>40-150</i>			
<i>Surrogate: Pyrene-d10</i>	<i>78.8</i>			"	<i>83.3</i>		<i>94.6</i>	<i>40-150</i>			
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>73.4</i>			"	<i>83.3</i>		<i>88.1</i>	<i>40-150</i>			

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Manager: Galen Davis

Reported:  
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**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 3090359: Prepared 09/09/03 Using EPA 3550**

**LCS Dup (3090359-BSD1)**

Acenaphthene	145		13.4	ug/kg	167		86.8	33-139	3.51	60	
Benzo (a) pyrene	163		13.4	"	167		97.6	45-149	1.23	60	
Pyrene	153		13.4	"	167		91.6	39-138	1.32	60	
Surrogate: Fluorene-d10	65.3			"	83.3		78.4	40-150			
Surrogate: Pyrene-d10	79.7			"	83.3		95.7	40-150			
Surrogate: Benzo (a) pyrene-d12	73.9			"	83.3		88.7	40-150			

**Matrix Spike (3090359-MS1)**

**Source: P3I0140-04**

**R-05**

Acenaphthene	200		26.8	ug/kg dry	192	ND	104	33-139			
Benzo (a) pyrene	196		26.8	"	192	ND	102	45-149			
Pyrene	219		26.8	"	192	35.8	95.4	39-138			
Surrogate: Fluorene-d10	89.1			"	96.0		92.8	40-150			
Surrogate: Pyrene-d10	98.4			"	96.0		102	40-150			
Surrogate: Benzo (a) pyrene-d12	84.6			"	96.0		88.1	40-150			

**Matrix Spike Dup (3090359-MSD1)**

**Source: P3I0140-04**

**R-05**

Acenaphthene	207		26.8	ug/kg dry	192	ND	108	33-139	3.44	60	
Benzo (a) pyrene	199		26.8	"	192	ND	104	45-149	1.52	60	
Pyrene	219		26.8	"	192	35.8	95.4	39-138	0.00	60	
Surrogate: Fluorene-d10	78.6			"	96.0		81.9	40-150			
Surrogate: Pyrene-d10	100			"	96.0		104	40-150			
Surrogate: Benzo (a) pyrene-d12	88.2			"	96.0		91.9	40-150			

North Creek Analytical - Portland

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 541.383.9310 fax 541.382.7588  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:53

**Percent Dry Weight (Solids) per Standard Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	Notes
<b>Batch 3090385: Prepared 09/09/03 Using Dry Weight</b>									
<b>Duplicate (3090385-DUP1)</b>					<b>Source: P3I0189-01</b>				
% Solids	90.7		1.00	% by Weight		90.7		0.00	20
<b>Duplicate (3090385-DUP2)</b>					<b>Source: P3I0189-04</b>				
% Solids	92.7		1.00	% by Weight		92.8		0.108	20
<b>Duplicate (3090385-DUP3)</b>					<b>Source: P3I0189-07</b>				
% Solids	95.0		1.00	% by Weight		94.9		0.105	20
<b>Duplicate (3090385-DUP4)</b>					<b>Source: P3I0189-08</b>				
% Solids	93.0		1.00	% by Weight		92.9		0.108	20

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.  
 Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003

Project: BNSF-Wishram  
Project Number: 036026.00  
Project Manager: Galen Davis

**Reported:**  
08/19/04 07:53

**Notes and Definitions**

- B Analyte detected in the method blank.
- D Data reported from a preparation or analytical dilution.
- I-02 This sample was analyzed outside of the EPA recommended holding time.
- I-08 Analysis requested after recommended hold time had expired.
- J Estimated value.
- Q-02 The matrix spike recovery, and/or RPD, for this QC sample is outside of established control limits due to sample matrix interference.
- Q-07 The matrix spike recovery, and/or RPD, for this QC sample is outside control limits due to sample dilution required from high analyte concentration and/or matrix interferences.
- Q-14 The matrix spike recovery, and/or RPD, for this QC sample is outside of control limits due to a non-homogeneous sample matrix.
- R-05 Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
- S-01 The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
- U Analyte included in the analysis but not detected.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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907.563.9200 fax 907.563.9210

19 August 2004

Galen Davis  
Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003  
RE: BNSF-Wishram

Enclosed are the results of analyses for samples received by the laboratory on 02/25/04 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Domenighini  
Project Manager





**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WSB-04-25-10	P4B0784-01	Soil	02/25/04 09:30	02/25/04 17:30
WSB-04-15-GW	P4B0784-02	Water	02/25/04 09:20	02/25/04 17:30
WSB-04-09-5	P4B0784-03	Soil	02/25/04 10:10	02/25/04 17:30
WSB-04-09-10	P4B0784-04	Soil	02/25/04 10:30	02/25/04 17:30
WSB-04-26-02	P4B0784-05	Soil	02/25/04 10:50	02/25/04 17:30
WSB-04-26-10	P4B0784-06	Soil	02/25/04 11:20	02/25/04 17:30
WSB-04-34-5	P4B0784-07	Soil	02/25/04 12:00	02/25/04 17:30
WSB-04-26-GW	P4B0784-08	Water	02/25/04 11:20	02/25/04 17:30
WSB-04-34-GW	P4B0784-09	Water	02/25/04 13:40	02/25/04 17:30
WSB-04-35-5	P4B0784-10	Soil	02/25/04 13:50	02/25/04 17:30
WSB-04-20-10	P4B0784-11	Soil	02/24/04 12:55	02/25/04 17:30
WSB-04-18-10	P4B0784-12	Soil	02/24/04 14:30	02/25/04 17:30
WSB-04-17-9	P4B0784-13	Soil	02/24/04 14:55	02/25/04 17:30
WSB-04-14-5	P4B0784-14	Soil	02/24/04 15:30	02/25/04 17:30
WSB-04-14-10	P4B0784-15	Soil	02/24/04 15:40	02/25/04 17:30
WSB-04-13-16	P4B0784-16	Soil	02/24/04 16:20	02/25/04 17:30
WSB-04-11-2	P4B0784-17	Soil	02/24/04 16:30	02/25/04 17:30
WSB-04-11-10	P4B0784-18	Soil	02/24/04 16:40	02/25/04 17:30
WSB-04-15-10	P4B0784-19	Soil	02/25/04 08:50	02/25/04 17:30
WSB-04-25-5	P4B0784-20	Soil	02/25/04 09:20	02/25/04 17:30
WSB-04-36-10	P4B0784-21	Soil	02/25/04 14:30	02/25/04 17:30
WSB-04-25-GW	P4B0784-22	Water	02/25/04 14:30	02/25/04 17:30
WSB-04-35-GW	P4B0784-23	Water	02/25/04 14:30	02/25/04 17:30

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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**Environmental Laboratory Network**



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Gasoline Hydrocarbons per NW TPH-Gx Method  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-09-5 (P4B0784-03) Soil</b> <b>Sampled: 02/25/04 10:10</b> <b>Received: 02/25/04 17:30</b>										
Gasoline Range Hydrocarbons	1210		40.0 mg/kg dry		10	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	94.3 %		50-150			"	"	"	"	
<b>WSB-04-09-10 (P4B0784-04) Soil</b> <b>Sampled: 02/25/04 10:30</b> <b>Received: 02/25/04 17:30</b>										
Gasoline Range Hydrocarbons	977		40.0 mg/kg dry		10	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	92.8 %		50-150			"	"	"	"	
<b>WSB-04-26-10 (P4B0784-06) Soil</b> <b>Sampled: 02/25/04 11:20</b> <b>Received: 02/25/04 17:30</b>										
Gasoline Range Hydrocarbons	606		40.0 mg/kg dry		10	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	105 %		50-150			"	"	"	"	
<b>WSB-04-20-10 (P4B0784-11) Soil</b> <b>Sampled: 02/24/04 12:55</b> <b>Received: 02/25/04 17:30</b>										
Gasoline Range Hydrocarbons	4.48		4.00 mg/kg dry		1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	96.4 %		50-150			"	"	"	"	
<b>WSB-04-14-10 (P4B0784-15) Soil</b> <b>Sampled: 02/24/04 15:40</b> <b>Received: 02/25/04 17:30</b>										
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry		1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	94.0 %		50-150			"	"	"	"	
<b>WSB-04-15-10 (P4B0784-19) Soil</b> <b>Sampled: 02/25/04 08:50</b> <b>Received: 02/25/04 17:30</b>										
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry		1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	92.2 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-15-GW (P4B0784-02) Water</b> Sampled: 02/25/04 09:20 Received: 02/25/04 17:30										
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/01/04	NW-G, 802	U
Toluene	ND	0.300	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.300	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.600	1.00	"	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"	"	"	"	"	"	U
Surrogate: 4-BFB (FID)	84.8 %		50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	98.8 %		70-130			"	"	"	"	
<b>WSB-04-26-GW (P4B0784-08) Water</b> Sampled: 02/25/04 11:20 Received: 02/25/04 17:30										
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/01/04	NW-G, 802	U
Toluene	ND	0.300	0.500	"	"	"	"	"	"	U
Ethylbenzene	0.709	0.300	0.500	"	"	"	"	"	"	
Xylenes (total)	6.40	0.600	1.00	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	140	50.0	80.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	99.4 %		50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	109 %		70-130			"	"	"	"	
<b>WSB-04-34-GW (P4B0784-09) Water</b> Sampled: 02/25/04 13:40 Received: 02/25/04 17:30										
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/01/04	NW-G, 802	U
Toluene	1.57	0.300	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.300	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.600	1.00	"	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"	"	"	"	"	"	U
Surrogate: 4-BFB (FID)	81.8 %		50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	96.2 %		70-130			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100 Federal Way, WA 98003	Project: BNSF-Wishram Project Number: 036026.00 Project Manager: Galen Davis	Reported: 08/19/04 07:49
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**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B  
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-25-GW (P4B0784-22) Water</b> <b>Sampled: 02/25/04 14:30</b> <b>Received: 02/25/04 17:30</b>										
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/01/04	NW-G, 802	U
Toluene	ND	0.300	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.300	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.600	1.00	"	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"	"	"	"	"	"	U
Surrogate: 4-BFB (FID)	84.4 %		50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	98.8 %		70-130			"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-25-10 (P4B0784-01) Soil</b> Sampled: 02/25/04 09:30 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4021023	02/26/04	02/26/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	88.2 %		50-150			"	"	"	"	
<b>WSB-04-15-GW (P4B0784-02) Water</b> Sampled: 02/25/04 09:20 Received: 02/25/04 17:30										
Diesel Range Organics	ND		250	mg/l	1	4021070	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		500	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	75.7 %		50-150			"	"	"	"	
<b>WSB-04-09-5 (P4B0784-03) Soil</b> Sampled: 02/25/04 10:10 Received: 02/25/04 17:30										
Diesel Range Organics	12100		125	mg/kg dry	5	4030063	03/02/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	604		250	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	415 %		50-150			"	"	"	"	S-02
<b>WSB-04-09-10 (P4B0784-04) Soil</b> Sampled: 02/25/04 10:30 Received: 02/25/04 17:30										
Diesel Range Organics	23900		250	mg/kg dry	10	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	602		500	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	763 %		50-150			"	"	"	"	S-02
<b>WSB-04-26-02 (P4B0784-05) Soil</b> Sampled: 02/25/04 10:50 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4021068	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	98.0 %		50-150			"	"	"	"	
<b>WSB-04-26-10 (P4B0784-06) Soil</b> Sampled: 02/25/04 11:20 Received: 02/25/04 17:30										
Diesel Range Organics	21100		6250	mg/kg dry	250	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	14000		12500	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	%		50-150			"	"	"	"	S-01

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100 Federal Way, WA 98003	Project: BNSF-Wishram Project Number: 036026.00 Project Manager: Galen Davis	Reported: 08/19/04 07:49
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**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-34-5 (P4B0784-07) Soil</b> Sampled: 02/25/04 12:00 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4021068	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	96.3 %		50-150			"	"	"	"	
<b>WSB-04-26-GW (P4B0784-08) Water</b> Sampled: 02/25/04 11:20 Received: 02/25/04 17:30										
Diesel Range Organics	483		250	mg/l	1	4021070	02/27/04	02/27/04	NWTPH-Dx	D-16
Heavy Oil Range Hydrocarbons	ND		500	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	92.9 %		50-150			"	"	"	"	
<b>WSB-04-34-GW (P4B0784-09) Water</b> Sampled: 02/25/04 13:40 Received: 02/25/04 17:30										
Diesel Range Organics	ND		250	mg/l	1	4021070	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		500	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	65.2 %		50-150			"	"	"	"	
<b>WSB-04-35-5 (P4B0784-10) Soil</b> Sampled: 02/25/04 13:50 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4021068	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	98.1 %		50-150			"	"	"	"	
<b>WSB-04-20-10 (P4B0784-11) Soil</b> Sampled: 02/24/04 12:55 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	94.5 %		50-150			"	"	"	"	
<b>WSB-04-18-10 (P4B0784-12) Soil</b> Sampled: 02/24/04 14:30 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	110		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	99.0 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-17-9 (P4B0784-13) Soil</b> Sampled: 02/24/04 14:55 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	96.9 %		50-150			"	"	"	"	
<b>WSB-04-14-5 (P4B0784-14) Soil</b> Sampled: 02/24/04 15:30 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	50.7		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	98.5 %		50-150			"	"	"	"	
<b>WSB-04-14-10 (P4B0784-15) Soil</b> Sampled: 02/24/04 15:40 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	98.1 %		50-150			"	"	"	"	
<b>WSB-04-13-16 (P4B0784-16) Soil</b> Sampled: 02/24/04 16:20 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4021068	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	96.2 %		50-150			"	"	"	"	
<b>WSB-04-11-2 (P4B0784-17) Soil</b> Sampled: 02/24/04 16:30 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	94.2 %		50-150			"	"	"	"	
<b>WSB-04-11-10 (P4B0784-18) Soil</b> Sampled: 02/24/04 16:40 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030004	03/01/04	03/01/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	101 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100 Federal Way, WA 98003	Project: BNSF-Wishram Project Number: 036026.00 Project Manager: Galen Davis	Reported: 08/19/04 07:49
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**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-15-10 (P4B0784-19) Soil</b> Sampled: 02/25/04 08:50 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	87.4 %		50-150			"	"	"	"	
<b>WSB-04-25-5 (P4B0784-20) Soil</b> Sampled: 02/25/04 09:20 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030004	03/01/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	101 %		50-150			"	"	"	"	
<b>WSB-04-36-10 (P4B0784-21) Soil</b> Sampled: 02/25/04 14:30 Received: 02/25/04 17:30										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030004	03/01/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	103 %		50-150			"	"	"	"	
<b>WSB-04-35-GW (P4B0784-23) Water</b> Sampled: 02/25/04 14:30 Received: 02/25/04 17:30										
Diesel Range Organics	ND		250	mg/l	1	4021070	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		500	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	82.5 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Total Metals per EPA 6000/7000 Series Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-34-GW (P4B0784-09) Water</b> Sampled: 02/25/04 13:40 Received: 02/25/04 17:30										
Silver	ND		0.00100	mg/l	1	4030213	03/05/04	03/06/04	EPA 6020	
Arsenic	0.00648		0.00100	"	"	"	"	"	"	
Barium	0.134		0.00100	"	"	"	"	"	"	
Cadmium	ND		0.00100	"	"	"	"	"	"	
Chromium	0.0104		0.00100	"	"	"	"	"	"	
Mercury	ND		0.000200	"	"	4030059	03/02/04	03/02/04	EPA 7470A	
Lead	0.00633		0.00100	"	"	4030213	03/05/04	03/06/04	EPA 6020	
Selenium	0.00146		0.00100	"	"	"	"	"	"	

<b>WSB-04-36-10 (P4B0784-21) Soil</b> Sampled: 02/25/04 14:30 Received: 02/25/04 17:30										
Silver	ND		0.373	mg/kg dry	1	4030219	03/05/04	03/07/04	EPA 6020	
Arsenic	1.69		0.373	"	"	"	"	"	"	
Barium	83.7		0.373	"	"	"	"	"	"	
Cadmium	ND		0.373	"	"	"	"	"	"	
Chromium	10.5		0.373	"	"	"	"	"	"	
Mercury	ND		0.0641	"	"	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	3.34		0.373	"	"	4030219	03/05/04	03/07/04	EPA 6020	
Selenium	ND		0.373	"	"	"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Polychlorinated Biphenyls per EPA Method 8082**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-25-5 (P4B0784-20) Soil Sampled: 02/25/04 09:20 Received: 02/25/04 17:30</b>										
Aroclor 1016	ND		67.0	ug/kg dry	1	4030010	03/01/04	03/02/04	EPA 8082	
Aroclor 1221	ND		134	"	"	"	"	"	"	
Aroclor 1232	ND		67.0	"	"	"	"	"	"	
Aroclor 1242	ND		67.0	"	"	"	"	"	"	
Aroclor 1248	ND		67.0	"	"	"	"	"	"	
Aroclor 1254	ND		67.0	"	"	"	"	"	"	
Aroclor 1260	ND		67.0	"	"	"	"	"	"	
<i>Surrogate: 2,4,5,6-Tetrachloro-m-λ</i>	111 %		36-140			"	"	"	"	
<i>Surrogate: Decachlorobiphenyl</i>	95.0 %		16-149			"	"	"	"	
<b>WSB-04-25-GW (P4B0784-22) Water Sampled: 02/25/04 14:30 Received: 02/25/04 17:30</b>										
Aroclor 1016	ND		0.500	ug/l	1	4030020	03/01/04	03/06/04	EPA 8082	
Aroclor 1221	ND		1.00	"	"	"	"	"	"	
Aroclor 1232	ND		0.500	"	"	"	"	"	"	
Aroclor 1242	ND		0.500	"	"	"	"	"	"	
Aroclor 1248	ND		0.500	"	"	"	"	"	"	
Aroclor 1254	ND		0.500	"	"	"	"	"	"	
Aroclor 1260	ND		0.500	"	"	"	"	"	"	
<i>Surrogate: 2,4,5,6-Tetrachloro-m-λ</i>	87.9 %		16-137			"	"	"	"	
<i>Surrogate: Decachlorobiphenyl</i>	64.0 %		12-130			"	"	"	"	

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Lisa Domenighini, Project Manager

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
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**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-34-GW (P4B0784-09) Water Sampled: 02/25/04 13:40 Received: 02/25/04 17:30</b>										
Acetone	ND	2.34	25.0	ug/l	1	4030075	03/02/04	03/02/04	EPA 8260B	U
Benzene	ND	0.147	1.00	"	"	"	"	"	"	U
Bromobenzene	ND	0.333	1.00	"	"	"	"	"	"	U
Bromochloromethane	ND	0.266	1.00	"	"	"	"	"	"	U
Bromodichloromethane	ND	0.183	1.00	"	"	"	"	"	"	U
Bromoform	ND	0.174	1.00	"	"	"	"	"	"	U
Bromomethane	ND	0.282	5.00	"	"	"	"	"	"	U
2-Butanone	ND	1.60	10.0	"	"	"	"	"	"	U
n-Butylbenzene	ND	0.183	5.00	"	"	"	"	"	"	U
sec-Butylbenzene	ND	0.193	1.00	"	"	"	"	"	"	U
tert-Butylbenzene	ND	0.206	1.00	"	"	"	"	"	"	U
Carbon disulfide	ND	0.233	10.0	"	"	"	"	"	"	U
Carbon tetrachloride	ND	0.140	1.00	"	"	"	"	"	"	U
Chlorobenzene	ND	0.136	1.00	"	"	"	"	"	"	U
Chloroethane	ND	0.327	1.00	"	"	"	"	"	"	U
Chloroform	ND	0.143	1.00	"	"	"	"	"	"	U
Chloromethane	ND	0.159	5.00	"	"	"	"	"	"	U
2-Chlorotoluene	ND	0.110	1.00	"	"	"	"	"	"	U
4-Chlorotoluene	ND	0.120	1.00	"	"	"	"	"	"	U
1,2-Dibromo-3-chloropropane	ND	0.405	5.00	"	"	"	"	"	"	U
Dibromochloromethane	ND	0.133	1.00	"	"	"	"	"	"	U
1,2-Dibromoethane	ND	0.187	1.00	"	"	"	"	"	"	U
Dibromomethane	ND	0.117	1.00	"	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	0.0859	1.00	"	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	0.132	1.00	"	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	0.187	1.00	"	"	"	"	"	"	U
Dichlorodifluoromethane	ND	0.312	5.00	"	"	"	"	"	"	U
1,1-Dichloroethane	ND	0.157	1.00	"	"	"	"	"	"	U
1,2-Dichloroethane	ND	0.142	1.00	"	"	"	"	"	"	U
1,1-Dichloroethene	ND	0.197	1.00	"	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	0.170	1.00	"	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	0.175	1.00	"	"	"	"	"	"	U
1,2-Dichloropropane	ND	0.266	1.00	"	"	"	"	"	"	U
1,3-Dichloropropane	ND	0.151	1.00	"	"	"	"	"	"	U
2,2-Dichloropropane	ND	0.104	1.00	"	"	"	"	"	"	U
1,1-Dichloropropene	ND	0.149	1.00	"	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	0.128	1.00	"	"	"	"	"	"	U

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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-34-GW (P4B0784-09) Water</b> <b>Sampled: 02/25/04 13:40</b> <b>Received: 02/25/04 17:30</b>										
trans-1,3-Dichloropropene	ND	0.152	1.00	ug/l	1	4030075	03/02/04	03/02/04	EPA 8260B	U
Ethylbenzene	ND	0.110	1.00	"	"	"	"	"	"	U
Hexachlorobutadiene	ND	0.878	2.00	"	"	"	"	"	"	U
2-Hexanone	ND	1.10	10.0	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
p-Isopropyltoluene	ND	0.149	2.00	"	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	1.49	5.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	1.00	"	"	"	"	"	"	U
Methylene chloride	ND	2.50	5.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	1.00	"	"	"	"	"	"	U
Styrene	ND	0.0723	1.00	"	"	"	"	"	"	U
1,1,1,2-Tetrachloroethane	ND	0.148	1.00	"	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	0.294	1.00	"	"	"	"	"	"	U
Tetrachloroethene	ND	0.109	1.00	"	"	"	"	"	"	U
<b>Toluene</b>	<b>2.14</b>	0.155	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	0.219	1.00	"	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	0.213	1.00	"	"	"	"	"	"	U
1,1,1-Trichloroethane	ND	0.0859	1.00	"	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	0.301	1.00	"	"	"	"	"	"	U
Trichloroethene	ND	0.241	1.00	"	"	"	"	"	"	U
Trichlorofluoromethane	ND	0.160	1.00	"	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	0.365	1.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	1.00	"	"	"	"	"	"	U
Vinyl chloride	ND	0.152	1.00	"	"	"	"	"	"	U
o-Xylene	ND	0.187	1.00	"	"	"	"	"	"	U
m,p-Xylene	ND	0.295	2.00	"	"	"	"	"	"	U
Surrogate: 4-BFB	97.0 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	101 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	100 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	100 %		80-120			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-36-10 (P4B0784-21) Soil Sampled: 02/25/04 14:30 Received: 02/25/04 17:30</b>										
Acetone	ND	144	2500	ug/kg dry	1	4021053	02/26/04	02/27/04	EPA 8260B	U
Benzene	ND	4.44	100	"	"	"	"	"	"	U
Bromobenzene	ND	12.2	100	"	"	"	"	"	"	U
Bromochloromethane	ND	16.4	100	"	"	"	"	"	"	U
Bromodichloromethane	ND	10.2	100	"	"	"	"	"	"	U
Bromoform	ND	15.8	100	"	"	"	"	"	"	U
Bromomethane	ND	5.09	500	"	"	"	"	"	"	U
2-Butanone	ND	148	1000	"	"	"	"	"	"	U
n-Butylbenzene	ND	11.3	500	"	"	"	"	"	"	U
sec-Butylbenzene	ND	7.45	100	"	"	"	"	"	"	U
tert-Butylbenzene	ND	15.2	100	"	"	"	"	"	"	U
Carbon disulfide	ND	7.19	1000	"	"	"	"	"	"	U
Carbon tetrachloride	ND	7.64	100	"	"	"	"	"	"	U
Chlorobenzene	ND	8.09	100	"	"	"	"	"	"	U
Chloroethane	ND	10.7	100	"	"	"	"	"	"	U
Chloroform	ND	7.26	100	"	"	"	"	"	"	U
Chloromethane	ND	6.72	500	"	"	"	"	"	"	U
2-Chlorotoluene	ND	11.0	100	"	"	"	"	"	"	U
4-Chlorotoluene	ND	10.4	100	"	"	"	"	"	"	U
1,2-Dibromo-3-chloropropane	ND	26.0	500	"	"	"	"	"	"	U
Dibromochloromethane	ND	11.2	100	"	"	"	"	"	"	U
1,2-Dibromoethane	ND	11.6	100	"	"	"	"	"	"	U
Dibromomethane	ND	14.7	100	"	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	14.4	100	"	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	5.86	100	"	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	14.9	100	"	"	"	"	"	"	U
Dichlorodifluoromethane	ND	11.8	500	"	"	"	"	"	"	U
1,1-Dichloroethane	ND	11.9	100	"	"	"	"	"	"	U
1,2-Dichloroethane	ND	11.2	100	"	"	"	"	"	"	U
1,1-Dichloroethene	ND	11.9	100	"	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	12.6	100	"	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	8.97	100	"	"	"	"	"	"	U
1,2-Dichloropropane	ND	7.45	100	"	"	"	"	"	"	U
1,3-Dichloropropane	ND	17.4	100	"	"	"	"	"	"	U
2,2-Dichloropropane	ND	8.09	100	"	"	"	"	"	"	U
1,1-Dichloropropene	ND	10.9	100	"	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	4.95	100	"	"	"	"	"	"	U

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-36-10 (P4B0784-21) Soil Sampled: 02/25/04 14:30 Received: 02/25/04 17:30</b>										
trans-1,3-Dichloropropene	ND	8.29	100	ug/kg dry	1	4021053	02/26/04	02/27/04	EPA 8260B	U
Ethylbenzene	ND	9.40	100	"	"	"	"	"	"	U
Hexachlorobutadiene	ND	69.4	200	"	"	"	"	"	"	U
2-Hexanone	ND	57.2	1000	"	"	"	"	"	"	U
Isopropylbenzene	ND	9.55	200	"	"	"	"	"	"	U
p-Isopropyltoluene	ND	9.68	200	"	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	117	500	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	11.9	100	"	"	"	"	"	"	U
Methylene chloride	ND	250	500	"	"	"	"	"	"	U
Naphthalene	ND	14.1	200	"	"	"	"	"	"	U
n-Propylbenzene	ND	9.89	100	"	"	"	"	"	"	U
Styrene	ND	8.89	100	"	"	"	"	"	"	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	"	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	21.1	100	"	"	"	"	"	"	U
Tetrachloroethene	ND	16.9	100	"	"	"	"	"	"	U
Toluene	ND	6.29	100	"	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	16.9	100	"	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	21.4	100	"	"	"	"	"	"	U
1,1,1-Trichloroethane	ND	6.13	100	"	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	18.1	100	"	"	"	"	"	"	U
Trichloroethene	ND	12.0	100	"	"	"	"	"	"	U
Trichlorofluoromethane	ND	8.97	100	"	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	49.2	100	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	6.75	100	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	9.33	100	"	"	"	"	"	"	U
Vinyl chloride	ND	5.74	100	"	"	"	"	"	"	U
o-Xylene	ND	11.6	100	"	"	"	"	"	"	U
m,p-Xylene	ND	11.4	200	"	"	"	"	"	"	U
Surrogate: 4-BFB	106 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	118 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	106 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	122 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-35-GW (P4B0784-23) Water Sampled: 02/25/04 14:30 Received: 02/25/04 17:30</b>										
Acetone	ND	2.34	25.0	ug/l	1	4030075	03/02/04	03/02/04	EPA 8260B	U
Benzene	ND	0.147	1.00	"	"	"	"	"	"	U
Bromobenzene	ND	0.333	1.00	"	"	"	"	"	"	U
Bromochloromethane	ND	0.266	1.00	"	"	"	"	"	"	U
Bromodichloromethane	ND	0.183	1.00	"	"	"	"	"	"	U
Bromoform	ND	0.174	1.00	"	"	"	"	"	"	U
Bromomethane	ND	0.282	5.00	"	"	"	"	"	"	U
2-Butanone	ND	1.60	10.0	"	"	"	"	"	"	U
n-Butylbenzene	ND	0.183	5.00	"	"	"	"	"	"	U
sec-Butylbenzene	ND	0.193	1.00	"	"	"	"	"	"	U
tert-Butylbenzene	ND	0.206	1.00	"	"	"	"	"	"	U
Carbon disulfide	ND	0.233	10.0	"	"	"	"	"	"	U
Carbon tetrachloride	ND	0.140	1.00	"	"	"	"	"	"	U
Chlorobenzene	ND	0.136	1.00	"	"	"	"	"	"	U
Chloroethane	ND	0.327	1.00	"	"	"	"	"	"	U
Chloroform	ND	0.143	1.00	"	"	"	"	"	"	U
Chloromethane	ND	0.159	5.00	"	"	"	"	"	"	U
2-Chlorotoluene	ND	0.110	1.00	"	"	"	"	"	"	U
4-Chlorotoluene	ND	0.120	1.00	"	"	"	"	"	"	U
1,2-Dibromo-3-chloropropane	ND	0.405	5.00	"	"	"	"	"	"	U
Dibromochloromethane	ND	0.133	1.00	"	"	"	"	"	"	U
1,2-Dibromoethane	ND	0.187	1.00	"	"	"	"	"	"	U
Dibromomethane	ND	0.117	1.00	"	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	0.0859	1.00	"	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	0.132	1.00	"	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	0.187	1.00	"	"	"	"	"	"	U
Dichlorodifluoromethane	ND	0.312	5.00	"	"	"	"	"	"	U
1,1-Dichloroethane	ND	0.157	1.00	"	"	"	"	"	"	U
1,2-Dichloroethane	ND	0.142	1.00	"	"	"	"	"	"	U
1,1-Dichloroethene	ND	0.197	1.00	"	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	0.170	1.00	"	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	0.175	1.00	"	"	"	"	"	"	U
1,2-Dichloropropane	ND	0.266	1.00	"	"	"	"	"	"	U
1,3-Dichloropropane	ND	0.151	1.00	"	"	"	"	"	"	U
2,2-Dichloropropane	ND	0.104	1.00	"	"	"	"	"	"	U
1,1-Dichloropropene	ND	0.149	1.00	"	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	0.128	1.00	"	"	"	"	"	"	U

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-35-GW (P4B0784-23) Water</b> <b>Sampled: 02/25/04 14:30</b> <b>Received: 02/25/04 17:30</b>										
trans-1,3-Dichloropropene	ND	0.152	1.00	ug/l	1	4030075	03/02/04	03/02/04	EPA 8260B	U
Ethylbenzene	ND	0.110	1.00	"	"	"	"	"	"	U
Hexachlorobutadiene	ND	0.878	2.00	"	"	"	"	"	"	U
2-Hexanone	ND	1.10	10.0	"	"	"	"	"	"	U
Isopropylbenzene	ND	0.107	2.00	"	"	"	"	"	"	U
p-Isopropyltoluene	ND	0.149	2.00	"	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	1.49	5.00	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	0.0865	1.00	"	"	"	"	"	"	U
Methylene chloride	ND	2.50	5.00	"	"	"	"	"	"	U
Naphthalene	ND	0.0989	2.00	"	"	"	"	"	"	U
n-Propylbenzene	ND	0.138	1.00	"	"	"	"	"	"	U
Styrene	ND	0.0723	1.00	"	"	"	"	"	"	U
1,1,1,2-Tetrachloroethane	ND	0.148	1.00	"	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	0.294	1.00	"	"	"	"	"	"	U
Tetrachloroethene	ND	0.109	1.00	"	"	"	"	"	"	U
Toluene	ND	0.155	1.00	"	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	0.219	1.00	"	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	0.213	1.00	"	"	"	"	"	"	U
1,1,1-Trichloroethane	ND	0.0859	1.00	"	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	0.301	1.00	"	"	"	"	"	"	U
Trichloroethene	ND	0.241	1.00	"	"	"	"	"	"	U
Trichlorofluoromethane	ND	0.160	1.00	"	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	0.365	1.00	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	0.157	1.00	"	"	"	"	"	"	U
Vinyl chloride	ND	0.152	1.00	"	"	"	"	"	"	U
o-Xylene	ND	0.187	1.00	"	"	"	"	"	"	U
m,p-Xylene	ND	0.295	2.00	"	"	"	"	"	"	U
Surrogate: 4-BFB	93.5 %		75-120			"	"	"	"	
Surrogate: 1,2-DCA-d4	94.5 %		77-129			"	"	"	"	
Surrogate: Dibromofluoromethane	97.0 %		80-121			"	"	"	"	
Surrogate: Toluene-d8	97.0 %		80-120			"	"	"	"	

North Creek Analytical - Portland

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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Selected Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-09-5 (P4B0784-03) Soil</b> <b>Sampled: 02/25/04 10:10</b> <b>Received: 02/25/04 17:30</b>										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	286	9.40	50.0	"	"	"	"	"	"	
Xylenes (total)	514	26.2	100	"	"	"	"	"	"	
Surrogate: 4-BFB	87.2 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	90.7 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	80.5 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	96.5 %		42.1-144			"	"	"	"	
<b>WSB-04-09-10 (P4B0784-04) Soil</b> <b>Sampled: 02/25/04 10:30</b> <b>Received: 02/25/04 17:30</b>										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	2030	9.40	50.0	"	"	"	"	"	"	
Xylenes (total)	2980	26.2	100	"	"	"	"	"	"	
Surrogate: 4-BFB	87.5 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	89.7 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	80.2 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	93.5 %		42.1-144			"	"	"	"	
<b>WSB-04-26-10 (P4B0784-06) Soil</b> <b>Sampled: 02/25/04 11:20</b> <b>Received: 02/25/04 17:30</b>										
Benzene	39.3	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	J
Toluene	87.4	6.29	50.0	"	"	"	"	"	"	
Ethylbenzene	623	9.40	50.0	"	"	"	"	"	"	
Xylenes (total)	1470	26.2	100	"	"	"	"	"	"	
Surrogate: 4-BFB	103 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	103 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	93.2 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	103 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Selected Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-20-10 (P4B0784-11) Soil</b> <b>Sampled: 02/24/04 12:55</b> <b>Received: 02/25/04 17:30</b>										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	71.6 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	79.7 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	74.3 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	83.3 %		42.1-144			"	"	"	"	
<b>WSB-04-14-10 (P4B0784-15) Soil</b> <b>Sampled: 02/24/04 15:40</b> <b>Received: 02/25/04 17:30</b>										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	67.6 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	75.5 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	68.0 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	80.5 %		42.1-144			"	"	"	"	
<b>WSB-04-15-10 (P4B0784-19) Soil</b> <b>Sampled: 02/25/04 08:50</b> <b>Received: 02/25/04 17:30</b>										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	68.9 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	78.7 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	69.8 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	80.4 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-17-9 (P4B0784-13) Soil</b> <b>Sampled: 02/24/04 14:55</b> <b>Received: 02/25/04 17:30</b> <b>R-05</b>										
Acenaphthene	ND		33.5	ug/kg dry	1	4030067	03/02/04	03/05/04	EPA 8270m	
Acenaphthylene	ND		33.5	"	"	"	"	"	"	
Anthracene	ND		33.5	"	"	"	"	"	"	
Benzo (a) anthracene	ND		33.5	"	"	"	"	"	"	
Benzo (a) pyrene	ND		33.5	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		33.5	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		33.5	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		33.5	"	"	"	"	"	"	
Chrysene	ND		33.5	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		33.5	"	"	"	"	"	"	
Fluoranthene	ND		33.5	"	"	"	"	"	"	
Fluorene	ND		33.5	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		33.5	"	"	"	"	"	"	
Naphthalene	ND		33.5	"	"	"	"	"	"	
Phenanthrene	ND		33.5	"	"	"	"	"	"	
Pyrene	ND		33.5	"	"	"	"	"	"	
<i>Surrogate: Fluorene-d10</i>	87.2 %		40-150			"	"	"	"	
<i>Surrogate: Pvrene-d10</i>	92.9 %		40-150			"	"	"	"	
<i>Surrogate: Benzo (a) pyrene-d12</i>	97.4 %		40-150			"	"	"	"	

<b>WSB-04-14-10 (P4B0784-15) Soil</b> <b>Sampled: 02/24/04 15:40</b> <b>Received: 02/25/04 17:30</b>										
Acenaphthene	ND		13.4	ug/kg dry	1	4030067	03/02/04	03/05/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

**North Creek Analytical, Inc.**  
**Environmental Laboratory Network**



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-14-10 (P4B0784-15) Soil</b> <b>Sampled: 02/24/04 15:40</b> <b>Received: 02/25/04 17:30</b>										
Surrogate: Fluorene-d10	76.0 %		40-150			4030067	03/02/04	03/05/04	EPA 8270m	
Surrogate: Pyrene-d10	81.0 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	87.2 %		40-150			"	"	"	"	
<b>WSB-04-11-10 (P4B0784-18) Soil</b> <b>Sampled: 02/24/04 16:40</b> <b>Received: 02/25/04 17:30</b>										
Acenaphthene	ND		13.4	ug/kg dry	1	4030067	03/02/04	03/05/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	
Surrogate: Fluorene-d10	78.9 %		40-150			"	"	"	"	
Surrogate: Pyrene-d10	82.2 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	86.7 %		40-150			"	"	"	"	

North Creek Analytical - Portland

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
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 Federal Way, WA 98003

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 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-36-10 (P4B0784-21) Soil Sampled: 02/25/04 14:30 Received: 02/25/04 17:30</b>										
Acenaphthene	ND		13.4	ug/kg dry	1	4030067	03/02/04	03/05/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	
Surrogate: Fluorene-d10	80.5 %		40-150			"	"	"	"	
Surrogate: Pyrene-d10	87.9 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	94.7 %		40-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Percent Dry Weight (Solids) per Standard Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-25-10 (P4B0784-01) Soil</b> <b>Sampled: 02/25/04 09:30</b> <b>Received: 02/25/04 17:30</b>										
% Solids	89.9		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-09-5 (P4B0784-03) Soil</b> <b>Sampled: 02/25/04 10:10</b> <b>Received: 02/25/04 17:30</b>										
% Solids	88.5		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-09-10 (P4B0784-04) Soil</b> <b>Sampled: 02/25/04 10:30</b> <b>Received: 02/25/04 17:30</b>										
% Solids	86.1		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-26-02 (P4B0784-05) Soil</b> <b>Sampled: 02/25/04 10:50</b> <b>Received: 02/25/04 17:30</b>										
% Solids	95.5		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-26-10 (P4B0784-06) Soil</b> <b>Sampled: 02/25/04 11:20</b> <b>Received: 02/25/04 17:30</b>										
% Solids	91.5		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-34-5 (P4B0784-07) Soil</b> <b>Sampled: 02/25/04 12:00</b> <b>Received: 02/25/04 17:30</b>										
% Solids	92.5		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-35-5 (P4B0784-10) Soil</b> <b>Sampled: 02/25/04 13:50</b> <b>Received: 02/25/04 17:30</b>										
% Solids	92.0		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-20-10 (P4B0784-11) Soil</b> <b>Sampled: 02/24/04 12:55</b> <b>Received: 02/25/04 17:30</b>										
% Solids	90.2		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-18-10 (P4B0784-12) Soil</b> <b>Sampled: 02/24/04 14:30</b> <b>Received: 02/25/04 17:30</b>										
% Solids	95.7		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	

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 Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
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Project: BNSF-Wishram  
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 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Percent Dry Weight (Solids) per Standard Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-17-9 (P4B0784-13) Soil</b> Sampled: 02/24/04 14:55 Received: 02/25/04 17:30										
% Solids	87.0		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-14-5 (P4B0784-14) Soil</b> Sampled: 02/24/04 15:30 Received: 02/25/04 17:30										
% Solids	89.4		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-14-10 (P4B0784-15) Soil</b> Sampled: 02/24/04 15:40 Received: 02/25/04 17:30										
% Solids	83.0		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-13-16 (P4B0784-16) Soil</b> Sampled: 02/24/04 16:20 Received: 02/25/04 17:30										
% Solids	91.1		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-11-2 (P4B0784-17) Soil</b> Sampled: 02/24/04 16:30 Received: 02/25/04 17:30										
% Solids	92.7		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-11-10 (P4B0784-18) Soil</b> Sampled: 02/24/04 16:40 Received: 02/25/04 17:30										
% Solids	83.5		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-15-10 (P4B0784-19) Soil</b> Sampled: 02/25/04 08:50 Received: 02/25/04 17:30										
% Solids	85.0		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-25-5 (P4B0784-20) Soil</b> Sampled: 02/25/04 09:20 Received: 02/25/04 17:30										
% Solids	92.7		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	
<b>WSB-04-36-10 (P4B0784-21) Soil</b> Sampled: 02/25/04 14:30 Received: 02/25/04 17:30										
% Solids	90.3		1.00% by Weigh		1	4030089	03/02/04	03/03/04	NCA SOP	

North Creek Analytical - Portland

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4030051: Prepared 03/01/04 Using EPA 5035</b>											
<b>Blank (4030051-BLK1)</b>											
Gasoline Range Hydrocarbons	ND		4.00	mg/kg							
Surrogate: a,a,a-TFT	2.39			"	2.50		95.6	50-150			
<b>LCS (4030051-BS1)</b>											
Gasoline Range Hydrocarbons	58.6		4.00	mg/kg	62.5		93.8	70-130			
Surrogate: a,a,a-TFT	2.22			"	2.50		88.8	50-150			
<b>Duplicate (4030051-DUP1)</b>						<b>Source: P4B0633-02</b>					
Gasoline Range Hydrocarbons	ND		4.00	mg/kg dry		ND			NA	40	
Surrogate: a,a,a-TFT	2.79			"	3.01		92.7	50-150			
<b>Duplicate (4030051-DUP2)</b>						<b>Source: P4B0846-02</b>					
Gasoline Range Hydrocarbons	ND		4.00	mg/kg dry		ND			NA	40	
Surrogate: a,a,a-TFT	2.50			"	2.68		93.3	50-150			
<b>Matrix Spike (4030051-MS1)</b>						<b>Source: P4B0784-03</b>					
Gasoline Range Hydrocarbons	1250		40.0	mg/kg dry	70.6	1210	56.7	65-130			Q-99
Surrogate: a,a,a-TFT	2.49			"	2.82		88.3	50-150			

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030037: Prepared 03/01/04 Using EPA 5030B**

**Blank (4030037-BLK1)**

Benzene	ND	0.300	0.500	ug/l							U
Toluene	ND	0.300	0.500	"							U
Ethylbenzene	ND	0.300	0.500	"							U
Xylenes (total)	ND	0.600	1.00	"							U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"							U
Surrogate: 4-BFB (FID)	39.9			"	50.0		79.8	50-150			
Surrogate: 4-BFB (PID)	46.4			"	50.0		92.8	70-130			

**LCS (4030037-BS1)**

Benzene	53.6	0.300	0.500	ug/l	50.0		107	70-130			
Toluene	53.8	0.300	0.500	"	50.0		108	70-130			
Ethylbenzene	52.7	0.300	0.500	"	50.0		105	70-130			
Xylenes (total)	150	0.600	1.00	"	150		100	70-130			
Surrogate: 4-BFB (PID)	50.8			"	50.0		102	70-130			

**LCS (4030037-BS2)**

Gasoline Range Hydrocarbons	916	50.0	80.0	ug/l	1500		61.1	50-150			
Surrogate: 4-BFB (FID)	42.4			"	50.0		84.8	50-150			

**Duplicate (4030037-DUP2)**

**Source: P4B0784-08**

Gasoline Range Hydrocarbons	203	50.0	80.0	ug/l		140			36.7	50	
Surrogate: 4-BFB (FID)	48.9			"	50.0		97.8	50-150			

**Matrix Spike (4030037-MS1)**

**Source: P4B0717-01**

Benzene	49.7	0.300	0.500	ug/l	50.0	ND	99.4	70-130			
Toluene	49.9	0.300	0.500	"	50.0	ND	99.8	70-130			
Ethylbenzene	49.3	0.300	0.500	"	50.0	ND	98.6	70-130			
Xylenes (total)	141	0.600	1.00	"	150	ND	94.0	70-130			
Surrogate: 4-BFB (PID)	49.4			"	50.0		98.8	70-130			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030037: Prepared 03/01/04 Using EPA 5030B**

**Matrix Spike Dup (4030037-MSD1)**

**Source: P4B0717-01**

Benzene	45.8	0.300	0.500	ug/l	50.0	ND	91.6	70-130	8.17	20	
Toluene	45.9	0.300	0.500	"	50.0	ND	91.8	70-130	8.35	20	
Ethylbenzene	45.3	0.300	0.500	"	50.0	ND	90.6	70-130	8.46	20	
Xylenes (total)	131	0.600	1.00	"	150	ND	87.3	70-130	7.35	20	
Surrogate: 4-BFB (PID)	52.1			"	50.0		104	70-130			

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 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021023: Prepared 02/26/04 Using EPA 3550 Fuels**

**Blank (4021023-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	4.68			"	4.80		97.5	50-150			

**LCS (4021023-BS1)**

Diesel Range Organics	127		25.0	mg/kg	125		102	50-150			
Heavy Oil Range Hydrocarbons	82.8		50.0	"	75.0		110	50-150			
Surrogate: 1-Chlorooctadecane	4.49			"	4.80		93.5	50-150			

**Duplicate (4021023-DUP1)**

**Source: P4B0632-14**

Diesel Range Organics	ND		25.0	mg/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	4.83			"	5.11		94.5	50-150			

**Duplicate (4021023-DUP2)**

**Source: P4B0636-04**

Diesel Range Organics	5550		94.3	mg/kg dry		6300			12.7	50	
Heavy Oil Range Hydrocarbons	492		189	"		596			19.1	50	
Surrogate: 1-Chlorooctadecane	17.0			"	18.1		93.9	50-150			

**Batch 4021068: Prepared 02/27/04 Using EPA 3550 Fuels**

**Blank (4021068-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	4.63			"	4.80		96.5	50-150			

**LCS (4021068-BS1)**

Diesel Range Organics	138		25.0	mg/kg	125		110	50-150			
Heavy Oil Range Hydrocarbons	84.0		50.0	"	75.0		112	50-150			
Surrogate: 1-Chlorooctadecane	5.13			"	4.80		107	50-150			

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 425.420.9200 fax 425.420.9210  
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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021068: Prepared 02/27/04 Using EPA 3550 Fuels**

<b>Duplicate (4021068-DUP1)</b>			<b>Source: P4B0813-01</b>								
Diesel Range Organics	ND		25.0 mg/kg dry			ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0 "			ND			NA	50	
Surrogate: 1-Chlorooctadecane	5.19			"	5.56		93.3	50-150			

<b>Duplicate (4021068-DUP2)</b>			<b>Source: P4B0813-02</b>								
Diesel Range Organics	ND		25.0 mg/kg dry			ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0 "			ND			NA	50	
Surrogate: 1-Chlorooctadecane	5.14			"	5.51		93.3	50-150			

**Batch 4021070: Prepared 02/27/04 Using EPA 3510 Fuels**

<b>Blank (4021070-BLK1)</b>											
Diesel Range Organics	ND		0.250 mg/l								
Heavy Oil Range Hydrocarbons	ND		0.500 "								
Surrogate: 1-Chlorooctadecane	0.0909			"	0.0960		94.7	50-150			

<b>LCS (4021070-BS1)</b>											
Diesel Range Organics	2.17		0.250 mg/l		2.50		86.8	50-150			
Heavy Oil Range Hydrocarbons	1.45		0.500 "		1.50		96.7	50-150			
Surrogate: 1-Chlorooctadecane	0.0935			"	0.0960		97.4	50-150			

<b>LCS Dup (4021070-BSD1)</b>											
Diesel Range Organics	2.08		0.250 mg/l		2.50		83.2	50-150	4.24	50	
Heavy Oil Range Hydrocarbons	1.49		0.500 "		1.50		99.3	50-150	2.72	50	
Surrogate: 1-Chlorooctadecane	0.0951			"	0.0960		99.1	50-150			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030004: Prepared 03/01/04 Using EPA 3550 Fuels**

**Blank (4030004-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	5.11			"	4.80		106	50-150			

**LCS (4030004-BS1)**

Diesel Range Organics	117		25.0	mg/kg	125		93.6	50-150			
Heavy Oil Range Hydrocarbons	80.9		50.0	"	75.0		108	50-150			
Surrogate: 1-Chlorooctadecane	5.10			"	4.80		106	50-150			

**Duplicate (4030004-DUP1)**

**Source: P4B0784-18**

Diesel Range Organics	ND		25.0	mg/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	5.83			"	5.75		101	50-150			

**Duplicate (4030004-DUP2)**

**Source: P4B0784-20**

Diesel Range Organics	ND		25.0	mg/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	5.25			"	5.18		101	50-150			

**Batch 4030063: Prepared 03/02/04 Using EPA 3550 Fuels**

**Blank (4030063-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	3.79			"	4.80		79.0	50-150			

**LCS (4030063-BS1)**

Diesel Range Organics	105		25.0	mg/kg	125		84.0	50-150			
Heavy Oil Range Hydrocarbons	76.7		50.0	"	75.0		102	50-150			
Surrogate: 1-Chlorooctadecane	4.79			"	4.80		99.8	50-150			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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**Reported:**  
 08/19/04 07:49

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030063: Prepared 03/02/04 Using EPA 3550 Fuels**

**Duplicate (4030063-DUP1)**

**Source: P4B0846-01**

Diesel Range Organics	15.0		25.0 mg/kg dry			20.9			32.9	50	
Heavy Oil Range Hydrocarbons	85.4		50.0	"		111			26.1	50	
Surrogate: 1-Chlorooctadecane	4.87			"	5.23		93.1	50-150			

**Duplicate (4030063-DUP2)**

**Source: P4B0846-03**

Diesel Range Organics	ND		25.0 mg/kg dry			ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	4.08			"	5.22		78.2	50-150			

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4030035: Prepared 03/01/04 Using EPA 7471</b>											
<b>Blank (4030035-BLK1)</b>											
Mercury	ND		0.100	mg/kg							
<b>LCS (4030035-BS1)</b>											
Mercury	0.994		0.100	mg/kg	1.00		99.4	80-120			
<b>Duplicate (4030035-DUP1) Source: P4B0773-01</b>											
Mercury	0.0825		0.0862	mg/kg dry		0.0708			15.3	40	
<b>Matrix Spike (4030035-MS1) Source: P4B0773-01</b>											
Mercury	0.930		0.0658	mg/kg dry	0.872	0.0708	98.5	75-125			
<b>Matrix Spike (4030035-MS2) Source: P4B0773-02</b>											
Mercury	2.43		0.229	mg/kg dry	2.29	0.157	99.3	75-125			
<b>Batch 4030059: Prepared 03/02/04 Using EPA 7470A</b>											
<b>Blank (4030059-BLK1)</b>											
Mercury	ND		0.000200	mg/l							
<b>LCS (4030059-BS1)</b>											
Mercury	0.00510		0.000200	mg/l	0.00500		102	85-115			
<b>Duplicate (4030059-DUP1) Source: P4B0784-09</b>											
Mercury	ND		0.000200	mg/l		ND			NA	20	
<b>Matrix Spike (4030059-MS1) Source: P4B0784-09</b>											
Mercury	0.00518		0.000200	mg/l	0.00500	ND	104	75-125			

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509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
503.906.9200 fax 503.906.9210  
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541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003

Project: BNSF-Wishram  
Project Number: 036026.00  
Project Manager: Galen Davis

Reported:  
08/19/04 07:49

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030213: Prepared 03/05/04 Using EPA 200/3005**

**Blank (4030213-BLK1)**

Silver	ND		0.00100	mg/l							
Arsenic	ND		0.00100	"							
Barium	ND		0.00100	"							
Cadmium	ND		0.00100	"							
Chromium	ND		0.00100	"							
Lead	ND		0.00100	"							
Selenium	ND		0.00100	"							

**LCS (4030213-BS1)**

Silver	0.0490		0.00100	mg/l	0.0500		98.0	80-120			
Arsenic	0.0922		0.00100	"	0.100		92.2	80-120			
Barium	0.0927		0.00100	"	0.100		92.7	80-120			
Cadmium	0.0913		0.00100	"	0.100		91.3	80-120			
Chromium	0.0966		0.00100	"	0.100		96.6	80-120			
Lead	0.0956		0.00100	"	0.100		95.6	80-120			
Selenium	0.0893		0.00100	"	0.100		89.3	80-120			

**Duplicate (4030213-DUP1)**

Source: P4B0783-01

Silver	ND		0.00100	mg/l		ND			NA	20	
Arsenic	ND		0.00100	"		ND			NA	20	
Barium	0.0124		0.00100	"		0.0119			4.12	20	
Cadmium	ND		0.00100	"		ND			NA	20	
Chromium	0.00358		0.00100	"		0.00360			0.557	20	
Lead	0.00829		0.00100	"		0.00852			2.74	20	
Selenium	ND		0.00100	"		ND			NA	20	

**Matrix Spike (4030213-MS1)**

Source: P4B0783-01

Silver	0.0498		0.00100	mg/l	0.0500	ND	99.6	75-125			
Arsenic	0.0970		0.00100	"	0.100	ND	97.0	75-125			
Barium	0.108		0.00100	"	0.100	0.0119	96.1	75-125			
Cadmium	0.0965		0.00100	"	0.100	ND	96.5	75-125			
Chromium	0.104		0.00100	"	0.100	0.00360	100	75-125			
Lead	0.106		0.00100	"	0.100	0.00852	97.5	75-125			
Selenium	0.0948		0.00100	"	0.100	ND	94.8	75-125			

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030213: Prepared 03/05/04 Using EPA 200/3005**

**Matrix Spike (4030213-MS2)**

**Source: P4B0783-03**

Silver	0.0490		0.00100	mg/l	0.0500	ND	98.0	75-125			
Arsenic	0.0943		0.00100	"	0.100	ND	94.3	75-125			
Barium	0.103		0.00100	"	0.100	0.0103	92.7	75-125			
Cadmium	0.0965		0.00100	"	0.100	ND	96.5	75-125			
Chromium	0.101		0.00100	"	0.100	0.00317	97.8	75-125			
Lead	0.102		0.00100	"	0.100	0.00693	95.1	75-125			
Selenium	0.0940		0.00100	"	0.100	ND	94.0	75-125			

**Batch 4030219: Prepared 03/05/04 Using EPA 3050**

**Blank (4030219-BLK2)**

Silver	ND		0.500	mg/kg							
Arsenic	ND		0.500	"							
Barium	ND		0.500	"							
Cadmium	ND		0.500	"							
Chromium	ND		0.500	"							
Lead	ND		0.500	"							
Selenium	ND		0.500	"							

**LCS (4030219-BS2)**

Silver	5.66		0.500	mg/kg	5.00		113	80-120			
Arsenic	11.1		0.500	"	10.0		111	80-120			
Barium	10.7		0.500	"	10.0		107	80-120			
Cadmium	10.5		0.500	"	10.0		105	80-120			
Chromium	11.2		0.500	"	10.0		112	80-120			
Lead	10.5		0.500	"	10.0		105	80-120			
Selenium	10.8		0.500	"	10.0		108	80-120			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030219: Prepared 03/05/04 Using EPA 3050**

**Duplicate (4030219-DUP1)**

**Source: P4C0117-01**

Silver	0.0864		0.350 mg/kg dry			0.0661			26.6	40	
Arsenic	4.47		0.350	"		4.41			1.35	40	
Barium	199		0.350	"		211			5.85	40	
Cadmium	ND		0.699	"		ND			NA	40	
Chromium	23.2		0.350	"		22.1			4.86	40	
Lead	9.41		0.350	"		8.23			13.4	40	
Selenium	0.405		0.350	"		ND				40	

**Matrix Spike (4030219-MS1)**

**Source: P4C0117-01**

Silver	7.38		0.500 mg/kg dry		6.25	0.0661	117	75-125			
Arsenic	16.9		0.500	"	12.5	4.41	99.9	75-125			
Barium	198		0.500	"	12.5	211	-104	75-125			Q-14
Cadmium	13.0		0.500	"	12.5	ND	104	75-125			
Chromium	34.2		0.500	"	12.5	22.1	96.8	75-125			
Lead	21.6		0.500	"	12.5	8.23	107	75-125			
Selenium	12.1		0.500	"	12.5	ND	96.8	75-125			

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
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 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Polychlorinated Biphenyls per EPA Method 8082 - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030010: Prepared 03/01/04 Using EPA 3550**

**Blank (4030010-BLK1)**

Aroclor 1016	ND		67.0	ug/kg							
Aroclor 1221	ND		134	"							
Aroclor 1232	ND		67.0	"							
Aroclor 1242	ND		67.0	"							
Aroclor 1248	ND		67.0	"							
Aroclor 1254	ND		67.0	"							
Aroclor 1260	ND		67.0	"							
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene</i>	30.2			"	33.3		90.7	36-140			
<i>Surrogate: Decachlorobiphenyl</i>	29.8			"	33.3		89.5	16-149			

**LCS (4030010-BS1)**

Aroclor 1016	315		67.0	ug/kg	333		94.6	57-135			
Aroclor 1260	384		67.0	"	333		115	60-135			
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene</i>	33.8			"	33.3		102	36-140			
<i>Surrogate: Decachlorobiphenyl</i>	34.2			"	33.3		103	16-149			

**Matrix Spike (4030010-MS1)**

**Source: P4B0568-48**

Aroclor 1016	294		67.0	ug/kg dry	399	ND	73.7	37-145			
Aroclor 1260	320		67.0	"	399	ND	80.2	25-144			
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene</i>	33.1			"	39.9		83.0	36-140			
<i>Surrogate: Decachlorobiphenyl</i>	29.2			"	39.9		73.2	16-149			

**Matrix Spike Dup (4030010-MSD1)**

**Source: P4B0568-48**

Aroclor 1016	321		67.0	ug/kg dry	399	ND	80.5	37-145	8.78	26	
Aroclor 1260	322		67.0	"	399	ND	80.7	25-144	0.623	30	
<i>Surrogate: 2,4,5,6-Tetrachloro-m-xylene</i>	36.6			"	39.9		91.7	36-140			
<i>Surrogate: Decachlorobiphenyl</i>	29.0			"	39.9		72.7	16-149			

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 425.420.9200 fax 425.420.9210  
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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Emplre Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Polychlorinated Biphenyls per EPA Method 8082 - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030020: Prepared 03/01/04 Using EPA 3510/600 Series**

**Blank (4030020-BLK1)**

Aroclor 1016	ND		0.500	ug/l							
Aroclor 1221	ND		1.00	"							
Aroclor 1232	ND		0.500	"							
Aroclor 1242	ND		0.500	"							
Aroclor 1248	ND		0.500	"							
Aroclor 1254	ND		0.500	"							
Aroclor 1260	ND		0.500	"							
<i>Surrogate:</i> 2,4,5,6-Tetrachloro-m-xylene	0.476			"	0.500		95.2	16-137			
<i>Surrogate: Decachlorobiphenyl</i>	0.378			"	0.500		75.6	12-130			

**LCS (4030020-BS1)**

Aroclor 1016	4.59		0.500	ug/l	5.00		91.8	57-122			
Aroclor 1260	4.79		0.500	"	5.00		95.8	62-120			
<i>Surrogate:</i> 2,4,5,6-Tetrachloro-m-xylene	0.484			"	0.500		96.8	16-137			
<i>Surrogate: Decachlorobiphenyl</i>	0.378			"	0.500		75.6	12-130			

**LCS Dup (4030020-BSD1)**

Aroclor 1016	4.77		0.500	ug/l	5.00		95.4	57-122	3.85	22	
Aroclor 1260	4.81		0.500	"	5.00		96.2	62-120	0.417	23	
<i>Surrogate:</i> 2,4,5,6-Tetrachloro-m-xylene	0.496			"	0.500		99.2	16-137			
<i>Surrogate: Decachlorobiphenyl</i>	0.381			"	0.500		76.2	12-130			

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Emplre Avenue, Sulte F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Notes
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**Batch 4021053: Prepared 02/26/04 Using EPA 5035**

**Blank (4021053-BLK1)**

Acetone	ND	144	2500	ug/kg						U
Benzene	ND	4.44	100	"						U
Bromobenzene	ND	12.2	100	"						U
Bromochloromethane	ND	16.4	100	"						U
Bromodichloromethane	ND	10.2	100	"						U
Bromoform	ND	15.8	100	"						U
Bromomethane	ND	5.09	500	"						U
2-Butanone	ND	148	1000	"						U
n-Butylbenzene	ND	11.3	500	"						U
sec-Butylbenzene	ND	7.45	100	"						U
tert-Butylbenzene	ND	15.2	100	"						U
Carbon disulfide	ND	7.19	1000	"						U
Carbon tetrachloride	ND	7.64	100	"						U
Chlorobenzene	ND	8.09	100	"						U
Chloroethane	ND	10.7	100	"						U
Chloroform	ND	7.26	100	"						U
Chloromethane	ND	6.72	500	"						U
2-Chlorotoluene	ND	11.0	100	"						U
4-Chlorotoluene	ND	10.4	100	"						U
1,2-Dibromo-3-chloropropane	ND	26.0	500	"						U
Dibromochloromethane	ND	11.2	100	"						U
1,2-Dibromoethane	ND	11.6	100	"						U
Dibromomethane	ND	14.7	100	"						U
1,2-Dichlorobenzene	ND	14.4	100	"						U
1,3-Dichlorobenzene	ND	5.86	100	"						U
1,4-Dichlorobenzene	ND	14.9	100	"						U
Dichlorodifluoromethane	ND	11.8	500	"						U
1,1-Dichloroethane	ND	11.9	100	"						U
1,2-Dichloroethane	ND	11.2	100	"						U
1,1-Dichloroethene	ND	11.9	100	"						U
cis-1,2-Dichloroethene	ND	12.6	100	"						U
trans-1,2-Dichloroethene	ND	8.97	100	"						U

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 541.383.9310 fax 541.382.7588  
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 907.563.9200 fax 907.563.9210

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 Federal Way, WA 98003

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 Project Manager: Galen Davis

Reported:  
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**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Notes
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**Batch 4021053: Prepared 02/26/04 Using EPA 5035**

**Blank (4021053-BLK1)**

1,2-Dichloropropane	ND	7.45	100	ug/kg					U
1,3-Dichloropropane	ND	17.4	100	"					U
2,2-Dichloropropane	ND	8.09	100	"					U
1,1-Dichloropropene	ND	10.9	100	"					U
cis-1,3-Dichloropropene	ND	4.95	100	"					U
trans-1,3-Dichloropropene	ND	8.29	100	"					U
Ethylbenzene	ND	9.40	100	"					U
Hexachlorobutadiene	ND	69.4	200	"					U
2-Hexanone	ND	57.2	1000	"					U
Isopropylbenzene	ND	9.55	200	"					U
p-Isopropyltoluene	ND	9.68	200	"					U
4-Methyl-2-pentanone	ND	117	500	"					U
Methyl tert-butyl ether	ND	11.9	100	"					U
Methylene chloride	ND	250	500	"					U
Naphthalene	ND	14.1	200	"					U
n-Propylbenzene	ND	9.89	100	"					U
Styrene	ND	8.89	100	"					U
1,1,1,2-Tetrachloroethane	ND	9.25	100	"					U
1,1,2,2-Tetrachloroethane	ND	21.1	100	"					U
Tetrachloroethene	ND	16.9	100	"					U
Toluene	ND	6.29	100	"					U
1,2,3-Trichlorobenzene	ND	16.9	100	"					U
1,2,4-Trichlorobenzene	ND	21.4	100	"					U
1,1,1-Trichloroethane	ND	6.13	100	"					U
1,1,2-Trichloroethane	ND	18.1	100	"					U
Trichloroethene	ND	12.0	100	"					U
Trichlorofluoromethane	ND	8.97	100	"					U
1,2,3-Trichloropropane	ND	49.2	100	"					U
1,2,4-Trimethylbenzene	ND	6.75	100	"					U
1,3,5-Trimethylbenzene	ND	9.33	100	"					U
Vinyl chloride	ND	5.74	100	"					U
o-Xylene	ND	11.6	100	"					U

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021053: Prepared 02/26/04 Using EPA 5035**

**Blank (4021053-BLK1)**

m,p-Xylene	ND	11.4	200	ug/kg							U
Surrogate: 4-BFB	1940			"	2000		97.0	42.6-130			
Surrogate: 1,2-DCA-d4	2290			"	2000		114	57.3-144			
Surrogate: Dibromofluoromethane	2140			"	2000		107	45.5-130			
Surrogate: Toluene-d8	2100			"	2000		105	42.1-144			

**LCS (4021053-BS1)**

Benzene	1980	4.44	100	ug/kg	2000		99.0	81.9-125			
Chlorobenzene	2000	8.09	100	"	2000		100	79.2-125			
1,1-Dichloroethene	1950	11.9	100	"	2000		97.5	66.1-125			
Toluene	1990	6.29	100	"	2000		99.5	80-125			
Trichloroethene	1940	12.0	100	"	2000		97.0	76-125			
Surrogate: 4-BFB	2040			"	2000		102	42.6-130			
Surrogate: 1,2-DCA-d4	2330			"	2000		116	57.3-144			
Surrogate: Dibromofluoromethane	2280			"	2000		114	45.5-130			
Surrogate: Toluene-d8	2280			"	2000		114	42.1-144			

**Matrix Spike (4021053-MS1)**

**Source: P4B0733-01**

Benzene	2670	4.44	100	ug/kg dry	2710	ND	98.5	68.5-125			
Chlorobenzene	2680	8.09	100	"	2710	ND	98.9	65.9-125			
1,1-Dichloroethene	2530	11.9	100	"	2710	ND	93.4	55.8-125			
Toluene	2660	6.29	100	"	2710	ND	98.2	70.3-125			
Trichloroethene	2760	12.0	100	"	2710	ND	102	65.5-125			
Surrogate: 4-BFB	2830			"	2710		104	42.6-130			
Surrogate: 1,2-DCA-d4	3210			"	2710		118	57.3-144			
Surrogate: Dibromofluoromethane	3200			"	2710		118	45.5-130			
Surrogate: Toluene-d8	3290			"	2710		121	42.1-144			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021053: Prepared 02/26/04 Using EPA 5035**

**Matrix Spike Dup (4021053-MSD1)**

**Source: P4B0733-01**

Benzene	2440	4.44	100 ug/kg dry	2710	ND	90.0	68.5-125	9.00	25		
Chlorobenzene	2440	8.09	100	"	2710	ND	65.9-125	9.38	25		
1,1-Dichloroethene	2300	11.9	100	"	2710	ND	55.8-125	9.52	25		
Toluene	2440	6.29	100	"	2710	ND	70.3-125	8.63	25		
Trichloroethene	2490	12.0	100	"	2710	ND	65.5-125	10.3	25		
Surrogate: 4-BFB	2940			"	2710		108	42.6-130			
Surrogate: 1,2-DCA-d4	3500			"	2710		129	57.3-144			
Surrogate: Dibromofluoromethane	3390			"	2710		125	45.5-130			
Surrogate: Toluene-d8	3520			"	2710		130	42.1-144			

**Batch 4030075: Prepared 03/02/04 Using EPA 5030B**

**Blank (4030075-BLK1)**

Acetone	ND	2.34	25.0	ug/l							U
Benzene	ND	0.147	1.00	"							U
Bromobenzene	ND	0.333	1.00	"							U
Bromochloromethane	ND	0.266	1.00	"							U
Bromodichloromethane	ND	0.183	1.00	"							U
Bromoform	ND	0.174	1.00	"							U
Bromomethane	ND	0.282	5.00	"							U
2-Butanone	ND	1.60	10.0	"							U
n-Butylbenzene	ND	0.183	5.00	"							U
sec-Butylbenzene	ND	0.193	1.00	"							U
tert-Butylbenzene	ND	0.206	1.00	"							U
Carbon disulfide	ND	0.233	10.0	"							U
Carbon tetrachloride	ND	0.140	1.00	"							U
Chlorobenzene	ND	0.136	1.00	"							U
Chloroethane	ND	0.327	1.00	"							U
Chloroform	ND	0.143	1.00	"							U
Chloromethane	ND	0.159	5.00	"							U
2-Chlorotoluene	ND	0.110	1.00	"							U
4-Chlorotoluene	ND	0.120	1.00	"							U
1,2-Dibromo-3-chloropropane	ND	0.405	5.00	"							U

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
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**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030075: Prepared 03/02/04 Using EPA 5030B**

**Blank (4030075-BLK1)**

Dibromochloromethane	ND	0.133	1.00	ug/l							U
1,2-Dibromoethane	ND	0.187	1.00	"							U
Dibromomethane	ND	0.117	1.00	"							U
1,2-Dichlorobenzene	ND	0.0859	1.00	"							U
1,3-Dichlorobenzene	ND	0.132	1.00	"							U
1,4-Dichlorobenzene	ND	0.187	1.00	"							U
Dichlorodifluoromethane	ND	0.312	5.00	"							U
1,1-Dichloroethane	ND	0.157	1.00	"							U
1,2-Dichloroethane	ND	0.142	1.00	"							U
1,1-Dichloroethene	ND	0.197	1.00	"							U
cis-1,2-Dichloroethene	ND	0.170	1.00	"							U
trans-1,2-Dichloroethene	ND	0.175	1.00	"							U
1,2-Dichloropropane	ND	0.266	1.00	"							U
1,3-Dichloropropane	ND	0.151	1.00	"							U
2,2-Dichloropropane	ND	0.104	1.00	"							U
1,1-Dichloropropene	ND	0.149	1.00	"							U
cis-1,3-Dichloropropene	ND	0.128	1.00	"							U
trans-1,3-Dichloropropene	ND	0.152	1.00	"							U
Ethylbenzene	ND	0.110	1.00	"							U
Hexachlorobutadiene	ND	0.878	2.00	"							U
2-Hexanone	ND	1.10	10.0	"							U
Isopropylbenzene	ND	0.107	2.00	"							U
p-Isopropyltoluene	ND	0.149	2.00	"							U
4-Methyl-2-pentanone	ND	1.49	5.00	"							U
Methyl tert-butyl ether	ND	0.0865	1.00	"							U
Methylene chloride	ND	2.50	5.00	"							U
Naphthalene	ND	0.0989	2.00	"							U
n-Propylbenzene	ND	0.138	1.00	"							U
Styrene	ND	0.0723	1.00	"							U
1,1,1,2-Tetrachloroethane	ND	0.148	1.00	"							U
1,1,2,2-Tetrachloroethane	ND	0.294	1.00	"							U
Tetrachloroethene	ND	0.109	1.00	"							U

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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
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**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030075: Prepared 03/02/04 Using EPA 5030B**

**Blank (4030075-BLK1)**

Toluene	ND	0.155	1.00	ug/l							U
1,2,3-Trichlorobenzene	ND	0.219	1.00	"							U
1,2,4-Trichlorobenzene	ND	0.213	1.00	"							U
1,1,1-Trichloroethane	ND	0.0859	1.00	"							U
1,1,2-Trichloroethane	ND	0.301	1.00	"							U
Trichloroethene	ND	0.241	1.00	"							U
Trichlorofluoromethane	ND	0.160	1.00	"							U
1,2,3-Trichloropropane	ND	0.365	1.00	"							U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	"							U
1,3,5-Trimethylbenzene	ND	0.157	1.00	"							U
Vinyl chloride	ND	0.152	1.00	"							U
o-Xylene	ND	0.187	1.00	"							U
m,p-Xylene	ND	0.295	2.00	"							U

Surrogate: 4-BFB	18.8			"	20.0		94.0	75-120			
Surrogate: 1,2-DCA-d4	20.0			"	20.0		100	77-129			
Surrogate: Dibromofluoromethane	20.1			"	20.0		100	80-121			
Surrogate: Toluene-d8	20.4			"	20.0		102	80-120			

**LCS (4030075-BS1)**

Benzene	19.5	0.147	1.00	ug/l	20.0		97.5	80-120			
Chlorobenzene	20.1	0.136	1.00	"	20.0		100	80-124			
1,1-Dichloroethene	18.8	0.197	1.00	"	20.0		94.0	78-120			
Toluene	20.3	0.155	1.00	"	20.0		102	80-124			
Trichloroethene	18.8	0.241	1.00	"	20.0		94.0	80-132			
Surrogate: 4-BFB	20.7			"	20.0		104	75-120			
Surrogate: 1,2-DCA-d4	19.6			"	20.0		98.0	77-129			
Surrogate: Dibromofluoromethane	20.4			"	20.0		102	80-121			
Surrogate: Toluene-d8	21.1			"	20.0		106	80-120			

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 509.924.9200 fax 509.924.9290  
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 541.383.9310 fax 541.382.7588  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

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**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030075: Prepared 03/02/04 Using EPA 5030B**

**Matrix Spike (4030075-MS1)**

**Source: P4B0838-01**

Benzene	20.2	0.147	1.00	ug/l	20.0	ND	101	80-124			
Chlorobenzene	20.3	0.136	1.00	"	20.0	ND	102	72.9-134			
1,1-Dichloroethene	20.3	0.197	1.00	"	20.0	ND	102	79.3-127			
Toluene	20.6	0.155	1.00	"	20.0	ND	103	79.7-131			
Trichloroethene	19.3	0.241	1.00	"	20.0	ND	96.5	68.4-130			
Surrogate: 4-BFB	20.0			"	20.0		100	75-120			
Surrogate: 1,2-DCA-d4	19.0			"	20.0		95.0	77-129			
Surrogate: Dibromofluoromethane	19.5			"	20.0		97.5	80-121			
Surrogate: Toluene-d8	20.0			"	20.0		100	80-120			

**Matrix Spike Dup (4030075-MSD1)**

**Source: P4B0838-01**

Benzene	20.0	0.147	1.00	ug/l	20.0	ND	100	80-124	0.995	25	
Chlorobenzene	20.1	0.136	1.00	"	20.0	ND	100	72.9-134	0.990	25	
1,1-Dichloroethene	20.0	0.197	1.00	"	20.0	ND	100	79.3-127	1.49	25	
Toluene	20.2	0.155	1.00	"	20.0	ND	101	79.7-131	1.96	25	
Trichloroethene	19.0	0.241	1.00	"	20.0	ND	95.0	68.4-130	1.57	25	
Surrogate: 4-BFB	20.9			"	20.0		104	75-120			
Surrogate: 1,2-DCA-d4	19.4			"	20.0		97.0	77-129			
Surrogate: Dibromofluoromethane	19.7			"	20.0		98.5	80-121			
Surrogate: Toluene-d8	20.3			"	20.0		102	80-120			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

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**Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030050: Prepared 03/01/04 Using EPA 5035**

**Blank (4030050-BLK1)**

Benzene	ND	4.44	50.0	ug/kg							U
Toluene	ND	6.29	50.0	"							U
Ethylbenzene	ND	9.40	50.0	"							U
Xylenes (total)	ND	26.2	100	"							U
Surrogate: 4-BFB	1950			"	2000		97.5	42.6-130			
Surrogate: 1,2-DCA-d4	2330			"	2000		116	57.3-144			
Surrogate: Dibromofluoromethane	2180			"	2000		109	45.5-130			
Surrogate: Toluene-d8	2270			"	2000		114	42.1-144			

**LCS (4030050-BS1)**

Benzene	2050	4.44	50.0	ug/kg	2000		102	81.9-125			
Toluene	2060	6.29	50.0	"	2000		103	80-125			
Surrogate: 4-BFB	1990			"	2000		99.5	42.6-130			
Surrogate: 1,2-DCA-d4	2420			"	2000		121	57.3-144			
Surrogate: Dibromofluoromethane	2360			"	2000		118	45.5-130			
Surrogate: Toluene-d8	2390			"	2000		120	42.1-144			

**Matrix Spike (4030050-MS1)**

**Source: P4B0633-02**

Benzene	2550	4.44	50.0	ug/kg dry	2410	ND	106	68.5-125			
Toluene	2570	6.29	50.0	"	2410	ND	107	70.3-125			
Surrogate: 4-BFB	2240			"	2410		92.9	42.6-130			
Surrogate: 1,2-DCA-d4	2530			"	2410		105	57.3-144			
Surrogate: Dibromofluoromethane	2500			"	2410		104	45.5-130			
Surrogate: Toluene-d8	2640			"	2410		110	42.1-144			

**Matrix Spike Dup (4030050-MSD1)**

**Source: P4B0633-02**

Benzene	2530	4.44	50.0	ug/kg dry	2410	ND	105	68.5-125	0.787	25	
Toluene	2540	6.29	50.0	"	2410	ND	105	70.3-125	1.17	25	
Surrogate: 4-BFB	2230			"	2410		92.5	42.6-130			
Surrogate: 1,2-DCA-d4	2450			"	2410		102	57.3-144			
Surrogate: Dibromofluoromethane	2500			"	2410		104	45.5-130			
Surrogate: Toluene-d8	2610			"	2410		108	42.1-144			

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 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
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**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030067: Prepared 03/02/04 Using EPA 3550**

**Blank (4030067-BLK1)**

Acenaphthene	ND		13.4	ug/kg							
Acenaphthylene	ND		13.4	"							
Anthracene	ND		13.4	"							
Benzo (a) anthracene	ND		13.4	"							
Benzo (a) pyrene	ND		13.4	"							
Benzo (b) fluoranthene	ND		13.4	"							
Benzo (ghi) perylene	ND		13.4	"							
Benzo (k) fluoranthene	ND		13.4	"							
Chrysene	ND		13.4	"							
Dibenzo (a,h) anthracene	ND		13.4	"							
Fluoranthene	ND		13.4	"							
Fluorene	ND		13.4	"							
Indeno (1,2,3-cd) pyrene	ND		13.4	"							
Naphthalene	ND		13.4	"							
Phenanthrene	ND		13.4	"							
Pyrene	ND		13.4	"							
Surrogate: Fluorene-d10	52.4			"	83.3		62.9	40-150			
Surrogate: Pyrene-d10	64.8			"	83.3		77.8	40-150			
Surrogate: Benzo (a) pyrene-d12	71.8			"	83.3		86.2	40-150			

**LCS (4030067-BS1)**

Acenaphthene	138		13.4	ug/kg	167		82.6	33-139			
Benzo (a) pyrene	141		13.4	"	167		84.4	45-149			
Pyrene	132		13.4	"	167		79.0	39-138			
Surrogate: Fluorene-d10	72.2			"	83.3		86.7	40-150			
Surrogate: Pyrene-d10	69.7			"	83.3		83.7	40-150			
Surrogate: Benzo (a) pyrene-d12	77.3			"	83.3		92.8	40-150			

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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:49

**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030067: Prepared 03/02/04 Using EPA 3550**

**Matrix Spike (4030067-MS1)** Source: P4B0784-13 **R-05**

Acenaphthene	167		33.5 ug/kg dry		192	ND	87.0	33-139			
Benzo (a) pyrene	193		33.5 "		192	ND	101	45-149			
Pyrene	184		33.5 "		192	ND	95.8	39-138			
Surrogate: Fluorene-d10	85.5			"	95.8		89.2	40-150			
Surrogate: Pyrene-d10	88.5			"	95.8		92.4	40-150			
Surrogate: Benzo (a) pyrene-d12	99.4			"	95.8		104	40-150			

**Matrix Spike Dup (4030067-MSD1)** Source: P4B0784-13 **R-05**

Acenaphthene	166		33.5 ug/kg dry		192	ND	86.5	33-139	0.601	60	
Benzo (a) pyrene	177		33.5 "		192	ND	92.2	45-149	8.65	60	
Pyrene	171		33.5 "		192	ND	89.1	39-138	7.32	60	
Surrogate: Fluorene-d10	86.5			"	95.8		90.3	40-150			
Surrogate: Pyrene-d10	86.5			"	95.8		90.3	40-150			
Surrogate: Benzo (a) pyrene-d12	96.9			"	95.8		101	40-150			

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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~~907.563.9200 fax 907.563.9210~~

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:49

**Percent Dry Weight (Solids) per Standard Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030089: Prepared 03/02/04 Using Dry Weight**

**Duplicate (4030089-DUP1)**

**Source: P4B0784-01**

% Solids	90.0		1.00	% by Weight		89.9			0.111	20	
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**Duplicate (4030089-DUP2)**

**Source: P4B0784-03**

% Solids	88.3		1.00	% by Weight		88.5			0.226	20	
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North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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425.420.9200 fax 425.420.9210  
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Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003

Project: BNSF-Wishram  
Project Number: 036026.00  
Project Manager: Galen Davis

Reported:  
08/19/04 07:49

**Notes and Definitions**

- D-16 Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel.
- J Estimated value.
- Q-14 The matrix spike recovery, and/or RPD, for this QC sample is outside of control limits due to a non-homogeneous sample matrix.
- Q-99 The spike recovery, and/or RPD, for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
- R-05 Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
- S-01 The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present.
- U Analyte included in the analysis but not detected.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

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Lisa Domenighini, Project Manager

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425.420.9200 fax 425.420.9210  
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907.563.9200 fax 907.563.9210

19 August 2004

Galen Davis  
Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003  
RE: BNSF-Wishram

Enclosed are the results of analyses for samples received by the laboratory on 02/27/04 13:25. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Domenighini  
Project Manager



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WSB-04-31-2	P4B0846-01	Soil	02/25/04 14:30	02/27/04 13:25
WSB-04-31-5	P4B0846-02	Soil	02/25/04 14:40	02/27/04 13:25
WSB-04-33-2	P4B0846-03	Soil	02/25/04 13:10	02/27/04 13:25
WSB-04-33-5	P4B0846-04	Soil	02/25/04 15:20	02/27/04 13:25
WSB-04-33-10	P4B0846-05	Soil	02/25/04 15:30	02/27/04 13:25
WSB-04-30-5	P4B0846-06	Soil	02/25/04 15:40	02/27/04 13:25
WSB-04-30-10	P4B0846-07	Soil	02/25/04 15:50	02/27/04 13:25
WSB-04-29-2	P4B0846-08	Soil	02/25/04 16:10	02/27/04 13:25
WSB-04-29-5	P4B0846-09	Soil	02/25/04 16:20	02/27/04 13:25
WSB-04-29-10	P4B0846-10	Soil	02/25/04 16:30	02/27/04 13:25
WSB-04-1-2	P4B0846-11	Soil	02/26/04 08:10	02/27/04 13:25
WSB-04-1-12	P4B0846-12	Soil	02/26/04 08:30	02/27/04 13:25
WSB-04-2-2	P4B0846-13	Soil	02/26/04 08:50	02/27/04 13:25
WSB-04-2-12	P4B0846-14	Soil	02/26/04 09:10	02/27/04 13:25
WSB-04-6-8	P4B0846-15	Soil	02/26/04 09:40	02/27/04 13:25
WSB-04-6-GW	P4B0846-16	Water	02/26/04 09:30	02/27/04 13:25
WSB-04-16-GW	P4B0846-17	Water	02/26/04 10:20	02/27/04 13:25
WSB-04-12-5	P4B0846-18	Soil	02/26/04 11:40	02/27/04 13:25
WSB-04-12-10	P4B0846-19	Soil	02/26/04 11:50	02/27/04 13:25
WSB-04-27-10	P4B0846-20	Soil	02/26/04 13:20	02/27/04 13:25
WSB-04-27-GW	P4B0846-21	Water	02/26/04 13:30	02/27/04 13:25

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Gasoline Hydrocarbons per NW TPH-Gx Method  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-5 (P4B0846-02) Soil</b> Sampled: 02/25/04 14:40 Received: 02/27/04 13:25										
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry		1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	92.5 %		50-150			"	"	"	"	
<b>WSB-04-2-12 (P4B0846-14) Soil</b> Sampled: 02/26/04 09:10 Received: 02/27/04 13:25										
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry		1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	90.3 %		50-150			"	"	"	"	
<b>WSB-04-12-5 (P4B0846-18) Soil</b> Sampled: 02/26/04 11:40 Received: 02/27/04 13:25										
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry		1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	91.0 %		50-150			"	"	"	"	
<b>WSB-04-12-10 (P4B0846-19) Soil</b> Sampled: 02/26/04 11:50 Received: 02/27/04 13:25										
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry		1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	82.8 %		50-150			"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.  
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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-6-GW (P4B0846-16) Water</b> Sampled: 02/26/04 09:30 Received: 02/27/04 13:25										
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/02/04	NW-G, 802	U
Toluene	ND	0.300	0.500	"	"	"	"	"	"	U
Ethylbenzene	5.10	0.300	0.500	"	"	"	"	"	"	U
Xylenes (total)	18.2	0.600	1.00	"	"	"	"	"	"	U
Gasoline Range Hydrocarbons	390	50.0	80.0	"	"	"	"	"	"	U
Surrogate: 4-BFB (FID)	109 %		50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	116 %		70-130			"	"	"	"	
<b>WSB-04-16-GW (P4B0846-17) Water</b> Sampled: 02/26/04 10:20 Received: 02/27/04 13:25										
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/02/04	NW-G, 802	U
Toluene	ND	0.300	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.300	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.600	1.00	"	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"	"	"	"	"	"	U
Surrogate: 4-BFB (FID)	97.0 %		50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	112 %		70-130			"	"	"	"	
<b>WSB-04-27-GW (P4B0846-21) Water</b> Sampled: 02/26/04 13:30 Received: 02/27/04 13:25										
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/02/04	NW-G, 802	U
Toluene	ND	0.300	0.500	"	"	"	"	"	"	U
Ethylbenzene	ND	0.300	0.500	"	"	"	"	"	"	U
Xylenes (total)	ND	0.600	1.00	"	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"	"	"	"	"	"	U
Surrogate: 4-BFB (FID)	91.0 %		50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	108 %		70-130			"	"	"	"	

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 Environmental Laboratory Network



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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-2 (P4B0846-01) Soil</b> Sampled: 02/25/04 14:30 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	111		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	94.8 %		50-150			"	"	"	"	
<b>WSB-04-33-2 (P4B0846-03) Soil</b> Sampled: 02/25/04 13:10 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	76.8 %		50-150			"	"	"	"	
<b>WSB-04-33-5 (P4B0846-04) Soil</b> Sampled: 02/25/04 15:20 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	88.2 %		50-150			"	"	"	"	
<b>WSB-04-33-10 (P4B0846-05) Soil</b> Sampled: 02/25/04 15:30 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	73.4 %		50-150			"	"	"	"	
<b>WSB-04-30-5 (P4B0846-06) Soil</b> Sampled: 02/25/04 15:40 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	96.8 %		50-150			"	"	"	"	
<b>WSB-04-29-2 (P4B0846-08) Soil</b> Sampled: 02/25/04 16:10 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	76.3 %		50-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-29-5 (P4B0846-09) Soil</b> Sampled: 02/25/04 16:20 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	94.2 %		50-150			"	"	"	"	
<b>WSB-04-29-10 (P4B0846-10) Soil</b> Sampled: 02/25/04 16:30 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	84.1 %		50-150			"	"	"	"	
<b>WSB-04-1-2 (P4B0846-11) Soil</b> Sampled: 02/26/04 08:10 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	88.7 %		50-150			"	"	"	"	
<b>WSB-04-1-12 (P4B0846-12) Soil</b> Sampled: 02/26/04 08:30 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	81.5 %		50-150			"	"	"	"	
<b>WSB-04-2-2 (P4B0846-13) Soil</b> Sampled: 02/26/04 08:50 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	85.2 %		50-150			"	"	"	"	
<b>WSB-04-2-12 (P4B0846-14) Soil</b> Sampled: 02/26/04 09:10 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0 mg/kg dry		1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	90.9 %		50-150			"	"	"	"	

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
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Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-6-8 (P4B0846-15) Soil</b> Sampled: 02/26/04 09:40 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	82.6 %		50-150			"	"	"	"	
<b>WSB-04-16-GW (P4B0846-17) Water</b> Sampled: 02/26/04 10:20 Received: 02/27/04 13:25										
Diesel Range Organics	ND		0.417	mg/l	1	4030003	03/01/04	03/01/04	NWTPH-Dx	R-01
Heavy Oil Range Hydrocarbons	ND		0.833	"	"	"	"	"	"	R-01
Surrogate: 1-Chlorooctadecane	96.2 %		50-150			"	"	"	"	
<b>WSB-04-12-5 (P4B0846-18) Soil</b> Sampled: 02/26/04 11:40 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030103	03/03/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	99.4 %		50-150			"	"	"	"	
<b>WSB-04-12-10 (P4B0846-19) Soil</b> Sampled: 02/26/04 11:50 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030103	03/03/04	03/04/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	91.6 %		50-150			"	"	"	"	
<b>WSB-04-27-10 (P4B0846-20) Soil</b> Sampled: 02/26/04 13:20 Received: 02/27/04 13:25										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4030103	03/03/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	88.5 %		50-150			"	"	"	"	

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**Total Metals per EPA 6000/7000 Series Methods**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-5 (P4B0846-02) Soil</b> <b>Sampled: 02/25/04 14:40</b> <b>Received: 02/27/04 13:25</b>										
Silver	ND		0.373	mg/kg dry	1	4030219	03/05/04	03/07/04	EPA 6020	
Arsenic	1.72		0.373	"	"	"	"	"	"	
Barium	89.7		0.373	"	"	"	"	"	"	
Cadmium	ND		0.373	"	"	"	"	"	"	
Chromium	11.1		0.373	"	"	"	"	"	"	
Mercury	ND		0.0714	"	"	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	3.80		0.373	"	"	4030219	03/05/04	03/07/04	EPA 6020	
Selenium	ND		0.373	"	"	"	"	"	"	
<b>WSB-04-33-10 (P4B0846-05) Soil</b> <b>Sampled: 02/25/04 15:30</b> <b>Received: 02/27/04 13:25</b>										
Silver	ND		0.345	mg/kg dry	1	4030219	03/05/04	03/07/04	EPA 6020	
Arsenic	1.85		0.345	"	"	"	"	"	"	
Barium	92.8		0.345	"	"	"	"	"	"	
Cadmium	ND		0.345	"	"	"	"	"	"	
Chromium	11.7		0.345	"	"	"	"	"	"	
Mercury	ND		0.0676	"	"	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	4.21		0.345	"	"	4030219	03/05/04	03/07/04	EPA 6020	
Selenium	ND		0.345	"	"	"	"	"	"	
<b>WSB-04-30-5 (P4B0846-06) Soil</b> <b>Sampled: 02/25/04 15:40</b> <b>Received: 02/27/04 13:25</b>										
Silver	ND		0.500	mg/kg dry	1	4030308	03/08/04	03/09/04	EPA 6020	
Arsenic	1.16		0.500	"	"	"	"	"	"	
Barium	79.1		0.500	"	"	"	"	"	"	
Cadmium	ND		0.500	"	"	"	"	"	"	
Chromium	8.44		0.500	"	"	"	"	"	"	
Mercury	ND		0.0806	"	"	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	3.13		0.500	"	"	4030308	03/08/04	03/09/04	EPA 6020	
Selenium	ND		0.500	"	"	"	"	"	"	

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

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**Total Metals per EPA 6000/7000 Series Methods**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-30-10 (P4B0846-07) Soil</b> <b>Sampled: 02/25/04 15:50</b> <b>Received: 02/27/04 13:25</b>										
Silver	ND		0.394	mg/kg dry	1	4030308	03/08/04	03/09/04	EPA 6020	
Arsenic	1.89		0.394	"	"	"	"	"	"	
Barium	98.6		0.394	"	"	"	"	"	"	
Cadmium	ND		0.394	"	"	"	"	"	"	
Chromium	12.0		0.394	"	"	"	"	"	"	
Mercury	ND		0.0625	"	"	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	5.72		0.394	"	"	4030308	03/08/04	03/09/04	EPA 6020	
Selenium	ND		0.394	"	"	"	"	"	"	

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**TCLP Metals per EPA 1311/6000/7000 Series Methods**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-5 (P4B0846-02) Soil</b> <b>Sampled: 02/25/04 14:40</b> <b>Received: 02/27/04 13:25</b>										
Barium	0.579		0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1311/6020	
Chromium	ND		0.0500	"	"	"	"	"	"	
Lead	ND		0.0500	"	"	"	"	"	"	
<b>WSB-04-33-10 (P4B0846-05) Soil</b> <b>Sampled: 02/25/04 15:30</b> <b>Received: 02/27/04 13:25</b>										
Barium	0.758		0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1311/6020	
Chromium	ND		0.0500	"	"	"	"	"	"	
Lead	ND		0.0500	"	"	"	"	"	"	
<b>WSB-04-30-5 (P4B0846-06) Soil</b> <b>Sampled: 02/25/04 15:40</b> <b>Received: 02/27/04 13:25</b>										
Barium	0.815		0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1311/6020	
Chromium	ND		0.0500	"	"	"	"	"	"	
Lead	ND		0.0500	"	"	"	"	"	"	
<b>WSB-04-30-10 (P4B0846-07) Soil</b> <b>Sampled: 02/25/04 15:50</b> <b>Received: 02/27/04 13:25</b>										
Barium	0.734		0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1311/6020	
Chromium	ND		0.0500	"	"	"	"	"	"	
Lead	ND		0.0500	"	"	"	"	"	"	

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Number: 036026.00  
 Project Manager: Galen Davis

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**Hexavalent Chromium per EPA Method 3060A**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-5 (P4B0846-02) Soil</b> <b>Sampled: 02/25/04 14:40</b> <b>Received: 02/27/04 13:25</b>										
Hexavalent Chromium	ND		10.0 mg/kg dry		10	4030286	03/08/04	03/08/04	EPA 3060A	
<b>WSB-04-33-10 (P4B0846-05) Soil</b> <b>Sampled: 02/25/04 15:30</b> <b>Received: 02/27/04 13:25</b>										
Hexavalent Chromium	ND		10.0 mg/kg dry		10	4030286	03/08/04	03/08/04	EPA 3060A	
<b>WSB-04-30-5 (P4B0846-06) Soil</b> <b>Sampled: 02/25/04 15:40</b> <b>Received: 02/27/04 13:25</b>										
Hexavalent Chromium	ND		10.0 mg/kg dry		10	4030286	03/08/04	03/08/04	EPA 3060A	
<b>WSB-04-30-10 (P4B0846-07) Soil</b> <b>Sampled: 02/25/04 15:50</b> <b>Received: 02/27/04 13:25</b>										
Hexavalent Chromium	ND		10.0 mg/kg dry		10	4030286	03/08/04	03/08/04	EPA 3060A	

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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**Polychlorinated Biphenyls per EPA Method 8082**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-5 (P4B0846-02) Soil</b> <b>Sampled: 02/25/04 14:40</b> <b>Received: 02/27/04 13:25</b>										
Aroclor 1016	ND		67.0	ug/kg dry	1	4030010	03/01/04	03/04/04	EPA 8082	
Aroclor 1221	ND		134	"	"	"	"	"	"	
Aroclor 1232	ND		67.0	"	"	"	"	"	"	
Aroclor 1242	ND		67.0	"	"	"	"	"	"	
Aroclor 1248	ND		67.0	"	"	"	"	"	"	
Aroclor 1254	ND		67.0	"	"	"	"	"	"	
Aroclor 1260	ND		67.0	"	"	"	"	"	"	
<i>Surrogate: 2,4,5,6-Tetrachloro-m-x</i>	120 %		36-140			"	"	"	"	
<i>Surrogate: Decachlorobiphenyl</i>	78.2 %		16-149			"	"	"	"	

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-31-5 (P4B0846-02) Soil Sampled: 02/25/04 14:40 Received: 02/27/04 13:25										
Acetone	ND	144	2500	ug/kg dry	1	4021108	02/27/04	03/01/04	EPA 8260B	U
Benzene	ND	4.44	100	"	"	"	"	"	"	U
Bromobenzene	ND	12.2	100	"	"	"	"	"	"	U
Bromochloromethane	ND	16.4	100	"	"	"	"	"	"	U
Bromodichloromethane	ND	10.2	100	"	"	"	"	"	"	U
Bromoform	ND	15.8	100	"	"	"	"	"	"	U
Bromomethane	ND	5.09	500	"	"	"	"	"	"	U
2-Butanone	ND	148	1000	"	"	"	"	"	"	U
n-Butylbenzene	ND	11.3	500	"	"	"	"	"	"	U
sec-Butylbenzene	ND	7.45	100	"	"	"	"	"	"	U
tert-Butylbenzene	ND	15.2	100	"	"	"	"	"	"	U
Carbon disulfide	ND	7.19	1000	"	"	"	"	"	"	U
Carbon tetrachloride	ND	7.64	100	"	"	"	"	"	"	U
Chlorobenzene	ND	8.09	100	"	"	"	"	"	"	U
Chloroethane	ND	10.7	100	"	"	"	"	"	"	U
Chloroform	ND	7.26	100	"	"	"	"	"	"	U
Chloromethane	ND	6.72	500	"	"	"	"	"	"	U
2-Chlorotoluene	ND	11.0	100	"	"	"	"	"	"	U
4-Chlorotoluene	ND	10.4	100	"	"	"	"	"	"	U
1,2-Dibromo-3-chloropropane	ND	26.0	500	"	"	"	"	"	"	U
Dibromochloromethane	ND	11.2	100	"	"	"	"	"	"	U
1,2-Dibromoethane	ND	11.6	100	"	"	"	"	"	"	U
Dibromomethane	ND	14.7	100	"	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	14.4	100	"	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	5.86	100	"	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	14.9	100	"	"	"	"	"	"	U
Dichlorodifluoromethane	ND	11.8	500	"	"	"	"	"	"	U
1,1-Dichloroethane	ND	11.9	100	"	"	"	"	"	"	U
1,2-Dichloroethane	ND	11.2	100	"	"	"	"	"	"	U
1,1-Dichloroethene	ND	11.9	100	"	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	12.6	100	"	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	8.97	100	"	"	"	"	"	"	U
1,2-Dichloropropane	ND	7.45	100	"	"	"	"	"	"	U
1,3-Dichloropropane	ND	17.4	100	"	"	"	"	"	"	U
2,2-Dichloropropane	ND	8.09	100	"	"	"	"	"	"	U
1,1-Dichloropropene	ND	10.9	100	"	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	4.95	100	"	"	"	"	"	"	U

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
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**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-31-5 (P4B0846-02) Soil Sampled: 02/25/04 14:40 Received: 02/27/04 13:25										
trans-1,3-Dichloropropene	ND	8.29	100	ug/kg dry	1	4021108	02/27/04	03/01/04	EPA 8260B	U
Ethylbenzene	ND	9.40	100	"	"	"	"	"	"	U
Hexachlorobutadiene	ND	69.4	200	"	"	"	"	"	"	U
2-Hexanone	ND	57.2	1000	"	"	"	"	"	"	U
Isopropylbenzene	ND	9.55	200	"	"	"	"	"	"	U
p-Isopropyltoluene	ND	9.68	200	"	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	117	500	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	11.9	100	"	"	"	"	"	"	U
Methylene chloride	ND	250	500	"	"	"	"	"	"	U
Naphthalene	ND	14.1	200	"	"	"	"	"	"	U
n-Propylbenzene	ND	9.89	100	"	"	"	"	"	"	U
Styrene	ND	8.89	100	"	"	"	"	"	"	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	"	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	21.1	100	"	"	"	"	"	"	U
Tetrachloroethene	ND	16.9	100	"	"	"	"	"	"	U
<b>Toluene</b>	<b>11.8</b>	<b>6.29</b>	<b>100</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>J</b>
1,2,3-Trichlorobenzene	ND	16.9	100	"	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	21.4	100	"	"	"	"	"	"	U
1,1,1-Trichloroethane	ND	6.13	100	"	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	18.1	100	"	"	"	"	"	"	U
Trichloroethene	ND	12.0	100	"	"	"	"	"	"	U
Trichlorofluoromethane	ND	8.97	100	"	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	49.2	100	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	6.75	100	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	9.33	100	"	"	"	"	"	"	U
Vinyl chloride	ND	5.74	100	"	"	"	"	"	"	U
o-Xylene	ND	11.6	100	"	"	"	"	"	"	U
m,p-Xylene	ND	11.4	200	"	"	"	"	"	"	U
Surrogate: 4-BFB	86.7 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	104 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	97.2 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	103 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-33-10 (P4B0846-05) Soil Sampled: 02/25/04 15:30 Received: 02/27/04 13:25										
Acetone	ND	144	2500	ug/kg dry	1	4021108	02/27/04	02/28/04	EPA 8260B	U
Benzene	ND	4.44	100	"	"	"	"	"	"	U
Bromobenzene	ND	12.2	100	"	"	"	"	"	"	U
Bromochloromethane	ND	16.4	100	"	"	"	"	"	"	U
Bromodichloromethane	ND	10.2	100	"	"	"	"	"	"	U
Bromoform	ND	15.8	100	"	"	"	"	"	"	U
Bromomethane	ND	5.09	500	"	"	"	"	"	"	U
2-Butanone	ND	148	1000	"	"	"	"	"	"	U
n-Butylbenzene	ND	11.3	500	"	"	"	"	"	"	U
sec-Butylbenzene	ND	7.45	100	"	"	"	"	"	"	U
tert-Butylbenzene	ND	15.2	100	"	"	"	"	"	"	U
Carbon disulfide	ND	7.19	1000	"	"	"	"	"	"	U
Carbon tetrachloride	ND	7.64	100	"	"	"	"	"	"	U
Chlorobenzene	ND	8.09	100	"	"	"	"	"	"	U
Chloroethane	ND	10.7	100	"	"	"	"	"	"	U
Chloroform	ND	7.26	100	"	"	"	"	"	"	U
Chloromethane	ND	6.72	500	"	"	"	"	"	"	U
2-Chlorotoluene	ND	11.0	100	"	"	"	"	"	"	U
4-Chlorotoluene	ND	10.4	100	"	"	"	"	"	"	U
1,2-Dibromo-3-chloropropane	ND	26.0	500	"	"	"	"	"	"	U
Dibromochloromethane	ND	11.2	100	"	"	"	"	"	"	U
1,2-Dibromoethane	ND	11.6	100	"	"	"	"	"	"	U
Dibromomethane	ND	14.7	100	"	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	14.4	100	"	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	5.86	100	"	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	14.9	100	"	"	"	"	"	"	U
Dichlorodifluoromethane	ND	11.8	500	"	"	"	"	"	"	U
1,1-Dichloroethane	ND	11.9	100	"	"	"	"	"	"	U
1,2-Dichloroethane	ND	11.2	100	"	"	"	"	"	"	U
1,1-Dichloroethene	ND	11.9	100	"	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	12.6	100	"	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	8.97	100	"	"	"	"	"	"	U
1,2-Dichloropropane	ND	7.45	100	"	"	"	"	"	"	U
1,3-Dichloropropane	ND	17.4	100	"	"	"	"	"	"	U
2,2-Dichloropropane	ND	8.09	100	"	"	"	"	"	"	U
1,1-Dichloropropene	ND	10.9	100	"	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	4.95	100	"	"	"	"	"	"	U

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

North Creek Analytical, Inc.  
Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-33-10 (P4B0846-05) Soil Sampled: 02/25/04 15:30 Received: 02/27/04 13:25</b>										
trans-1,3-Dichloropropene	ND	8.29	100	ug/kg dry	1	4021108	02/27/04	02/28/04	EPA 8260B	U
Ethylbenzene	ND	9.40	100	"	"	"	"	"	"	U
Hexachlorobutadiene	ND	69.4	200	"	"	"	"	"	"	U
2-Hexanone	ND	57.2	1000	"	"	"	"	"	"	U
Isopropylbenzene	ND	9.55	200	"	"	"	"	"	"	U
p-Isopropyltoluene	ND	9.68	200	"	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	117	500	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	11.9	100	"	"	"	"	"	"	U
Methylene chloride	ND	250	500	"	"	"	"	"	"	U
Naphthalene	ND	14.1	200	"	"	"	"	"	"	U
n-Propylbenzene	ND	9.89	100	"	"	"	"	"	"	U
Styrene	ND	8.89	100	"	"	"	"	"	"	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	"	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	21.1	100	"	"	"	"	"	"	U
Tetrachloroethene	ND	16.9	100	"	"	"	"	"	"	U
Toluene	ND	6.29	100	"	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	16.9	100	"	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	21.4	100	"	"	"	"	"	"	U
1,1,1-Trichloroethane	ND	6.13	100	"	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	18.1	100	"	"	"	"	"	"	U
Trichloroethene	ND	12.0	100	"	"	"	"	"	"	U
Trichlorofluoromethane	ND	8.97	100	"	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	49.2	100	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	6.75	100	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	9.33	100	"	"	"	"	"	"	U
Vinyl chloride	ND	5.74	100	"	"	"	"	"	"	U
o-Xylene	ND	11.6	100	"	"	"	"	"	"	U
m,p-Xylene	ND	11.4	200	"	"	"	"	"	"	U
Surrogate: 4-BFB	100 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	124 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	108 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	115 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager





**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**WSB-04-30-10 (P4B0846-07) Soil**    **Sampled: 02/25/04 15:50**    **Received: 02/27/04 13:25**

Acetone	ND	144	2500	ug/kg dry	1	4021108	02/27/04	02/28/04	EPA 8260B	U
Benzene	ND	4.44	100	"	"	"	"	"	"	U
Bromobenzene	ND	12.2	100	"	"	"	"	"	"	U
Bromochloromethane	ND	16.4	100	"	"	"	"	"	"	U
Bromodichloromethane	ND	10.2	100	"	"	"	"	"	"	U
Bromoform	ND	15.8	100	"	"	"	"	"	"	U
Bromomethane	ND	5.09	500	"	"	"	"	"	"	U
2-Butanone	ND	148	1000	"	"	"	"	"	"	U
n-Butylbenzene	ND	11.3	500	"	"	"	"	"	"	U
sec-Butylbenzene	ND	7.45	100	"	"	"	"	"	"	U
tert-Butylbenzene	ND	15.2	100	"	"	"	"	"	"	U
Carbon disulfide	ND	7.19	1000	"	"	"	"	"	"	U
Carbon tetrachloride	ND	7.64	100	"	"	"	"	"	"	U
Chlorobenzene	ND	8.09	100	"	"	"	"	"	"	U
Chloroethane	ND	10.7	100	"	"	"	"	"	"	U
Chloroform	ND	7.26	100	"	"	"	"	"	"	U
Chloromethane	ND	6.72	500	"	"	"	"	"	"	U
2-Chlorotoluene	ND	11.0	100	"	"	"	"	"	"	U
4-Chlorotoluene	ND	10.4	100	"	"	"	"	"	"	U
1,2-Dibromo-3-chloropropane	ND	26.0	500	"	"	"	"	"	"	U
Dibromochloromethane	ND	11.2	100	"	"	"	"	"	"	U
1,2-Dibromoethane	ND	11.6	100	"	"	"	"	"	"	U
Dibromomethane	ND	14.7	100	"	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	14.4	100	"	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	5.86	100	"	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	14.9	100	"	"	"	"	"	"	U
Dichlorodifluoromethane	ND	11.8	500	"	"	"	"	"	"	U
1,1-Dichloroethane	ND	11.9	100	"	"	"	"	"	"	U
1,2-Dichloroethane	ND	11.2	100	"	"	"	"	"	"	U
1,1-Dichloroethene	ND	11.9	100	"	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	12.6	100	"	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	8.97	100	"	"	"	"	"	"	U
1,2-Dichloropropane	ND	7.45	100	"	"	"	"	"	"	U
1,3-Dichloropropane	ND	17.4	100	"	"	"	"	"	"	U
2,2-Dichloropropane	ND	8.09	100	"	"	"	"	"	"	U
1,1-Dichloropropene	ND	10.9	100	"	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	4.95	100	"	"	"	"	"	"	U

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
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 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-30-10 (P4B0846-07) Soil Sampled: 02/25/04 15:50 Received: 02/27/04 13:25										
trans-1,3-Dichloropropene	ND	8.29	100	ug/kg dry	1	4021108	02/27/04	02/28/04	EPA 8260B	U
Ethylbenzene	ND	9.40	100	"	"	"	"	"	"	U
Hexachlorobutadiene	ND	69.4	200	"	"	"	"	"	"	U
2-Hexanone	ND	57.2	1000	"	"	"	"	"	"	U
Isopropylbenzene	ND	9.55	200	"	"	"	"	"	"	U
p-Isopropyltoluene	ND	9.68	200	"	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	117	500	"	"	"	"	"	"	U
Methyl tert-butyl ether	ND	11.9	100	"	"	"	"	"	"	U
Methylene chloride	ND	250	500	"	"	"	"	"	"	U
Naphthalene	ND	14.1	200	"	"	"	"	"	"	U
n-Propylbenzene	ND	9.89	100	"	"	"	"	"	"	U
Styrene	ND	8.89	100	"	"	"	"	"	"	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	"	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	21.1	100	"	"	"	"	"	"	U
Tetrachloroethene	ND	16.9	100	"	"	"	"	"	"	U
Toluene	ND	6.29	100	"	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	16.9	100	"	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	21.4	100	"	"	"	"	"	"	U
1,1,1-Trichloroethane	ND	6.13	100	"	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	18.1	100	"	"	"	"	"	"	U
Trichloroethene	ND	12.0	100	"	"	"	"	"	"	U
Trichlorofluoromethane	ND	8.97	100	"	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	49.2	100	"	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	6.75	100	"	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	9.33	100	"	"	"	"	"	"	U
Vinyl chloride	ND	5.74	100	"	"	"	"	"	"	U
o-Xylene	ND	11.6	100	"	"	"	"	"	"	U
m,p-Xylene	ND	11.4	200	"	"	"	"	"	"	U
Surrogate: 4-BFB	99.2 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	124 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	109 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	119 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Selected Volatile Organic Compounds per EPA Method 8260B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-2-12 (P4B0846-14) Soil</b> Sampled: 02/26/04 09:10 Received: 02/27/04 13:25										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	89.3 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	101 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	93.5 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	104 %		42.1-144			"	"	"	"	
<b>WSB-04-12-5 (P4B0846-18) Soil</b> Sampled: 02/26/04 11:40 Received: 02/27/04 13:25										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	ND	6.29	50.0	"	"	"	"	"	"	U
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	79.3 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	90.1 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	79.3 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	91.9 %		42.1-144			"	"	"	"	
<b>WSB-04-12-10 (P4B0846-19) Soil</b> Sampled: 02/26/04 11:50 Received: 02/27/04 13:25										
Benzene	ND	4.44	50.0	ug/kg dry	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Toluene	12.0	6.29	50.0	"	"	"	"	"	"	J
Ethylbenzene	ND	9.40	50.0	"	"	"	"	"	"	U
Xylenes (total)	ND	26.2	100	"	"	"	"	"	"	U
Surrogate: 4-BFB	94.5 %		42.6-130			"	"	"	"	
Surrogate: 1,2-DCA-d4	107 %		57.3-144			"	"	"	"	
Surrogate: Dibromofluoromethane	102 %		45.5-130			"	"	"	"	
Surrogate: Toluene-d8	109 %		42.1-144			"	"	"	"	

North Creek Analytical - Portland

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-5 (P4B0846-02) Soil</b> Sampled: 02/25/04 14:40 Received: 02/27/04 13:25										
Acenaphthene	ND		13.4	ug/kg dry	1	4030203	03/05/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	
Surrogate: Fluorene-d10	84.7 %		40-150			"	"	"	"	
Surrogate: Pyrene-d10	90.9 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	99.9 %		40-150			"	"	"	"	

**WSB-04-30-10 (P4B0846-07) Soil** Sampled: 02/25/04 15:50 Received: 02/27/04 13:25

Acenaphthene	ND		13.4	ug/kg dry	1	4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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**WSB-04-30-10 (P4B0846-07) Soil**    **Sampled: 02/25/04 15:50**    **Received: 02/27/04 13:25**

Surrogate: Fluorene-d10	87.2 %		40-150			4030268	03/08/04	03/10/04	EPA 8270m	
Surrogate: Pyrene-d10	93.2 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	101 %		40-150			"	"	"	"	

**WSB-04-1-12 (P4B0846-12) Soil**    **Sampled: 02/26/04 08:30**    **Received: 02/27/04 13:25**

Acenaphthene	ND		13.4	ug/kg dry	1	4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	

Surrogate: Fluorene-d10	80.9 %		40-150			"	"	"	"	
Surrogate: Pyrene-d10	85.8 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	90.6 %		40-150			"	"	"	"	

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-6-8 (P4B0846-15) Soil Sampled: 02/26/04 09:40 Received: 02/27/04 13:25</b>										
Acenaphthene	ND		13.4	ug/kg dry	1	4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	
Surrogate: Fluorene-d10	84.6 %		40-150			"	"	"	"	
Surrogate: Pyrene-d10	91.5 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	97.4 %		40-150			"	"	"	"	

**WSB-04-12-5 (P4B0846-18) Soil Sampled: 02/26/04 11:40 Received: 02/27/04 13:25**

Acenaphthene	ND		13.4	ug/kg dry	1	4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	ND		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	ND		13.4	"	"	"	"	"	"	
Pyrene	ND		13.4	"	"	"	"	"	"	

North Creek Analytical - Portland

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-12-5 (P4B0846-18) Soil</b> <b>Sampled: 02/26/04 11:40</b> <b>Received: 02/27/04 13:25</b>										
Surrogate: Fluorene-d10	84.2 %		40-150			4030268	03/08/04	03/10/04	EPA 8270m	
Surrogate: Pyrene-d10	87.1 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	92.4 %		40-150			"	"	"	"	
<b>WSB-04-12-10 (P4B0846-19) Soil</b> <b>Sampled: 02/26/04 11:50</b> <b>Received: 02/27/04 13:25</b>										
Acenaphthene	ND		13.4	ug/kg dry	1	4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	"	"	"	"	"	"	
Anthracene	ND		13.4	"	"	"	"	"	"	
Benzo (a) anthracene	26.2		13.4	"	"	"	"	"	"	
Benzo (a) pyrene	36.5		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	46.3		13.4	"	"	"	"	"	"	
Benzo (ghi) perylene	21.8		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	33.6		13.4	"	"	"	"	"	"	
Chrysene	39.0		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Fluoranthene	47.0		13.4	"	"	"	"	"	"	
Fluorene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	19.7		13.4	"	"	"	"	"	"	
Naphthalene	ND		13.4	"	"	"	"	"	"	
Phenanthrene	26.1		13.4	"	"	"	"	"	"	
Pyrene	47.4		13.4	"	"	"	"	"	"	
Surrogate: Fluorene-d10	87.8 %		40-150			"	"	"	"	
Surrogate: Pyrene-d10	92.5 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	97.4 %		40-150			"	"	"	"	

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Percent Dry Weight (Solids) per Standard Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-31-2 (P4B0846-01) Soil</b> Sampled: 02/25/04 14:30 Received: 02/27/04 13:25										
% Solids	91.7		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-31-5 (P4B0846-02) Soil</b> Sampled: 02/25/04 14:40 Received: 02/27/04 13:25										
% Solids	93.3		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-33-2 (P4B0846-03) Soil</b> Sampled: 02/25/04 13:10 Received: 02/27/04 13:25										
% Solids	92.0		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-33-5 (P4B0846-04) Soil</b> Sampled: 02/25/04 15:20 Received: 02/27/04 13:25										
% Solids	91.5		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-33-10 (P4B0846-05) Soil</b> Sampled: 02/25/04 15:30 Received: 02/27/04 13:25										
% Solids	84.6		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-30-5 (P4B0846-06) Soil</b> Sampled: 02/25/04 15:40 Received: 02/27/04 13:25										
% Solids	91.4		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-30-10 (P4B0846-07) Soil</b> Sampled: 02/25/04 15:50 Received: 02/27/04 13:25										
% Solids	82.5		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-29-2 (P4B0846-08) Soil</b> Sampled: 02/25/04 16:10 Received: 02/27/04 13:25										
% Solids	93.9		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-29-5 (P4B0846-09) Soil</b> Sampled: 02/25/04 16:20 Received: 02/27/04 13:25										
% Solids	93.4		1.00% by Weigh		1	4030143	03/03/04	03/04/04	NCA SOP	

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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Percent Dry Weight (Solids) per Standard Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-29-10 (P4B0846-10) Soil</b> Sampled: 02/25/04 16:30 Received: 02/27/04 13:25										
% Solids	86.8		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-1-2 (P4B0846-11) Soil</b> Sampled: 02/26/04 08:10 Received: 02/27/04 13:25										
% Solids	92.3		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-1-12 (P4B0846-12) Soil</b> Sampled: 02/26/04 08:30 Received: 02/27/04 13:25										
% Solids	87.2		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-2-2 (P4B0846-13) Soil</b> Sampled: 02/26/04 08:50 Received: 02/27/04 13:25										
% Solids	93.4		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-2-12 (P4B0846-14) Soil</b> Sampled: 02/26/04 09:10 Received: 02/27/04 13:25										
% Solids	93.1		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-6-8 (P4B0846-15) Soil</b> Sampled: 02/26/04 09:40 Received: 02/27/04 13:25										
% Solids	85.0		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-12-5 (P4B0846-18) Soil</b> Sampled: 02/26/04 11:40 Received: 02/27/04 13:25										
% Solids	90.2		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-12-10 (P4B0846-19) Soil</b> Sampled: 02/26/04 11:50 Received: 02/27/04 13:25										
% Solids	91.4		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	
<b>WSB-04-27-10 (P4B0846-20) Soil</b> Sampled: 02/26/04 13:20 Received: 02/27/04 13:25										
% Solids	92.3		1.00% by Weigh	1		4030143	03/03/04	03/04/04	NCA SOP	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100 Federal Way, WA 98003	Project: BNSF-Wishram Project Number: 036026.00 Project Manager: Galen Davis	<b>Reported:</b> 08/19/04 07:51
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**Gasoline Hydrocarbons per NW TPH-Gx Method - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4030051: Prepared 03/01/04 Using EPA 5035</b>											
<b>Blank (4030051-BLK1)</b>											
Gasoline Range Hydrocarbons	ND		4.00	mg/kg							
Surrogate: a,a,a-TFT	2.39			"	2.50		95.6	50-150			
<b>LCS (4030051-BS1)</b>											
Gasoline Range Hydrocarbons	58.6		4.00	mg/kg	62.5		93.8	70-130			
Surrogate: a,a,a-TFT	2.22			"	2.50		88.8	50-150			
<b>Duplicate (4030051-DUP1) Source: P4B0633-02</b>											
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry			ND			NA	40	
Surrogate: a,a,a-TFT	2.79			"	3.01		92.7	50-150			
<b>Duplicate (4030051-DUP2) Source: P4B0846-02</b>											
Gasoline Range Hydrocarbons	ND		4.00 mg/kg dry			ND			NA	40	
Surrogate: a,a,a-TFT	2.50			"	2.68		93.3	50-150			
<b>Matrix Spike (4030051-MS1) Source: P4B0784-03</b>											
Gasoline Range Hydrocarbons	1250		40.0 mg/kg dry		70.6	1210	56.7	65-130			Q-99
Surrogate: a,a,a-TFT	2.49			"	2.82		88.3	50-150			

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030037: Prepared 03/01/04 Using EPA 5030B**

**Blank (4030037-BLK1)**

Benzene	ND	0.300	0.500	ug/l							U
Toluene	ND	0.300	0.500	"							U
Ethylbenzene	ND	0.300	0.500	"							U
Xylenes (total)	ND	0.600	1.00	"							U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"							U
Surrogate: 4-BFB (FID)	39.9			"	50.0		79.8	50-150			
Surrogate: 4-BFB (PID)	46.4			"	50.0		92.8	70-130			

**LCS (4030037-BS1)**

Benzene	53.6	0.300	0.500	ug/l	50.0		107	70-130			
Toluene	53.8	0.300	0.500	"	50.0		108	70-130			
Ethylbenzene	52.7	0.300	0.500	"	50.0		105	70-130			
Xylenes (total)	150	0.600	1.00	"	150		100	70-130			
Surrogate: 4-BFB (PID)	50.8			"	50.0		102	70-130			

**LCS (4030037-BS2)**

Gasoline Range Hydrocarbons	916	50.0	80.0	ug/l	1500		61.1	50-150			
Surrogate: 4-BFB (FID)	42.4			"	50.0		84.8	50-150			

**Duplicate (4030037-DUP2)**

**Source: P4B0784-08**

Gasoline Range Hydrocarbons	203	50.0	80.0	ug/l		140			36.7	50	
Surrogate: 4-BFB (FID)	48.9			"	50.0		97.8	50-150			

**Matrix Spike (4030037-MS1)**

**Source: P4B0717-01**

Benzene	49.7	0.300	0.500	ug/l	50.0	ND	99.4	70-130			
Toluene	49.9	0.300	0.500	"	50.0	ND	99.8	70-130			
Ethylbenzene	49.3	0.300	0.500	"	50.0	ND	98.6	70-130			
Xylenes (total)	141	0.600	1.00	"	150	ND	94.0	70-130			
Surrogate: 4-BFB (PID)	49.4			"	50.0		98.8	70-130			

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030037: Prepared 03/01/04 Using EPA 5030B**

**Matrix Spike Dup (4030037-MSD1)**

Source: P4B0717-01

Benzene	45.8	0.300	0.500	ug/l	50.0	ND	91.6	70-130	8.17	20	
Toluene	45.9	0.300	0.500	"	50.0	ND	91.8	70-130	8.35	20	
Ethylbenzene	45.3	0.300	0.500	"	50.0	ND	90.6	70-130	8.46	20	
Xylenes (total)	131	0.600	1.00	"	150	ND	87.3	70-130	7.35	20	
Surrogate: 4-BFB (PID)	52.1			"	50.0		104	70-130			

**Batch 4030119: Prepared 03/03/04 Using EPA 5030B**

**Blank (4030119-BLK1)**

Benzene	ND	0.300	0.500	ug/l							U
Toluene	0.376	0.300	0.500	"							J
Ethylbenzene	ND	0.300	0.500	"							U
Xylenes (total)	ND	0.600	1.00	"							U
Gasoline Range Hydrocarbons	ND	50.0	80.0	"							U
Surrogate: 4-BFB (FID)	44.9			"	50.0		89.8	50-150			
Surrogate: 4-BFB (PID)	53.2			"	50.0		106	70-130			

**LCS (4030119-BS1)**

Benzene	50.1	0.300	0.500	ug/l	50.0		100	70-130			
Toluene	47.9	0.300	0.500	"	50.0		95.8	70-130			
Ethylbenzene	47.9	0.300	0.500	"	50.0		95.8	70-130			
Xylenes (total)	151	0.600	1.00	"	150		101	70-130			
Surrogate: 4-BFB (PID)	49.9			"	50.0		99.8	70-130			

**LCS (4030119-BS2)**

Gasoline Range Hydrocarbons	842	50.0	80.0	ug/l	1000		84.2	50-150			
Surrogate: 4-BFB (FID)	44.6			"	50.0		89.2	50-150			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030119: Prepared 03/03/04 Using EPA 5030B**

**Duplicate (4030119-DUP1)**

**Source: P4B0766-41RE1**

Gasoline Range Hydrocarbons	481	50.0	80.0	ug/l		1910			120	50	Q-14
Surrogate: 4-BFB (FID)	1.00E9			"	50.0		2.00E9	50-150			S-09

**Matrix Spike (4030119-MS1)**

**Source: P4B0632-04**

Benzene	48.6	0.300	0.500	ug/l	50.0	ND	97.2	70-130			
Toluene	47.1	0.300	0.500	"	50.0	ND	94.2	70-130			
Ethylbenzene	48.0	0.300	0.500	"	50.0	ND	96.0	70-130			
Xylenes (total)	154	0.600	1.00	"	150	ND	103	70-130			
Surrogate: 4-BFB (PID)	51.3			"	50.0		103	70-130			

**Matrix Spike Dup (4030119-MSD1)**

**Source: P4B0632-04**

Benzene	49.9	0.300	0.500	ug/l	50.0	ND	99.8	70-130	2.64	20	
Toluene	47.9	0.300	0.500	"	50.0	ND	95.8	70-130	1.68	20	
Ethylbenzene	47.9	0.300	0.500	"	50.0	ND	95.8	70-130	0.209	20	
Xylenes (total)	152	0.600	1.00	"	150	ND	101	70-130	1.31	20	
Surrogate: 4-BFB (PID)	51.0			"	50.0		102	70-130			

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030003: Prepared 03/01/04 Using EPA 3510 Fuels**

**Blank (4030003-BLK1)**

Diesel Range Organics	ND		0.250	mg/l							
Heavy Oil Range Hydrocarbons	ND		0.500	"							
Surrogate: 1-Chlorooctadecane	0.101			"	0.0960		105	50-150			

**LCS (4030003-BS1)**

Diesel Range Organics	2.06		0.250	mg/l	2.50		82.4	50-150			
Heavy Oil Range Hydrocarbons	1.51		0.500	"	1.50		101	50-150			
Surrogate: 1-Chlorooctadecane	0.104			"	0.0960		108	50-150			

**LCS Dup (4030003-BSD1)**

Diesel Range Organics	2.19		0.250	mg/l	2.50		87.6	50-150	6.12	50	
Heavy Oil Range Hydrocarbons	1.58		0.500	"	1.50		105	50-150	4.53	50	
Surrogate: 1-Chlorooctadecane	0.105			"	0.0960		109	50-150			

**Batch 4030063: Prepared 03/02/04 Using EPA 3550 Fuels**

**Blank (4030063-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	3.79			"	4.80		79.0	50-150			

**LCS (4030063-BS1)**

Diesel Range Organics	105		25.0	mg/kg	125		84.0	50-150			
Heavy Oil Range Hydrocarbons	76.7		50.0	"	75.0		102	50-150			
Surrogate: 1-Chlorooctadecane	4.79			"	4.80		99.8	50-150			

**Duplicate (4030063-DUP1)**

**Source: P4B0846-01**

Diesel Range Organics	15.0		25.0	mg/kg dry	20.9				32.9	50	
Heavy Oil Range Hydrocarbons	85.4		50.0	"	111				26.1	50	
Surrogate: 1-Chlorooctadecane	4.87			"	5.23				93.1	50-150	

North Creek Analytical - Portland

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030063: Prepared 03/02/04 Using EPA 3550 Fuels**

**Duplicate (4030063-DUP2)**

Source: P4B0846-03

Diesel Range Organics	ND		25.0 mg/kg dry			ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	4.08			"	5.22		78.2	50-150			

**Batch 4030103: Prepared 03/03/04 Using EPA 3550 Fuels**

**Blank (4030103-BLK1)**

Diesel Range Organics	ND		25.0 mg/kg								
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	4.17			"	4.80		86.9	50-150			

**LCS (4030103-BS1)**

Diesel Range Organics	121		25.0 mg/kg		125		96.8	50-150			
Heavy Oil Range Hydrocarbons	70.3		50.0	"	75.0		93.7	50-150			
Surrogate: 1-Chlorooctadecane	4.94			"	4.80		103	50-150			

**Duplicate (4030103-DUP1)**

Source: P4B0749-01

Diesel Range Organics	7290		2500 mg/kg dry			9580			27.1	50	
Heavy Oil Range Hydrocarbons	31300		5000	"		42000			29.2	50	
Surrogate: 1-Chlorooctadecane	ND			"	6.04			50-150			S-01

**Duplicate (4030103-DUP2)**

Source: P4B0749-02

Diesel Range Organics	4180		1250 mg/kg dry			5380			25.1	50	
Heavy Oil Range Hydrocarbons	14000		2500	"		17300			21.1	50	
Surrogate: 1-Chlorooctadecane	ND			"	5.90			50-150			S-01

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030035: Prepared 03/01/04 Using EPA 7471**

**Blank (4030035-BLK1)**

Mercury	ND		0.100	mg/kg							
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**LCS (4030035-BS1)**

Mercury	0.994		0.100	mg/kg	1.00		99.4	80-120			
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**Duplicate (4030035-DUP1)**

Mercury	0.0825		0.0862	mg/kg dry		0.0708			15.3	40	
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Source: P4B0773-01

**Matrix Spike (4030035-MS1)**

Mercury	0.930		0.0658	mg/kg dry	0.872	0.0708	98.5	75-125			
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Source: P4B0773-01

**Matrix Spike (4030035-MS2)**

Mercury	2.43		0.229	mg/kg dry	2.29	0.157	99.3	75-125			
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Source: P4B0773-02

**Batch 4030219: Prepared 03/05/04 Using EPA 3050**

**Blank (4030219-BLK2)**

Silver	ND		0.500	mg/kg							
Arsenic	ND		0.500	"							
Barium	ND		0.500	"							
Cadmium	ND		0.500	"							
Chromium	ND		0.500	"							
Lead	ND		0.500	"							
Selenium	ND		0.500	"							

**LCS (4030219-BS2)**

Silver	5.66		0.500	mg/kg	5.00		113	80-120			
Arsenic	11.1		0.500	"	10.0		111	80-120			
Barium	10.7		0.500	"	10.0		107	80-120			
Cadmium	10.5		0.500	"	10.0		105	80-120			
Chromium	11.2		0.500	"	10.0		112	80-120			
Lead	10.5		0.500	"	10.0		105	80-120			
Selenium	10.8		0.500	"	10.0		108	80-120			

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030219: Prepared 03/05/04 Using EPA 3050**

**Duplicate (4030219-DUP1)**

**Source: P4C0117-01**

Silver	0.0864		0.350 mg/kg dry			0.0661			26.6	40	
Arsenic	4.47		0.350 "			4.41			1.35	40	
Barium	199		0.350 "			211			5.85	40	
Cadmium	ND		0.699 "			ND			NA	40	
Chromium	23.2		0.350 "			22.1			4.86	40	
Lead	9.41		0.350 "			8.23			13.4	40	
Selenium	0.405		0.350 "			ND				40	

**Matrix Spike (4030219-MS1)**

**Source: P4C0117-01**

Silver	7.38		0.500 mg/kg dry	6.25	0.0661	117	75-125				
Arsenic	16.9		0.500 "	12.5	4.41	99.9	75-125				
Barium	198		0.500 "	12.5	211	-104	75-125				Q-14
Cadmium	13.0		0.500 "	12.5	ND	104	75-125				
Chromium	34.2		0.500 "	12.5	22.1	96.8	75-125				
Lead	21.6		0.500 "	12.5	8.23	107	75-125				
Selenium	12.1		0.500 "	12.5	ND	96.8	75-125				

**Batch 4030308: Prepared 03/08/04 Using EPA 3050**

**Blank (4030308-BLK2)**

Silver	ND		0.500 mg/kg								
Arsenic	ND		0.500 "								
Barium	ND		0.500 "								
Cadmium	ND		0.500 "								
Chromium	ND		0.500 "								
Lead	ND		0.500 "								
Selenium	ND		0.500 "								

North Creek Analytical - Portland

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030308: Prepared 03/08/04 Using EPA 3050**

**LCS (4030308-BS2)**

Silver	5.90		0.500	mg/kg	5.00		118	80-120			
Arsenic	11.2		0.500	"	10.0		112	80-120			
Barium	11.1		0.500	"	10.0		111	80-120			
Cadmium	11.1		0.500	"	10.0		111	80-120			
Chromium	11.6		0.500	"	10.0		116	80-120			
Lead	11.5		0.500	"	10.0		115	80-120			
Selenium	10.6		0.500	"	10.0		106	80-120			

**Duplicate (4030308-DUP1)**

**Source: P4B0866-04**

Silver	ND		0.439 mg/kg dry			ND			NA	40	
Arsenic	1.90		0.439	"		1.79			5.96	40	
Barium	67.7		0.439	"		97.0			35.6	40	
Cadmium	ND		0.439	"		ND			NA	40	
Chromium	14.4		0.439	"		10.7			29.5	40	
Lead	3.50		0.439	"		3.04			14.1	40	
Selenium	ND		0.439	"		ND			NA	40	

**Matrix Spike (4030308-MS1)**

**Source: P4B0866-04**

Silver	6.37		0.500 mg/kg dry		5.35	ND	119	75-125			
Arsenic	13.6		0.500	"	10.7	1.79	110	75-125			
Barium	73.6		0.500	"	10.7	97.0	-219	75-125			Q-14
Cadmium	12.0		0.500	"	10.7	ND	112	75-125			
Chromium	25.2		0.500	"	10.7	10.7	136	75-125			Q-14
Lead	15.6		0.500	"	10.7	3.04	117	75-125			
Selenium	11.4		0.500	"	10.7	ND	107	75-125			

**Matrix Spike (4030308-MS2)**

**Source: P4B0866-06**

Silver	4.64		0.407 mg/kg dry		4.46	0.0399	103	75-125			
Arsenic	10.6		0.407	"	8.92	3.09	84.2	75-125			
Barium	72.5		0.407	"	8.92	79.1	-74.0	75-125			Q-14
Cadmium	8.59		0.407	"	8.92	ND	96.3	75-125			
Chromium	18.1		0.407	"	8.92	12.6	61.7	75-125			Q-14
Lead	17.2		0.407	"	8.92	9.16	90.1	75-125			
Selenium	7.86		0.407	"	8.92	ND	88.1	75-125			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:51

**Total Metals per EPA 6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030308: Prepared 03/08/04 Using EPA 3050**

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 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**TCLP Metals per EPA 1311/6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030450: Prepared 03/11/04 Using EPA 1311/3005**

**Blank (4030450-BLK1)**

Barium	ND		0.0500	mg/l							
Chromium	ND		0.0500	"							
Lead	ND		0.0500	"							

**LCS (4030450-BS1)**

Barium	10.0		0.100	mg/l	10.0		100	75-125			
Chromium	5.45		0.100	"	5.00		109	75-125			
Lead	5.12		0.100	"	5.00		102	75-125			

**Matrix Spike (4030450-MS2)**

**Source: P4B0846-02**

Barium	10.2		0.100	mg/l	10.0	0.579	96.2	50-150			
Chromium	5.11		0.100	"	5.00	ND	102	50-150			
Lead	4.82		0.100	"	5.00	ND	96.4	50-150			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

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 32001 32nd Ave South Suite 100  
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**Reported:**  
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**Hexavalent Chromium per EPA Method 3060A - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4030286: Prepared 03/08/04 Using EPA 3060A Cr6</b>											
<b>Blank (4030286-BLK1)</b>											
Hexavalent Chromium	ND		10.0	mg/kg							
<b>LCS (4030286-BS1)</b>											
Hexavalent Chromium	48.0		10.0	mg/kg	50.0		96.0	80-120			
<b>Duplicate (4030286-DUP1) Source: P4B0014-02RE1</b>											
Hexavalent Chromium	54.4		10.0	mg/kg dry		58.1			6.58	40	
<b>Duplicate (4030286-DUP2) Source: P4B0014-02RE1</b>											
Hexavalent Chromium	54.2		10.0	mg/kg dry		58.1			6.95	40	
<b>Matrix Spike (4030286-MS1) Source: P4B0014-02RE1</b>											
Hexavalent Chromium	100		10.0	mg/kg dry	48.9	58.1	85.7	75-125			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Manager: Galen Davis

Reported:  
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**Polychlorinated Biphenyls per EPA Method 8082 - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030010: Prepared 03/01/04 Using EPA 3550**

**Blank (4030010-BLK1)**

Aroclor 1016	ND		67.0	ug/kg							
Aroclor 1221	ND		134	"							
Aroclor 1232	ND		67.0	"							
Aroclor 1242	ND		67.0	"							
Aroclor 1248	ND		67.0	"							
Aroclor 1254	ND		67.0	"							
Aroclor 1260	ND		67.0	"							
<i>Surrogate:</i>	30.2			"	33.3		90.7	36-140			
<i>2,4,5,6-Tetrachloro-m-xylene</i>											
<i>Surrogate: Decachlorobiphenyl</i>	29.8			"	33.3		89.5	16-149			

**LCS (4030010-BS1)**

Aroclor 1016	315		67.0	ug/kg	333		94.6	57-135			
Aroclor 1260	384		67.0	"	333		115	60-135			
<i>Surrogate:</i>	33.8			"	33.3		102	36-140			
<i>2,4,5,6-Tetrachloro-m-xylene</i>											
<i>Surrogate: Decachlorobiphenyl</i>	34.2			"	33.3		103	16-149			

**Matrix Spike (4030010-MS1)**

**Source: P4B0568-48**

Aroclor 1016	294		67.0	ug/kg dry	399	ND	73.7	37-145			
Aroclor 1260	320		67.0	"	399	ND	80.2	25-144			
<i>Surrogate:</i>	33.1			"	39.9		83.0	36-140			
<i>2,4,5,6-Tetrachloro-m-xylene</i>											
<i>Surrogate: Decachlorobiphenyl</i>	29.2			"	39.9		73.2	16-149			

**Matrix Spike Dup (4030010-MSD1)**

**Source: P4B0568-48**

Aroclor 1016	321		67.0	ug/kg dry	399	ND	80.5	37-145	8.78	26	
Aroclor 1260	322		67.0	"	399	ND	80.7	25-144	0.623	30	
<i>Surrogate:</i>	36.6			"	39.9		91.7	36-140			
<i>2,4,5,6-Tetrachloro-m-xylene</i>											
<i>Surrogate: Decachlorobiphenyl</i>	29.0			"	39.9		72.7	16-149			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
~~907.563.9200 fax 907.563.9210~~

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Manager: Galen Davis

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**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021108: Prepared 02/27/04 Using EPA 5035**

**Blank (4021108-BLK1)**

Acetone	ND	144	2500	ug/kg							
Benzene	ND	4.44	100	"							U
Bromobenzene	ND	12.2	100	"							U
Bromochloromethane	ND	16.4	100	"							U
Bromodichloromethane	ND	10.2	100	"							U
Bromoform	ND	15.8	100	"							U
Bromomethane	ND	5.09	500	"							U
2-Butanone	ND	148	1000	"							U
n-Butylbenzene	ND	11.3	500	"							U
sec-Butylbenzene	ND	7.45	100	"							U
tert-Butylbenzene	ND	15.2	100	"							U
Carbon disulfide	ND	7.19	1000	"							U
Carbon tetrachloride	ND	7.64	100	"							U
Chlorobenzene	ND	8.09	100	"							U
Chloroethane	ND	10.7	100	"							U
Chloroform	ND	7.26	100	"							U
Chloromethane	ND	6.72	500	"							U
2-Chlorotoluene	ND	11.0	100	"							U
4-Chlorotoluene	ND	10.4	100	"							U
1,2-Dibromo-3-chloropropane	ND	26.0	500	"							U
Dibromochloromethane	ND	11.2	100	"							U
1,2-Dibromoethane	ND	11.6	100	"							U
Dibromomethane	ND	14.7	100	"							U
1,2-Dichlorobenzene	ND	14.4	100	"							U
1,3-Dichlorobenzene	ND	5.86	100	"							U
1,4-Dichlorobenzene	ND	14.9	100	"							U
Dichlorodifluoromethane	ND	11.8	500	"							U
1,1-Dichloroethane	ND	11.9	100	"							U
1,2-Dichloroethane	ND	11.2	100	"							U
1,1-Dichloroethene	ND	11.9	100	"							U
cis-1,2-Dichloroethene	ND	12.6	100	"							U
trans-1,2-Dichloroethene	ND	8.97	100	"							U

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
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**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021108: Prepared 02/27/04 Using EPA 5035**

**Blank (4021108-BLK1)**

1,2-Dichloropropane	ND	7.45	100	ug/kg							U
1,3-Dichloropropane	ND	17.4	100	"							U
2,2-Dichloropropane	ND	8.09	100	"							U
1,1-Dichloropropene	ND	10.9	100	"							U
cis-1,3-Dichloropropene	ND	4.95	100	"							U
trans-1,3-Dichloropropene	ND	8.29	100	"							U
Ethylbenzene	ND	9.40	100	"							U
Hexachlorobutadiene	ND	69.4	200	"							U
2-Hexanone	ND	57.2	1000	"							U
Isopropylbenzene	ND	9.55	200	"							U
p-Isopropyltoluene	ND	9.68	200	"							U
4-Methyl-2-pentanone	ND	117	500	"							U
Methyl tert-butyl ether	ND	11.9	100	"							U
Methylene chloride	ND	250	500	"							U
Naphthalene	ND	14.1	200	"							U
n-Propylbenzene	ND	9.89	100	"							U
Styrene	ND	8.89	100	"							U
1,1,1,2-Tetrachloroethane	ND	9.25	100	"							U
1,1,2,2-Tetrachloroethane	ND	21.1	100	"							U
Tetrachloroethene	ND	16.9	100	"							U
Toluene	ND	6.29	100	"							U
1,2,3-Trichlorobenzene	ND	16.9	100	"							U
1,2,4-Trichlorobenzene	ND	21.4	100	"							U
1,1,1-Trichloroethane	ND	6.13	100	"							U
1,1,2-Trichloroethane	ND	18.1	100	"							U
Trichloroethene	ND	12.0	100	"							U
Trichlorofluoromethane	ND	8.97	100	"							U
1,2,3-Trichloropropane	ND	49.2	100	"							U
1,2,4-Trimethylbenzene	ND	6.75	100	"							U
1,3,5-Trimethylbenzene	ND	9.33	100	"							U
Vinyl chloride	ND	5.74	100	"							U
o-Xylene	ND	11.6	100	"							U

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:51

**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021108: Prepared 02/27/04 Using EPA 5035**

**Blank (4021108-BLK1)**

m,p-Xylene	ND	11.4	200	ug/kg							U
Surrogate: 4-BFB	1880			"	2000		94.0	42.6-130			
Surrogate: 1,2-DCA-d4	2270			"	2000		114	57.3-144			
Surrogate: Dibromofluoromethane	2030			"	2000		102	45.5-130			
Surrogate: Toluene-d8	2150			"	2000		108	42.1-144			

**LCS (4021108-BS1)**

Benzene	2010	4.44	100	ug/kg	2000		100	81.9-125			
Chlorobenzene	2030	8.09	100	"	2000		102	79.2-125			
1,1-Dichloroethene	1880	11.9	100	"	2000		94.0	66.1-125			
Toluene	2020	6.29	100	"	2000		101	80-125			
Trichloroethene	2180	12.0	100	"	2000		109	76-125			
Surrogate: 4-BFB	1850			"	2000		92.5	42.6-130			
Surrogate: 1,2-DCA-d4	2290			"	2000		114	57.3-144			
Surrogate: Dibromofluoromethane	2180			"	2000		109	45.5-130			
Surrogate: Toluene-d8	2280			"	2000		114	42.1-144			

**Matrix Spike (4021108-MS1)**

**Source: P4B0793-07**

Benzene	2720	4.44	100	ug/kg dry	2560	ND	106	68.5-125			
Chlorobenzene	2700	8.09	100	"	2560	ND	105	65.9-125			
1,1-Dichloroethene	2540	11.9	100	"	2560	ND	99.2	55.8-125			
Toluene	2700	6.29	100	"	2560	ND	105	70.3-125			
Trichloroethene	2940	12.0	100	"	2560	ND	115	65.5-125			
Surrogate: 4-BFB	2180			"	2560		85.2	42.6-130			
Surrogate: 1,2-DCA-d4	2620			"	2560		102	57.3-144			
Surrogate: Dibromofluoromethane	2510			"	2560		98.0	45.5-130			
Surrogate: Toluene-d8	2650			"	2560		104	42.1-144			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 541.383.9310 fax 541.382.7588  
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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

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**Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4021108: Prepared 02/27/04 Using EPA 5035**

**Matrix Spike Dup (4021108-MSD1)**

**Source: P4B0793-07**

Benzene	2480	4.44	100	ug/kg dry	2560	ND	96.9	68.5-125	9.23	25	
Chlorobenzene	2470	8.09	100	"	2560	ND	96.5	65.9-125	8.90	25	
1,1-Dichloroethene	2380	11.9	100	"	2560	ND	93.0	55.8-125	6.50	25	
Toluene	2480	6.29	100	"	2560	ND	96.9	70.3-125	8.49	25	
Trichloroethene	2720	12.0	100	"	2560	ND	106	65.5-125	7.77	25	
Surrogate: 4-BFB	2180			"	2560		85.2	42.6-130			
Surrogate: 1,2-DCA-d4	2560			"	2560		100	57.3-144			
Surrogate: Dibromofluoromethane	2400			"	2560		93.8	45.5-130			
Surrogate: Toluene-d8	2570			"	2560		100	42.1-144			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Number: 036026.00  
 Project Manager: Galen Davis

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**Selected Volatile Organic Compounds per EPA Method 8260B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030050: Prepared 03/01/04 Using EPA 5035**

**Blank (4030050-BLK1)**

Benzene	ND	4.44	50.0	ug/kg							U
Toluene	ND	6.29	50.0	"							U
Ethylbenzene	ND	9.40	50.0	"							U
Xylenes (total)	ND	26.2	100	"							U
Surrogate: 4-BFB	1950			"	2000		97.5	42.6-130			
Surrogate: 1,2-DCA-d4	2330			"	2000		116	57.3-144			
Surrogate: Dibromofluoromethane	2180			"	2000		109	45.5-130			
Surrogate: Toluene-d8	2270			"	2000		114	42.1-144			

**LCS (4030050-BS1)**

Benzene	2050	4.44	50.0	ug/kg	2000		102	81.9-125			
Toluene	2060	6.29	50.0	"	2000		103	80-125			
Surrogate: 4-BFB	1990			"	2000		99.5	42.6-130			
Surrogate: 1,2-DCA-d4	2420			"	2000		121	57.3-144			
Surrogate: Dibromofluoromethane	2360			"	2000		118	45.5-130			
Surrogate: Toluene-d8	2390			"	2000		120	42.1-144			

**Matrix Spike (4030050-MS1)**

**Source: P4B0633-02**

Benzene	2550	4.44	50.0	ug/kg dry	2410	ND	106	68.5-125			
Toluene	2570	6.29	50.0	"	2410	ND	107	70.3-125			
Surrogate: 4-BFB	2240			"	2410		92.9	42.6-130			
Surrogate: 1,2-DCA-d4	2530			"	2410		105	57.3-144			
Surrogate: Dibromofluoromethane	2500			"	2410		104	45.5-130			
Surrogate: Toluene-d8	2640			"	2410		110	42.1-144			

**Matrix Spike Dup (4030050-MSD1)**

**Source: P4B0633-02**

Benzene	2530	4.44	50.0	ug/kg dry	2410	ND	105	68.5-125	0.787	25	
Toluene	2540	6.29	50.0	"	2410	ND	105	70.3-125	1.17	25	
Surrogate: 4-BFB	2230			"	2410		92.5	42.6-130			
Surrogate: 1,2-DCA-d4	2450			"	2410		102	57.3-144			
Surrogate: Dibromofluoromethane	2500			"	2410		104	45.5-130			
Surrogate: Toluene-d8	2610			"	2410		108	42.1-144			

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**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

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**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030203: Prepared 03/05/04 Using EPA 3550**

**Blank (4030203-BLK1)**

Acenaphthene	ND		13.4	ug/kg							
Acenaphthylene	ND		13.4	"							
Anthracene	ND		13.4	"							
Benzo (a) anthracene	ND		13.4	"							
Benzo (a) pyrene	ND		13.4	"							
Benzo (b) fluoranthene	ND		13.4	"							
Benzo (ghi) perylene	ND		13.4	"							
Benzo (k) fluoranthene	ND		13.4	"							
Chrysene	ND		13.4	"							
Dibenzo (a,h) anthracene	ND		13.4	"							
Fluoranthene	ND		13.4	"							
Fluorene	ND		13.4	"							
Indeno (1,2,3-cd) pyrene	ND		13.4	"							
Naphthalene	ND		13.4	"							
Phenanthrene	ND		13.4	"							
Pyrene	ND		13.4	"							
Surrogate: Fluorene-d10	65.3			"	83.3		78.4	40-150			
Surrogate: Pyrene-d10	66.9			"	83.3		80.3	40-150			
Surrogate: Benzo (a) pyrene-d12	76.4			"	83.3		91.7	40-150			

**LCS (4030203-BS1)**

Acenaphthene	136		13.4	ug/kg	167		81.4	33-139			
Benzo (a) pyrene	147		13.4	"	167		88.0	45-149			
Pyrene	132		13.4	"	167		79.0	39-138			
Surrogate: Fluorene-d10	70.2			"	83.3		84.3	40-150			
Surrogate: Pyrene-d10	71.0			"	83.3		85.2	40-150			
Surrogate: Benzo (a) pyrene-d12	81.0			"	83.3		97.2	40-150			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

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**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030203: Prepared 03/05/04 Using EPA 3550**

**Matrix Spike (4030203-MS1)**

**Source: P4B0733-06**

Acenaphthene	270		335 ug/kg dry		225	ND	120	33-139			
Benzo (a) pyrene	196		335 "		225	ND	87.1	45-149			
Pyrene	291		335 "		225	ND	129	39-138			
Surrogate: Fluorene-d10	100			"	112		89.3	40-150			
Surrogate: Pyrene-d10	111			"	112		99.1	40-150			
Surrogate: Benzo (a) pyrene-d12	112			"	112		100	40-150			

**Matrix Spike Dup (4030203-MSD1)**

**Source: P4B0733-06**

Acenaphthene	288		335 ug/kg dry		225	ND	128	33-139	6.45	60	
Benzo (a) pyrene	191		335 "		225	ND	84.9	45-149	2.58	60	
Pyrene	316		335 "		225	ND	140	39-138	8.24	60	Q-99
Surrogate: Fluorene-d10	101			"	112		90.2	40-150			
Surrogate: Pyrene-d10	111			"	112		99.1	40-150			
Surrogate: Benzo (a) pyrene-d12	109			"	112		97.3	40-150			

**Batch 4030268: Prepared 03/08/04 Using EPA 3550**

**Blank (4030268-BLK1)**

Acenaphthene	ND		13.4 ug/kg								
Acenaphthylene	ND		13.4 "								
Anthracene	ND		13.4 "								
Benzo (a) anthracene	ND		13.4 "								
Benzo (a) pyrene	ND		13.4 "								
Benzo (b) fluoranthene	ND		13.4 "								
Benzo (ghi) perylene	ND		13.4 "								
Benzo (k) fluoranthene	ND		13.4 "								
Chrysene	ND		13.4 "								
Dibenzo (a,h) anthracene	ND		13.4 "								
Fluoranthene	ND		13.4 "								
Fluorene	ND		13.4 "								
Indeno (1,2,3-cd) pyrene	ND		13.4 "								
Naphthalene	ND		13.4 "								
Phenanthrene	ND		13.4 "								

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4030268: Prepared 03/08/04 Using EPA 3550**

**Blank (4030268-BLK1)**

Pyrene	ND		13.4	ug/kg							
Surrogate: Fluorene-d10	66.4			"	83.3		79.7	40-150			
Surrogate: Pyrene-d10	73.9			"	83.3		88.7	40-150			
Surrogate: Benzo (a) pyrene-d12	75.9			"	83.3		91.1	40-150			

**LCS (4030268-BS1)**

Acenaphthene	128		13.4	ug/kg	167		76.6	33-139			
Benzo (a) pyrene	138		13.4	"	167		82.6	45-149			
Pyrene	132		13.4	"	167		79.0	39-138			
Surrogate: Fluorene-d10	66.6			"	83.3		80.0	40-150			
Surrogate: Pyrene-d10	71.6			"	83.3		86.0	40-150			
Surrogate: Benzo (a) pyrene-d12	79.1			"	83.3		95.0	40-150			

**Matrix Spike (4030268-MS1)**

**Source: P4B0846-07**

Acenaphthene	175		13.4	ug/kg dry	202	ND	86.6	33-139			
Benzo (a) pyrene	187		13.4	"	202	ND	92.6	45-149			
Pyrene	184		13.4	"	202	ND	91.1	39-138			
Surrogate: Fluorene-d10	89.7			"	101		88.8	40-150			
Surrogate: Pyrene-d10	93.8			"	101		92.9	40-150			
Surrogate: Benzo (a) pyrene-d12	99.3			"	101		98.3	40-150			

**Matrix Spike Dup (4030268-MSD1)**

**Source: P4B0846-07**

Acenaphthene	176		13.4	ug/kg dry	202	ND	87.1	33-139	0.570	60	
Benzo (a) pyrene	182		13.4	"	202	ND	90.1	45-149	2.71	60	
Pyrene	182		13.4	"	202	ND	90.1	39-138	1.09	60	
Surrogate: Fluorene-d10	88.4			"	101		87.5	40-150			
Surrogate: Pyrene-d10	93.0			"	101		92.1	40-150			
Surrogate: Benzo (a) pyrene-d12	93.9			"	101		93.0	40-150			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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**Bend** 20332 Emplre Avenue, Suite F-1, Bend, OR 97701-5711  
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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

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 Project Manager: Galen Davis

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**Percent Dry Weight (Solids) per Standard Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4030143: Prepared 03/03/04 Using Dry Weight</b>											
<b>Duplicate (4030143-DUP1)</b>						<b>Source: P4B0793-07</b>					
% Solids	77.9		1.00	% by Weight		78.1			0.256	20	
<b>Duplicate (4030143-DUP2)</b>						<b>Source: P4B0793-12</b>					
% Solids	79.7		1.00	% by Weight		80.0			0.376	20	
<b>Duplicate (4030143-DUP3)</b>						<b>Source: P4C0121-01</b>					
% Solids	77.8		1.00	% by Weight		78.0			0.257	20	

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425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003

Project: BNSF-Wishram  
Project Number: 036026.00  
Project Manager: Galen Davis

**Reported:**  
08/19/04 07:51

**Notes and Definitions**

- J Estimated value.
- Q-14 The matrix spike recovery, and/or RPD, for this QC sample is outside of control limits due to a non-homogeneous sample matrix.
- Q-99 The spike recovery, and/or RPD, for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
- R-01 The reporting limit for this analyte was raised to compensate for the limited sample quantity available for the analysis.
- S-01 The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
- S-09 Surrogate recovery is outside control limits due to matrix interference.
- U Analyte included in the analysis but not detected.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
907.563.9200 fax 907.563.9210

19 August 2004

Galen Davis  
Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003  
RE: BNSF-Wishram

Enclosed are the results of analyses for samples received by the laboratory on 04/08/04 09:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Domenighini  
Project Manager



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Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003

Project: BNSF-Wishram  
Project Number: 036026.00  
Project Manager: Galen Davis

Reported:  
08/19/04 07:45

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WSB-04-37-7	P4D0312-01	Soil	04/05/04 13:00	04/08/04 09:15
WSB-04-38-10	P4D0312-02	Soil	04/05/04 12:30	04/08/04 09:15
WSB-04-7-12	P4D0312-03	Soil	04/05/04 15:00	04/08/04 09:15
DRUM SB-5	P4D0312-04	Soil	04/05/04 16:10	04/08/04 09:15

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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:45

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-7-12 (P4D0312-03) Soil</b> <b>Sampled: 04/05/04 15:00</b> <b>Received: 04/08/04 09:15</b>										
Benzene	ND	0.00750	0.0500	mg/kg dry	1	4040419	04/12/04	04/16/04	NW-G, 802	U
Toluene	ND	0.00750	0.0500	"	"	"	"	"	"	U
Ethylbenzene	0.0141	0.00750	0.0500	"	"	"	"	"	"	J
Xylenes (total)	0.0468	0.0300	0.0500	"	"	"	"	"	"	J
<b>Gasoline Range Hydrocarbons</b>	<b>40.5</b>	<b>1.25</b>	<b>2.50</b>	"	"	"	"	04/13/04	"	
Surrogate: a,a,a-TFT (PID)	54.4 %		70-130			"	"	04/16/04	"	S-09
Surrogate: a,a,a-TFT (FID)	50.8 %		50-150			"	"	04/13/04	"	

North Creek Analytical - Portland

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Lisa Domenighini, Project Manager

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 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100 Federal Way, WA 98003	Project: BNSF-Wishram Project Number: 036026.00 Project Manager: Galen Davis	Reported: 08/19/04 07:45
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**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup  
North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-37-7 (P4D0312-01) Soil</b> <b>Sampled: 04/05/04 13:00</b> <b>Received: 04/08/04 09:15</b>										
Diesel Range Organics	2490		625	mg/kg dry	25	4040394	04/12/04	04/13/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	3740		1250	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	%		50-150			"	"	"	"	S-01
<b>WSB-04-38-10 (P4D0312-02) Soil</b> <b>Sampled: 04/05/04 12:30</b> <b>Received: 04/08/04 09:15</b>										
Diesel Range Organics	ND		25.0	mg/kg dry	1	4040456	04/13/04	04/13/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	101 %		50-150			"	"	"	"	
<b>WSB-04-7-12 (P4D0312-03) Soil</b> <b>Sampled: 04/05/04 15:00</b> <b>Received: 04/08/04 09:15</b>										
Diesel Range Organics	1070		25.0	mg/kg dry	1	4040456	04/13/04	04/14/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	165		50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctadecane	120 %		50-150			"	"	"	"	

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Lisa Domenighini, Project Manager

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:45

**TCLP Metals per EPA 1311/6000/7000 Series Methods**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>DRUM SB-5 (P4D0312-04) Soil</b>										
Sampled: 04/05/04 16:10 Received: 04/08/04 09:15										
Barium	0.363		0.00500	mg/l	0.05	4040506	04/13/04	04/14/04	1311/6020	A-01, M-02
Lead	ND		0.00500	"	"	"	"	"	"	M-02

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:45

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-7-12 (P4D0312-03) Soil</b> <b>Sampled: 04/05/04 15:00</b> <b>Received: 04/08/04 09:15</b>										
Benzo (a) anthracene	ND		13.4	ug/kg dry	1	4040398	04/12/04	04/20/04	EPA 8270m	
Benzo (a) pyrene	ND		13.4	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND		13.4	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND		13.4	"	"	"	"	"	"	
Chrysene	ND		13.4	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND		13.4	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	"	"	"	"	"	"	
Surrogate: Pyrene-d10	105 %		40-150			"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	84.0 %		40-150			"	"	"	"	

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Reported:  
 08/19/04 07:45

**Percent Dry Weight (Solids) per Standard Methods  
 North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>WSB-04-37-7 (P4D0312-01) Soil</b> <b>Sampled: 04/05/04 13:00</b> <b>Received: 04/08/04 09:15</b>										
% Solids	90.9		1.00% by Weigh		1	4040536	04/14/04	04/15/04	NCA SOP	
<b>WSB-04-38-10 (P4D0312-02) Soil</b> <b>Sampled: 04/05/04 12:30</b> <b>Received: 04/08/04 09:15</b>										
% Solids	81.3		1.00% by Weigh		1	4040536	04/14/04	04/15/04	NCA SOP	
<b>WSB-04-7-12 (P4D0312-03) Soil</b> <b>Sampled: 04/05/04 15:00</b> <b>Received: 04/08/04 09:15</b>										
% Solids	80.3		1.00% by Weigh		1	4040536	04/14/04	04/15/04	NCA SOP	
<b>DRUM SB-5 (P4D0312-04) Soil</b> <b>Sampled: 04/05/04 16:10</b> <b>Received: 04/08/04 09:15</b>										
% Solids	96.3		1.00% by Weigh		1	4040536	04/14/04	04/15/04	NCA SOP	

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 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:45

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4040419: Prepared 04/12/04 Using EPA 5035</b>											
<b>Blank (4040419-BLK1)</b>											
Benzene	ND	0.00750	0.0500	mg/kg							U
Toluene	ND	0.00750	0.0500	"							U
Ethylbenzene	ND	0.00750	0.0500	"							U
Xylenes (total)	ND	0.0300	0.0500	"							U
Gasoline Range Hydrocarbons	ND	1.25	2.50	"							U
Surrogate: a,a,a-TFT (PID)	1.33			"	1.25		106	70-130			
Surrogate: a,a,a-TFT (FID)	1.12			"	1.25		89.6	50-150			
<b>LCS (4040419-BS1)</b>											
Gasoline Range Hydrocarbons	18.5	1.25	2.50	mg/kg	25.0		74.0	50-150			
Surrogate: a,a,a-TFT (PID)	1.08			"	1.25		86.4	70-130			
Surrogate: a,a,a-TFT (FID)	0.888			"	1.25		71.0	50-150			
<b>LCS (4040419-BS2)</b>											
Benzene	1.03	0.00750	0.0500	mg/kg	1.25		82.4	65-130			
Toluene	0.975	0.00750	0.0500	"	1.25		78.0	65-130			
Ethylbenzene	1.06	0.00750	0.0500	"	1.25		84.8	65-130			
Xylenes (total)	3.11	0.0300	0.0500	"	3.75		82.9	65-130			
Surrogate: a,a,a-TFT (PID)	1.32			"	1.25		106	70-130			
<b>Duplicate (4040419-DUP1) Source: P4D0362-01</b>											
Gasoline Range Hydrocarbons	ND	2.50	5.00	mg/kg dry		ND			NA	50	D, U
Surrogate: a,a,a-TFT (FID)	1.89			"	3.35		56.4	50-150			D
<b>Duplicate (4040419-DUP2) Source: P4D0362-03</b>											
Gasoline Range Hydrocarbons	ND	2.50	5.00	mg/kg dry		ND			NA	50	D, U
Surrogate: a,a,a-TFT (FID)	1.91			"	3.38		56.5	50-150			D

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**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:45

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4040419: Prepared 04/12/04 Using EPA 5035**

**Matrix Spike (4040419-MS1)**

**Source: P4D0107-06**

Benzene	1.32	0.00750	0.0500	mg/kg dry	1.54	ND	85.7	65-130			
Toluene	1.23	0.00750	0.0500	"	1.54	ND	79.9	65-130			
Ethylbenzene	1.33	0.00750	0.0500	"	1.54	ND	86.4	65-130			
Xylenes (total)	3.98	0.0300	0.0500	"	4.62	ND	86.1	65-130			
Surrogate: a,a,a-TFT (PID)	0.730			"	1.54		47.4	70-130			S-09

**Matrix Spike Dup (4040419-MSD1)**

**Source: P4D0107-06**

Benzene	1.33	0.00750	0.0500	mg/kg dry	1.54	ND	86.4	65-130	0.755	20	
Toluene	1.23	0.00750	0.0500	"	1.54	ND	79.9	65-130	0.00	20	
Ethylbenzene	1.32	0.00750	0.0500	"	1.54	ND	85.7	65-130	0.755	20	
Xylenes (total)	3.87	0.0300	0.0500	"	4.62	ND	83.8	65-130	2.80	20	
Surrogate: a,a,a-TFT (PID)	0.815			"	1.54		52.9	70-130			S-09

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 425.420.9200 fax 425.420.9210  
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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
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Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:45

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4040394: Prepared 04/12/04 Using EPA 3550 Fuels**

**Blank (4040394-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	5.11			"	4.80		106	50-150			

**LCS (4040394-BS1)**

Diesel Range Organics	121		25.0	mg/kg	125		96.8	50-150			
Heavy Oil Range Hydrocarbons	77.8		50.0	"	75.0		104	50-150			
Surrogate: 1-Chlorooctadecane	5.24			"	4.80		109	50-150			

**Duplicate (4040394-DUP1)**

**Source: P4D0273-27**

Diesel Range Organics	120		25.0	mg/kg dry		106			12.4	50	
Heavy Oil Range Hydrocarbons	146		50.0	"		123			17.1	50	
Surrogate: 1-Chlorooctadecane	6.20			"	5.69		109	50-150			

**Duplicate (4040394-DUP2)**

**Source: P4D0273-28**

Diesel Range Organics	ND		25.0	mg/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	6.34			"	5.38		118	50-150			

**Batch 4040456: Prepared 04/13/04 Using EPA 3550 Fuels**

**Blank (4040456-BLK1)**

Diesel Range Organics	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	4.77			"	4.80		99.4	50-150			

**LCS (4040456-BS1)**

Diesel Range Organics	116		25.0	mg/kg	125		92.8	50-150			
Heavy Oil Range Hydrocarbons	83.1		50.0	"	75.0		111	50-150			
Surrogate: 1-Chlorooctadecane	5.80			"	4.80		121	50-150			

North Creek Analytical - Portland

Lisa Domenighini, Project Manager

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North Creek Analytical, Inc.  
 Environmental Laboratory Network



**Seattle** 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244  
 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

**Reported:**  
 08/19/04 07:45

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method with Acid/Silica Gel Cleanup - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4040456: Prepared 04/13/04 Using EPA 3550 Fuels**

**Duplicate (4040456-DUP1)**

**Source: P4D0406-01**

Diesel Range Organics	ND		25.0 mg/kg dry			ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	5.80			"	6.37		91.1	50-150			

**Duplicate (4040456-DUP2)**

**Source: P4D0406-02**

Diesel Range Organics	ND		25.0 mg/kg dry			ND			NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chlorooctadecane	6.42			"	6.49		98.9	50-150			

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 Project Manager: Galen Davis

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 08/19/04 07:45

**TCLP Metals per EPA 1311/6000/7000 Series Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4040506: Prepared 04/13/04 Using EPA 1311/3005</b>											
<b>Blank (4040506-BLK1)</b>											
Barium	0.186		0.00500	mg/l							B, M-02
Lead	ND		0.00500	"							M-02
<b>LCS (4040506-BS1)</b>											
Barium	9.74		0.0500	mg/l	10.0		97.4	75-125			M-02
Lead	4.06		0.00500	"	5.00		81.2	75-125			M-02
<b>LCS Dup (4040506-BSD1)</b>											
Barium	9.45		0.0500	mg/l	10.0		94.5	75-125	3.02	20	M-02
Lead	4.56		0.00500	"	5.00		91.2	75-125	11.6	20	M-02
<b>Matrix Spike (4040506-MS1)</b>											
						<b>Source: P4D0291-04</b>					
Barium	9.46		0.0250	mg/l	10.0	0.204	92.6	50-150			M-02
Lead	5.99		0.00500	"	5.00	1.52	89.4	50-150			M-02
<b>Matrix Spike (4040506-MS2)</b>											
						<b>Source: P4D0272-02</b>					
Barium	9.65		0.0500	mg/l	10.0	0.191	94.6	50-150			M-02
Lead	4.47		0.00500	"	5.00	ND	89.4	50-150			M-02

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 08/19/04 07:45

**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4040398: Prepared 04/12/04 Using EPA 3550**

**Blank (4040398-BLK1)**

Pentachlorophenol	ND		67.0	ug/kg							A-02
Acenaphthene	ND		13.4	"							
Acenaphthylene	ND		13.4	"							
Anthracene	ND		13.4	"							
Benzo (a) anthracene	ND		13.4	"							
Benzo (a) pyrene	ND		13.4	"							
Benzo (b) fluoranthene	ND		13.4	"							
Benzo (ghi) perylene	ND		13.4	"							
Benzo (k) fluoranthene	ND		13.4	"							
Chrysene	ND		13.4	"							
Dibenzo (a,h) anthracene	ND		13.4	"							
Fluoranthene	ND		13.4	"							
Fluorene	ND		13.4	"							
Indeno (1,2,3-cd) pyrene	ND		13.4	"							
Naphthalene	ND		13.4	"							
Phenanthrene	ND		13.4	"							
Pyrene	ND		13.4	"							
<i>Surrogate: Fluorene-d10</i>	<i>57.1</i>			"	<i>83.3</i>		<i>68.5</i>	<i>40-150</i>			
<i>Surrogate: Pyrene-d10</i>	<i>68.4</i>			"	<i>83.3</i>		<i>82.1</i>	<i>40-150</i>			
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>64.7</i>			"	<i>83.3</i>		<i>77.7</i>	<i>40-150</i>			

**LCS (4040398-BS1)**

Acenaphthene	121		13.4	ug/kg	167		72.5	33-139			
Benzo (a) pyrene	126		13.4	"	167		75.4	45-149			
Pyrene	132		13.4	"	167		79.0	39-138			
<i>Surrogate: Fluorene-d10</i>	<i>62.0</i>			"	<i>83.3</i>		<i>74.4</i>	<i>40-150</i>			
<i>Surrogate: Pyrene-d10</i>	<i>70.1</i>			"	<i>83.3</i>		<i>84.2</i>	<i>40-150</i>			
<i>Surrogate: Benzo (a) pyrene-d12</i>	<i>64.9</i>			"	<i>83.3</i>		<i>77.9</i>	<i>40-150</i>			

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 425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
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Kennedy/Jenks Consultants-FW  
 32001 32nd Ave South Suite 100  
 Federal Way, WA 98003

Project: BNSF-Wishram  
 Project Number: 036026.00  
 Project Manager: Galen Davis

Reported:  
 08/19/04 07:45

**Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4040398: Prepared 04/12/04 Using EPA 3550**

**Matrix Spike (4040398-MS1)**

Source: P4D0309-01

R-05

Acenaphthene	185		26.8 ug/kg dry		247	34.4	61.0	33-139			
Benzo (a) pyrene	173		26.8	"	247	ND	70.0	45-149			
Pyrene	226		26.8	"	247	19.6	83.6	39-138			
Surrogate: Fluorene-d10	83.5			"	123		67.9	40-150			
Surrogate: Pyrene-d10	114			"	123		92.7	40-150			
Surrogate: Benzo (a) pyrene-d12	91.4			"	123		74.3	40-150			

**Matrix Spike Dup (4040398-MSD1)**

Source: P4D0309-01

R-05

Acenaphthene	184		26.8 ug/kg dry		247	34.4	60.6	33-139	0.542	60	
Benzo (a) pyrene	183		26.8	"	247	ND	74.1	45-149	5.62	60	
Pyrene	254		26.8	"	247	19.6	94.9	39-138	11.7	60	
Surrogate: Fluorene-d10	93.7			"	123		76.2	40-150			
Surrogate: Pyrene-d10	131			"	123		107	40-150			
Surrogate: Benzo (a) pyrene-d12	97.7			"	123		79.4	40-150			

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 425.420.9200 fax 425.420.9210  
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 509.924.9200 fax 509.924.9290  
**Portland** 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
**Bend** 20332 Empire Avenue, Sulte F-1, Bend, OR 97701-5711  
 541.383.9310 fax 541.382.7588  
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119  
 907.563.9200 fax 907.563.9210


Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100 Federal Way, WA 98003	Project: BNSF-Wishram Project Number: 036026.00 Project Manager: Galen Davis	Reported: 08/19/04 07:45
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**Percent Dry Weight (Solids) per Standard Methods - Quality Control**  
**North Creek Analytical - Portland**

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4040536: Prepared 04/14/04 Using Dry Weight</b>										
<b>Duplicate (4040536-DUP1)</b>						<b>Source: P4D0273-02</b>				
% Solids	91.2		1.00	% by Weight		91.1		0.110	20	
<b>Duplicate (4040536-DUP2)</b>						<b>Source: P4D0273-05</b>				
% Solids	92.0		1.00	% by Weight		91.6		0.436	20	
<b>Duplicate (4040536-DUP3)</b>						<b>Source: P4D0273-06</b>				
% Solids	91.6		1.00	% by Weight		91.4		0.219	20	
<b>Duplicate (4040536-DUP4)</b>						<b>Source: P4D0273-12</b>				
% Solids	91.6		1.00	% by Weight		91.6		0.00	20	
<b>Duplicate (4040536-DUP5)</b>						<b>Source: P4D0273-13</b>				
% Solids	91.0		1.00	% by Weight		90.0		1.10	20	
<b>Duplicate (4040536-DUP6)</b>						<b>Source: P4D0273-14</b>				
% Solids	77.5		1.00	% by Weight		77.1		0.517	20	

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425.420.9200 fax 425.420.9210  
**Spokane** East 11115 Montgomery, Suite B, Spokane, WA 99206-4776  
509.924.9200 fax 509.924.9290  
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**Bend** 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
541.383.9310 fax 541.382.7588  
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907.563.9200 fax 907.563.9210

Kennedy/Jenks Consultants-FW  
32001 32nd Ave South Suite 100  
Federal Way, WA 98003

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**Reported:**  
08/19/04 07:45

**Notes and Definitions**

- A-01 Due to a hit in the blank results maybe biased high.
- A-02 No applicable acid qc available, PCP added after PAHs were analyzed.
- B Analyte detected in the method blank.
- D Data reported from a preparation or analytical dilution.
- J Estimated value.
- M-02 Analysis performed by EPA 200.7/6010 due to high analyte concentration or sample matrix interference.
- R-05 Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
- S-01 The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
- S-09 Surrogate recovery is outside control limits due to matrix interference.
- U Analyte included in the analysis but not detected.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

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