### Site Assessment Report

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

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K/J 036026.00

August 2004

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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.

<u>Former Boiler House UST</u>. 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.

<u>Fueling Island</u>. 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

piping 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

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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

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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 (μg/L), which is below the MTCA Method A cleanup level of 1,000 μg/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 μg/L, which is just slightly greater than the MTCA Method A cleanup level for groundwater of 5 μg/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  $\mu$ g/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-feet 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  $\mu$ g/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  $\mu$ g/L and at a concentration of 7.03  $\mu$ g/L in the sample from well WMW-5. Both concentrations were slightly greater than the MTCA Method A cleanup level of 5  $\mu$ g/L. In the sample from well WMW-6, the detected total arsenic concentration was 4.30  $\mu$ g/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  $\mu$ g/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-galion UST	Approximately 800 feet east of the depot	Gasoline	unknown

TABLE 2 Page 1 of 2

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

Sample	Depth (feet	Petroleum Hydrocarbons and BTEX (mg/kg) <sup>(a)</sup>							
	bgs)	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	
Former 30,0	00-barrel Oil								
WSB-04-11	2	<25.0 <sup>(b)</sup>	<50.0	NA <sup>(c)</sup>	NA NA	NA	NA	NA	
	10	<25.0	<50.0	NA	NA	NA	NA NA	NA NA	
WSB-04-13	16	<25.0	<50.0	NA	NA NA	NA	NA NA	NA NA	
Former 600-	gallon Fuel (	Oil and 10,00	00-gallon Gas	oline USTs			1474	INA	
WSB-04-14	5	<25.0	51	NA	T NA	NA	NA NA	NA	
W3D-04-14	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		
WSB-04-17	9	<25.0	<50.0	NA	NA NA	NA	NA	<0.100 NA	
Former 5,00	0-gallon Oil					14/3	INA	IVA	
WSB-04-18	10	<25.0	110	NA	NA	NA	l NA	NIA.	
Former 1.00	0-gallon Gas		nd Oil House		14/	INA	IVA	NA	
WSB-04-20	10	<25.0	<50.0	4.48	<0.0044	<0.050	<0.050	10.400	
	sformer Sto			1.40	10.0044	<b>~0.030</b>	<0.050	<0.100	
	5	<25.0	<50.0	NA	NA	NIA .			
WSB-04-25	10	<25.0	<50.0	NA NA	NA NA	NA NA	NA NA	NA NA	
Engine Hous	e and Turnt		1 400.0	INA .	IVA	NA NA	NA	NA	
WSB-04-27	10	<25.0	<50.0	NIA	1 110	114	г <del> </del>		
	5	<25.0	<50.0	NA NA	NA NA	NA	NA NA	NANA	
WSB-04-30	10	NA		NA	NA	NA	NA	NA	
	2	<25.0	NA 111	NA NA	<0.0044	<0.00629	<0.0094	<0.023	
WSB-04-31	5		111	NA NA	NA	NA	NA	NA	
	2	NA 105.0	NA 50.0	<4.00	<0.0044	0.0118	<0.0094	<0.023	
WSB-04-33	5	<25.0	<50.0	NA	NA	NA	NA NA	NA	
W3D-04-33		<25.0	<50.0	NA	NA NA	NA	NA	NA	
MCB 04 04	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	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	
Powerhouse									
NSB-5	10	21,000	21,600	NA	<0.0088	0.153	0.221	1.65	
NSB-04-37	7	2,490	3,740	NA	NA	NA	NA	NA	
NSB-04-38	10	<25.0	<50.0	NA	NA	NA	NA	NA	
ormer 100,0	00-gallon Di	<u>esel ASTs, F</u>		and 500-gallo	on Gasoline U	JSTs			
NSB-04-1	2	<25.0	<50.0	NA	NA	NA	NA	NA	
	12	<25.0	<50.0	NA NA	NA	NA	NA	NA	
VSB-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	
VSB-04-6	8	<25.0	<50.0	NA	NA	NA	NA	NA	
VSB-04-7	12	1,070	165	40.5	<0.0075	<0.050	<0.050	<0.05	
ormer Fueli	ng Island and	d 5,000-gallo	n Lubricatin	g Oil AST					
VSB-4	10	<25.0	<50.0	NA	<0.0088	<0.100	0.299	1.36	
VSB-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	
VSB-7	10	240	72.3	NA	<0.0044	<0.050	<0.050	<0.100	
VSB-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	
VSB-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	
VSB-04-26	2	<25.0	<50.0	NA	NA	NA	NA NA	NA	
	10	21,100	14,000	606	0.0393	0.087	0.623	1.470	
	2	<25.0	<50.0	NA NA	NA NA	NA NA	NA NA		
/SB-04-29	5	<25.0	<50.0	NA NA	NA NA	NA NA	NA NA	NA NA	
-	10	<25.0	<50.0	NA	NA	NA NA	NA NA	NA NA	

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

Sample	Depth (feet	Petroleum Hydrocarbons and BTEX (mg/kg) <sup>(a)</sup>							
	bgs)	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	
30,000-gall	ion UST at Forr	ner Boiler H	louse						
WSB-1	10	47.6	359	NA	< 0.0044	<0.050	<0.050	<0.100	
WODE	15	<25.0	<50.0	NA	<0.0044	< 0.050	<0.050	<0.100	
WSB-2	8	6,900	4,710	NA	<0.0088	<0.100	0.178	<0.200	
VVODEZ	14	15,700	10,500	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	
WOD-0	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.

August 2004 036026.00

TABLE 3

# SOIL ANALYTICAL RESULTS FOR POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) AND CARCINOGENIC PAHs **BNSF Wishram Railyard**

Sample Designation	WSB-2	WSB-4	WSB-04-1	WSB-04-6	WSB-04-7	WSB-04-11	WSB-04-12	04-12	WSB-04-14	WSRJM-17	WCB DA 20	76 70 GOIN		
Depth (feet bgs)	14	10	12	80	12	10	ڻ.	6	6	9	10	7 970	400-00-00	MICA (a)
PAHs (mg/kg) <sup>(b)</sup>			,									,	ā	A DOUGH
Naphthalene	23.8	NA <sup>(c)</sup>	<0.0134 <sup>(d)</sup>	<0.0134	N/A	<0.0134	<0.0134	<0.0134	<0.0134	<0.0335	<0.0134	20 0134	1000	
2-Methylnaphthalene	61.9	NA	<0.0134	<0.0134	NA	<0.0134	<0.0134	<0.0134	<0.0134	<0.0335	<0.0134	100134	000	5
Phenanthrene	41.0	8	<0.0134	<0.0134	NA	CO 0134	20 21 24	0000		0.000	0.0101	0.0134	\$0.013 <del>4</del>	1(0)
2		5	0.0104	0.013#	N	<0.0134	<0.0134	0.0261	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	1
Anthracene	<16.5	¥	<0.0134	<0.0134	NA	<0.0134	<0.0134	<0.0134	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	1
Fluoranthene	<16.5	¥	<0.0134	<0.0134	NA	<0.0134	<0.0134	0.047	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	1
Pyrene	18.1	¥	<0.0134	<0.0134	NA	<0.0134	<0.0134	0.0474	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Benzo(g,h,i)perylene	<16.5	NA A	<0.0134	<0.0134	NA	<0.0134	<0.0134	0.0218	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
cPAHs (mg/kg) <sup>(b)</sup>														
Benzo(a)anthracene	<16.5	<0.0134	<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	<0.0134	0.0390	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Benzo(b)fluoranthene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0463	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Benzo(k)fluoranthene	<16.5	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	<0.0134	0.0336	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	0.1
Benzo(a)pyrene	<16.5	<0.0134	<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	<0.0134	0.0197	<0.0134	<0.0335	<0.0134	<0.0134	<0.0134	
Total cPAHs <sup>(1)</sup>								0.049						

- (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 cond
- 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 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 Railyard**

					Total	Total Metals <sup>(a)</sup> (mg/kg)	<u>(g</u>				TCL	TCLP <sup>(b)</sup> Metals (mg/L)	(ma/L)
Sample	Depth				Total	Hexavalent							
Location	(feet bgs)	Arsenic	Barium	Cadmium	Chromium	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	N N	N A	NA
	14	5.27	6,500	<0.385	11.7	NA	37.1	<0.0781	0.411	<0.431	¥	N N	N
WSB-5	10	9.35	6,340	0.345	19.0	NA	29.4	0.0709	0.836	<0.500	N N	N N	NA NA
WSB-04-30	Ŋ	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	თ	1.72	89.7	<0.373	11.1	<10.0	3.80	<0.0714	<0.373	<0.373	0.579	<0.0500	<0.0500
WSB-04-33	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	N N	N N	N N
МТСА	MTCA Method A <sup>(f)</sup>	20	_(9)	2	2,000 <sup>(h)</sup>	19	1,000	2		ı	1	1	1
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 Method 3060A.
  (d) "<" indicates analyte was not detected at a concentration greater than the specified laboratory reporting limit.</li>
  (e) "NA" indicates the analysis was not conducted.
- 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. 3 The Washington State Department of Ecology Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels for Industrial Properties.

Bold value exceeds the MTCA Method A Soil Cleanup Level for Industrial Properties.

# TABLE 5

# RECONNAISSANCE GROUNDWATER ANALYTICAL RESULTS BNSF Wishram Railyard

Sample	WSB-04-6	WSB-04-15	WSB-04-16	WSB-04-25 WSB-04-26 WSB-04-27	WSB-04-26	WSR-04-27	WSB-04-34	WSB_04_35	1 (a)
Date	2/26/2004	2/25/2004	2/26/2004	2/26/2004	2/25/2004	2/26/2004	2/25/2004	2/25/2004	(µg/L)
Petroleum Hydrocarbons <sup>(b)</sup>									
Diesel (mg/L)	NA <sup>(c)</sup>	<250 <sup>(d)</sup>	<0.417	NA	483	NA NA	<250	<250	800
Oil (mg/L)	AN	<500	<0.833	N	<500	¥	<500	<500	500
Gasoline (µg/L)	390	<80.0	<80.0	<80.0	140	<80.0	<80.0	N	500
BTEX - VOCs (µg/L) <sup>(e)</sup>								3	
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
Metals (μg/L) <sup>(g)</sup>							:		
Arsenic	NA	NA	NA	AN	NA	NA	6.48	NA A	ഗ
Barium	NA	NA	NA	AN	N N	N	13.4	AN	(4)
Cadmium	NA	NA	NA	AN	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:

(b) Analyses:

(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.

- Diesel- and oil-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Diesel Extended (NWTPH-Dx) Method with silica gel cleanup.

- BTEX for sample WSB-04-35 analyzed by EPA Method 8260B. 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 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

Page 1 of 2

# GROUNDWATER ANALYTICAL RESULTS FOR MONITORING WELLS BNSF Wishram Railyard

Sample ID	L-MMM	4	WW	WMW-2	MM	WMW-3	MM	MW-4	WWW-5	S-MWW	WWW_7	MTCA
Date	9/17/2003	4/15/2004	9/18/2003	4/15/2004	9/17/2003	9/17/2003 4/16/2004	9/18/2003	4/15/2004	4/16/2004	4/16/2004	4/16/2004	Method A(a)
Petroleum Hydrocarbons (μg/L) <sup>(n)</sup>												
Gasoline-Range Hydrocarbons	NA <sup>(c)</sup>	329	NA	750	NA	NA	NA	<80.0 <sup>(d)</sup>	<80.0	212	1.790	800
Diesel-Range Hydrocarbons	593 [605] <sup>(e)</sup>	426	4,170	844	253	<250	409	<250	<250 [<250]	454	1.220	50 8
Cil-Kange Hydrocarbons	<500 [<500]	<500	2,450	<500	<500	<500	<500	<500	<500 [<500]	<500	<500	500
Benzene	<0.500 [0.500]	<0.500	5.71	17.4	<0.500	NA	\$0 50n	200	10 E00 I 10 E001			
Toluene	<0.500 [0.500]	<0.500	23.5	3.66	<0.500	NA	<0.500	\$ 6.50	\$0.500 [\$0.500]	\$0.500	<5.00 W	5
Ethylbenzene	<0.500 [0.500]	<0.500	5.84	17.4	<0.500	NA :	<0.500	\$0.000 0.000	20 500 [20 500]	0.500	<5.00 (4)	1,000
Total Xylenes	<1.00 [1.02]	2.33	11.8	37.2	<1.00	NA .	<100	2 6.50	70.500 [NO.500]	<0.500	<5.00 (a)	700
VOCs (µg/L) <sup>(h)</sup>							1.00	2	71.50[51.50]	VC.1>	<15.0 w/	1,000
n-Propylbenzene	NA	1.63	NA NA	N.	NA	NA	20	NA	A1 00 /A1 001			
1,2,4-Trimethylbenzene	NA	15.0	NA	NA	N	NA .	NA.	NA	1.00 (1.00)	2	1.00	1,0
sec-Butylbenzene	NA	<b>~1</b> .00	N N	N	×.	NA	NA S	NA S	100 71.00	3	2 1.2	
PAHs/cPAHs (µg/L) <sup>(i)</sup>								3	1.00[-1.00]	Š	3,47	
Acenaphthene	NA	NA	NA	<10.0	NA	NA	NA	¥	<0.100 [<0.100]	<0.400	2 2 2	
Fluorene	NA	×	NA	<10.0	NA	NA NA	NA NA	× ×	<0.100 [<0.100]	<0.400	0.630	
Benzo(a)anthracene	<0.100 [<0.100]	NA	0.304	<10.0	<0.100	¥	<0.100	¥	<0.100 [<0.100]	\$0.400	\$0.000	1
Benzo(a)pyrene	<0.100 [<0.100]	NA	<0.200	<10.0	<0.100	NA	<0.100	₹	<0.100 [<0.100]	\$0.400	40 400	
Benzo(b)fluoranthene	<0.100 [<0.100]	NA	<0.200	<10.0	<0.100	Ą	<0.100	N A	<0.100 [<0.100]	<0.400	<0.400	
Benzo(k)fluoranthene	<0.100 [<0.100]	NA	<0.200	<10.0	<0.100	NA A	<0.100	¥	<0.100 [<0.100]	<0.400	60 400	
Chrysene	<0.100 [<0.100]	NA	0.516	<10.0	<0.100	¥	<0.100	¥.	<0.100 [<0.100]	^0.400	\$ 400	0.1%
Dibenz(a,h)anthracene	<0.200 [<0.200]	NA	<0.400	<20.0	<0.200	N A	<0.200	¥	<0.200 [<0.200]	^0.800	\$0.800	
Indeno(1,2,3-cd)pyrene	<0.100 [<0.100]	Ä	<0.200	<10.0	<0.100	¥	<0.100	Z A	<0.100 [<0.100]	<0.400	\$0.400	
Total cPAHs <sup>(k)</sup>			0.25						,			
Metals (µg/L) <sup>(l)</sup>												
Arsenic	NA	NA	NA	18.4	NA	8.54	¥	NA	7.03 (7.05)	4 20	20	n
Barium	NA	¥	NA	16.4	NA N	55.9	NA	NA	58.0 [58.0]	122	Z S	c
Cadmium	N	N	NA	<1.0	NA	<1.0	Ä	N N	<1.0 [<1.0]	10	NA :	ח
Chromium (total)	NA	¥	NA	4.39	NA	<1.0	NA	Z N	<1.0 [<1.0]	<1.0	NA :	3 0
Lead	NA	NA	NA	<1.0	NA	<1.0	NA N	ž	<1.0 [<1.0]	<1.0	NA :	5 8
Mercury	NA	¥	NA	<0.20	NA	<0.20	NA	NA A	<0.20 [<0.20]	\$0.20	NA :	٥ ر
Selenium	NA	NA	NA	4.28	NA	<1.0	Ä	¥	<1.0 [<1.0]	1.51	NA :	1 1
Silver	NA	NA	NA	<1.0	N <sub>A</sub>	<1.0	Z N	NA A	<1.0 [<1.0]	<b>^10</b>	NA S	
Water Quality Parameters										100	3	
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	מת	
Temperature (°C)	19.8	17.2	14.9	Z	20.0	17.4	18.3	15.9	150	175	46.4	ı
pH (standard units)	6.8	7.4	7.5	Z	7.4	7.5	7.5	7.7	777	7.5	16.4	1
Specific Conductance (mS/cm)	1,561	1,375	3.018	Z	980	1 106	080	3	440	-	1.2	
Dissolved Oxygen (mg/L)	0.37	0.35	0.78	Z	0.56	080	0 43	0.26	410	800,1	1,39/	1
Eh (millivolts)	330	117	200	Z	310	222	37.0	3 8	0.79	76.0	1.41	1
			100	14141	010	1	320	200	261	211	236	1

TABLE 6 Page 2 of 2

# GROUNDWATER ANALYTICAL RESULTS FOR MONITORING WELLS **BNSF Wishram Railyard**

- (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.
- Gasoline-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Gasoline Extended Method (NWTPH-Gx). - Diesel- and oil-range hydrocarbons by the Northwest Total Petroleum Hydrocarbons Diesel Extended (NWTPH-Dx) Method with silica gel cleanup
- (c) "NA" indicates not analyzed.
  (d) "<" Indicates analyte was not detected at a (e) "[]" indicates result for field blind duplicate (f) BTEX analyzed by EPA Method 8021B.
  (g) Reporting limit raised because of dilution not have a constructed by EPA Method 8260B. "<" Indicates analyte was not detected at a concentration greater than the specified reporting limit. 
  "[]" indicates result for field blind duplicate analysis.

  - Reporting limit raised because of dilution necessary for analysis
- "-" indicates that a MTCA Method A cleanup level is not available for the analyte or field measured parameter. 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.
- Metals analyzed by EPA 6000/7000 series methods.
- (m) Monitoring well casings were surveyed relative to a benchmark established at the railyard for the site assessment. The benchmark was assigned an arbitrary elevation of 100 feet
- (n) "NM" indicates not measured.

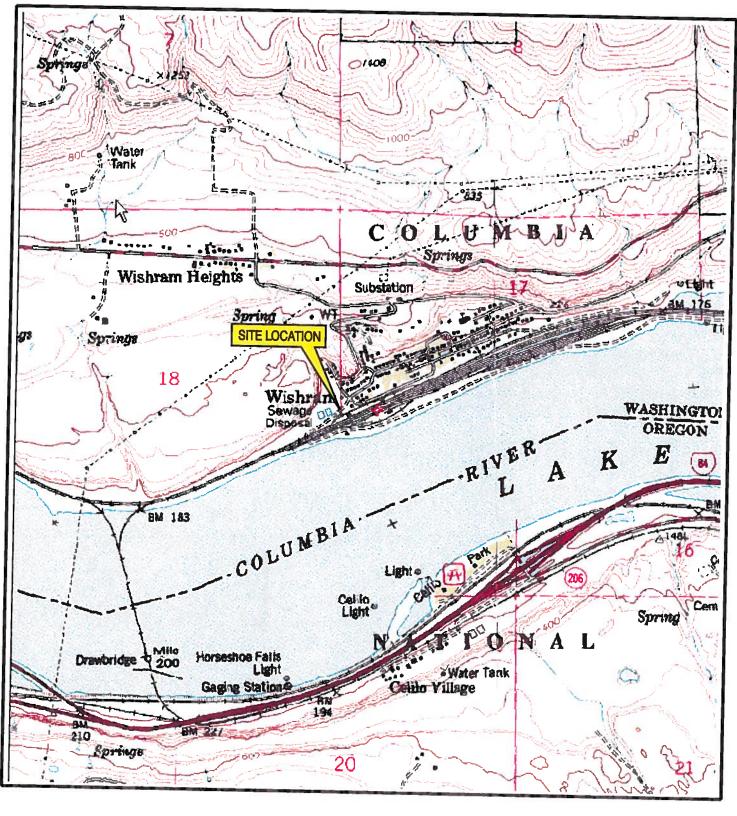
Bold value exceeds the MTCA Method A groundwater cleanup level.

Table includes only those analytes that were detected in one or more samples.

August 2004

036026.00

## **Figures**



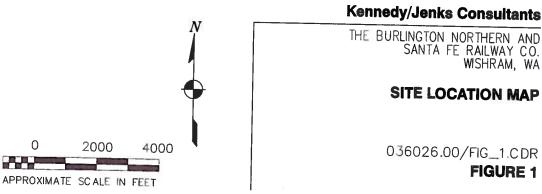
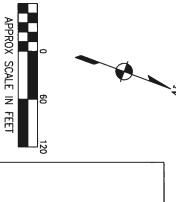
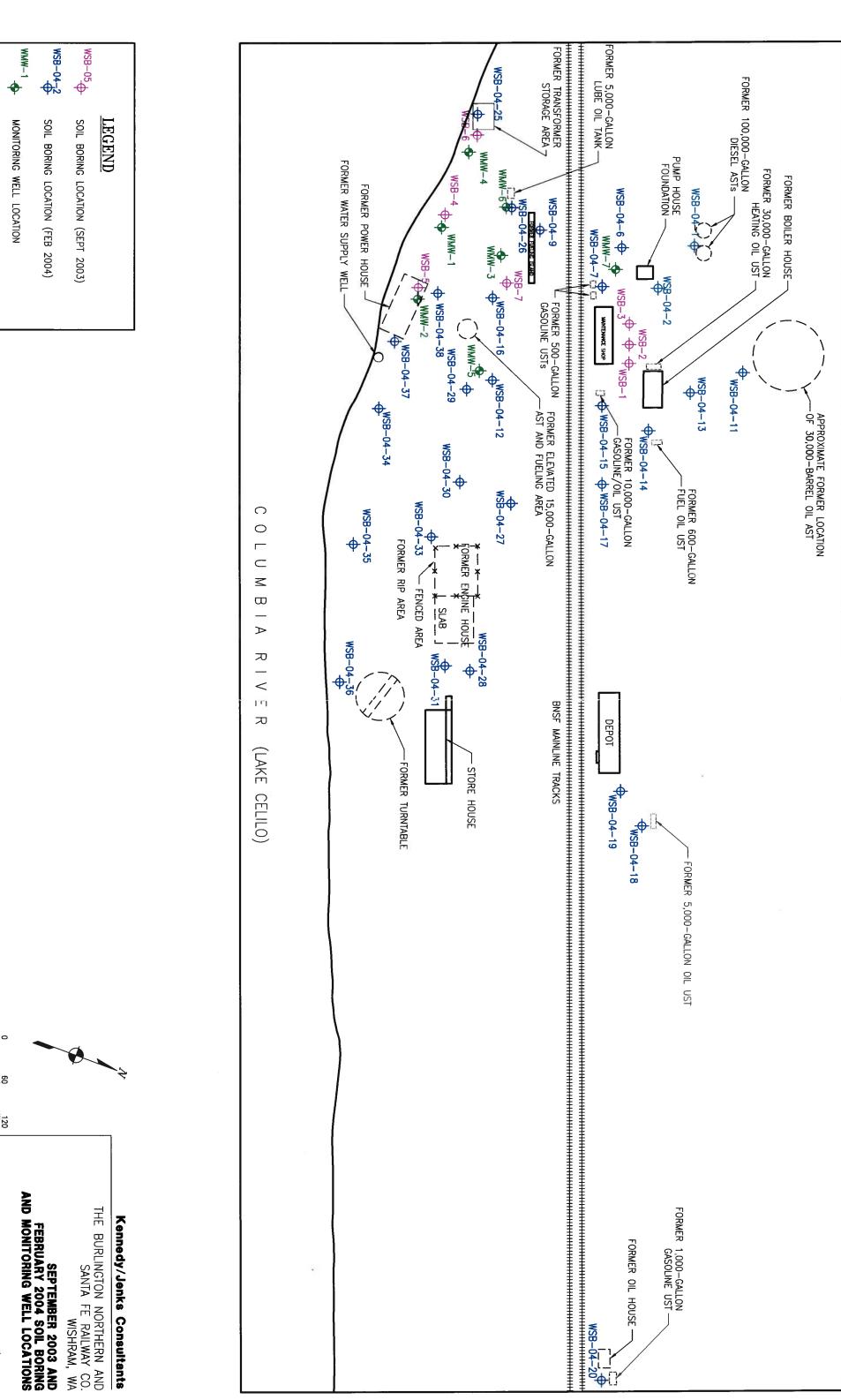
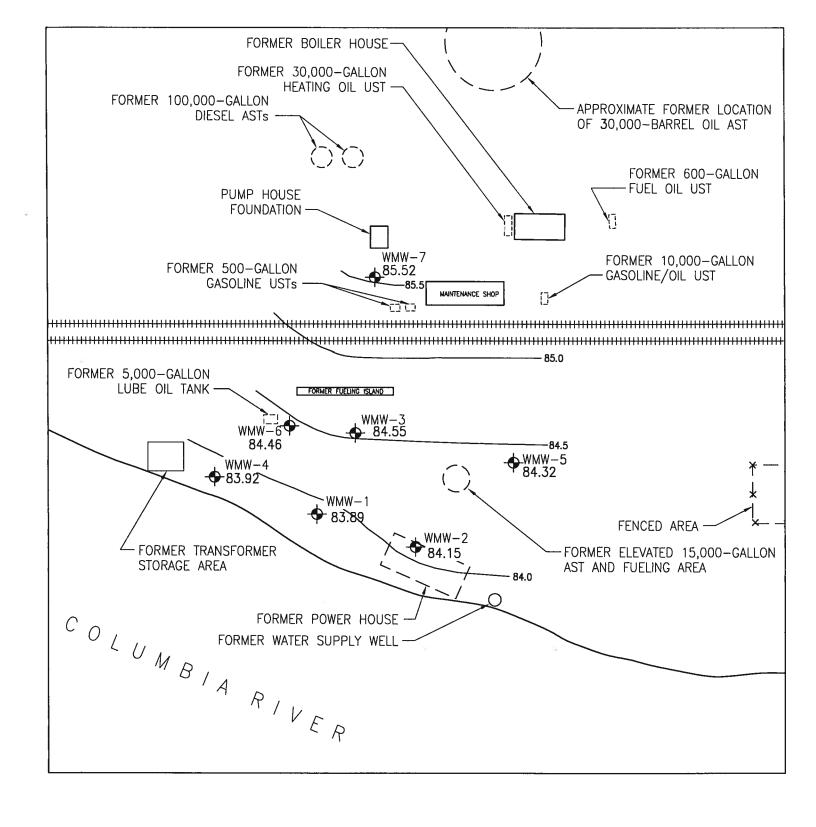


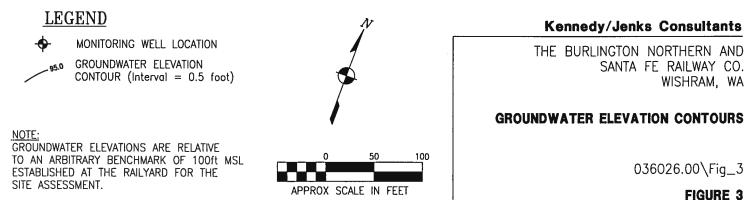
FIGURE 2

036026.00\Fig\_2









## Appendix A

**Soil Boring Logs** 

Boring & Well Construction Log Kennedy/Jenks Consultants **BORING LOCATION** Wishram Yard, Wishram, WA Well Name WMW-3 DRILLING COMPANY DRILLER Cascade Drilling N/A **BNSF Wishram** Project Name \_ DRILLING METHOD(S) DRILL BIT(S) SIZE HSA 9 inch 036026.00 Project Number ISOLATION CASING FROM ELEVATION AND DATUM 94.87 (toc) N/A N/A N/A TOTAL DEPTH 20.0 ft. bgs **BLANK CASING** FROM TO 2-inch Sechedule 40 PVC Pipe DATE STARTED DATE COMPLETED 9/12/03 0 10 9/12/03 SLOTTED CASING FROM то INITIAL WATER DEPTH (FT) 2-inch Schedule 40 PVC Pipe, 0.010-inch slot STATIC WATER ELEV. (FT) 20 10 SIZE AND TYPE OF FILTER PACK N/A FROM TO FT LOGGED BY 10/20 Silica Sand 8 20 GCD SEAL FROM то FT. **Bentonite Chips** 8 SAMPLING METHODS WELL COMPLETION GROUT ■ SURFACE HOUSING FROM TO FT. **Shelby Tube** Concrete STAND PIPE. FT. SAMPLES WELL CONSTRUCTION RECOV. PENETR. (FEET) BLOWS/6 DEPTH (FEET) SAMPLE NUMBER LITHOLOGY SAMPLE DESCRIPTION AND DRILLING REMARKS Poorly graded GRAVEL GP Railroad ballast Well-graded SAND with silt Brown, fine to medium sand with silt, loose to medium dense, dry. SW/ SM SH 1.5 WMW-3-5 10-Well-graded SAND with silt Gray, fine to medium sand with silt, loose to medium dense, wet. SW/ SM 15-

F-40.1 (6-87) (3-88) (8-90)

WISHRAM 036026,00.GPJ KJ PNW.GDT

SHEET \_\_\_1\_\_OF \_\_\_1

BORING LOCATION	·	
Midway between fueling area and engine house DRILLING COMPANY	DRILLER	Well NameWMW-5
Cascade Drilling, Inc. DRILLING METHOD(S)	Darryl DRILL BIT(S) SIZE	Project Name Wishram
9 inch HSA	9 inch OD	Project Number036026.00
ISOLATION CASING N/A	FROM TO FT.	ELEVATION AND DATUM TOTAL DEPTH
BLANK CASING 2 inch Sch. 40 PVC	FROM TO FT. 0 15	25.0 ft. bgs  DATE STARTED DATE COMPLETED
SLOTTED CASING	FROM TO FT.	4/5/04 4/5/04 INITIAL WATER DEPTH (FT)
2 inch Sch. 40 PVC 0.010 inch slot SIZE AND TYPE OF FILTER PACK	15 25 FROM TO FT.	18
10/20 Colorado Silica SEAL	13 25 FROM TO FT.	LOGGED BY GCD
3/8 inch Bentonite	1 13	SAMPLING METHODS WELL COMPLETION  BURFACE HOUSING
Concrete	0 1	NA ■ SURFACE HOUSING □ STAND PIPE F
SAMPLES TYPE RECOV. RESIST. (FEET) BLOWS6  SAMPLE NUMBER  WELL CONSTRUCTION WELL CONSTRUCTION	LITHOLOGY USCS LOG	SAMPLE DESCRIPTION AND DRILLING REMARKS
		y graded SAND n, fine to medium sand with some coarse gravel,
	moist	No odor or sheen.
F     5   -		
F     10-	SP -	
	1 - 41 . .1	
-     20-	Poorly	graded SAND
		as above with some silt, wet.
	SP	
	SP _	
.   25   [1]		

20 (6-87) (3-88) (8-90)

036026.00.GPJ

KJ PNW WISHRAM FEB.04

.GPJ KJ PNW.GDT 6/1/04

WISHRAM FEB.04 036026.00

15

16

SHEET \_\_\_1\_\_OF \_\_1\_\_

WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT

DOILI										Kenneuy	<i>Jenks Consultants</i>
BORING	S LOCAT Sout	ION hside	of forr	mer 30,000-bb	I AST					Boring Name	WSB-04-11
DRILLIN	IG COMF	PANY	Drilling			DRIL	LER Arl	o Terle	tter	Project Name	Wishram
DRILLIN	IG METH	OD(S)		,		DRIL	L BIT(S	) SIZE		_	· · · · · · · · · · · · · · · · · · ·
ISOLAT	ION CAS					FRO	M	TO	FT.	Project Number	036026.00
BLANK	N/A CASING			- · · - ·		FRO	N/A M	TO	N/A FT.		TOTAL DEPTH 12.0 ft. bgs
	N/A ED CASIN					FRO	N/A	то	N/A FT.	DATE STARTED 2/24/04	DATE COMPLETED 2/24/04
	N/A ND TYPE		TED DA	<u> </u>	<del></del>		N/A	١	N/A	INITIAL WATER DEPTH (FT) N/A	
	N/A	OF FIL	TER PAI			FRO	N/A		N/A	LOGGED BY SCS	
SEAL		nch Be	entonit	te		FRO	C		FT. 12	SAMPLING METHODS	WELL COMPLETION
GROUT	N/A					FRO	M N/A	ТО	N/A	1.5 inch Macro Core	☐ SURFACE HOUSING ☐ STAND PIPE FT.
-	SAMPLES	PENETR	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS		LITHOLOG	LICCO		SAMPLE DESCRIPTION AND	
TYPE	RECOV. (FEET)	RESIST. BLOWS/6	(FEET)	GAMIF EE NOWIDEN	VIIII III III III III III III III III I		ļ				DRILLING REMARKS
							r Inimini	GW		graded GRAVEL el fill, slightly damp.	
<b> </b> -			h 1-						- Silty	SAND	
- SS	3		∐ <sub>2-</sub>	WSB-04-11-2					odor	rately yellowish brown, silt or sheen.	y nne sano, damp. No
			_								
-			3-		-				}		
			4-					<b>S</b> M			
			_								
-			5-		-				-		
- SS	4		6								
- 55	4		6-								
- 1			7-					1	Clave	y SILT	
								1	Dark v	vellowish brown, clavev sill	t, slight plasticity, damp to
			8-					1	- very u	amp. No sheen or odor.	,
- 1			9-					<b></b> .	-		
			∐ <sub>10</sub> -	WSB-04-11-10				ML/ CL			
- ss	4		→ 10-					1	-		
-			11-					}	-		
								1			
NOT	ES		12 -	,				-	l		
1. G	roundw	ater no	t encou	ıntered.							

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

SHEET \_\_\_\_ 0F \_\_\_ 1

NOTES

1. Groundwater not encountered.

WSB-04-13-16

F-40.1 (6-87) (3-88) (8-90)

WISHRAM FEB.04 036026.00.GPJ KJ PNW.GDT

SHEET \_\_\_1\_\_OF \_\_\_1\_

Kennedy/Jenks Consultants

BORING	G LOCA	TION	ent of	600-gallon fu	el oil LIST				*		WSB 04 17
DRILLI	NG COM	PANY			ei oli US i	DRIL	LER			Boring Name	WSB-04-17
DRILLIN	Case NG MET	cade D	rilling	, Inc.	····	DRIL	Arlo (BIT(S	Terle	tter	Project Name	Wishram
	Geo	Probe					2 in	ches		Project Number	036026.00
12	N/A					FRO	N/A		N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH 16.0 ft. bgs
	CASING N/A					FRO	M N/A	то	N/A	DATE STARTED	DATE COMPLETED
SLOTT	ED CASI N/A	NG				FRO	M N/A	то	N/A	2/26/04 INITIAL WATER DEPTH (FT)	2/26/04
SIZE A		OF FILT	TER PAC	K		FRO		ТО	N/A	LOGGED BY	
SEAL		nah Da				FRO	M	то	FT.	SCS SAMPLING METHODS	WELL COMPLETION
GROUT	r	nch Be	mom	<u> </u>		FRO	<u>0.25</u> м	то	12 FT.		☐ SURFACE HOUSING
	N/A SAMPLES	3			BACKFILL DETAILS		N/A		N/A		STAND PIPE FT.
TYPE	RECOV (FEET	PENETR. RESIST. BLOWS/6*	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS		LITHOLOGY	USCS		SAMPLE DESCRIPTION AND	
							١, ٥.	GW		graded GRAVEL with asph I fill, asphalt.	
<b>†</b>			1-						- Silty	SAND	
- ss	4		2-						damp	rately yellowish brown, silty . No odor or sheen.	sand, dry to slightly
			-								
-			3-		-				-		
	Ш		4-								
	ll		,								
-			5-					SM	-		
- ss	4		6-					Sivi			
	~		ŭ								
- 1			7-						-		
			- 8-								
		-	M I	WSB-04-17-9							
-		1 1	-e L						-		
- ss	4		10-								
"					÷ ///// -				Silty S	SAND as above, wet.	
-			11-	:	-			SM	-	as assvo, won	
			12-								
			'-								
ŀ			13-		4				-		
			14-								
-			15-		4				_		
			16								
			10		<del></del>						
-											

F-40.1 (6-87) (3-88) (8-90)

DOIL	y L	<del>1</del> 9									Kenneuy	y/Jenks Consultants
BORING	LOCAT	ION ngrad	ient of	5,000-gallon (	oil UST		-			4	Boring Name	WSB-04-19
DRILLIN	IG COMP	PANY					DRIL	LER	1-		1	
DRILLIN			Drilling,	, Inc.			DRII	Ario L BIT(S)	o Terle	tter	Project Name	Wishram
	GeoF	<u>Probe-</u>	-Direct	t Push				2 ir	nches		Project Number	036026.00
ISOLATI	N/A						FRO	N/A		N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH 12.0 ft. bgs
BLANK (	N/A	18 10					FRO	N/A		N/A	DATE STARTED 2/24/04	DATE COMPLETED 2/24/04
SLOTTE	N/A						FROI	N/A	то	N/A	INITIAL WATER DEPTH (FT	
SIZE AN	N/A	OF FILT	TER PAC	**			FRO	N/A	то \	N/A	LOGGED BY	
SEAL	3/8 ir	nch Be	entonit	<u></u>			FRO		TO	FT. 12	SAMPLING METHODS	WELL COMPLETION
GROUT						,	FROI		TO	FT.	1.5 inch Macro Core, acrylic sleeves	SURFACE HOUSING STAND PIPE FT.
S	AMPLES				BACKFILL DETA	AILS		1,77				1 5 617 17 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6	DEPTH (FEET)	SAMPLE NUMBER	Driver and a second		I	LITHOLOGY	USCS		SAMPLE DESCRIPTION AN	ID DRILLING REMARKS
											oximately 2 inches thick of SAND	f asphalt and gravel fill.
-			1-	1		1 +	ļ			Mode	erately yellowish brown, sil	Ity fine sand, damp. No
- ss	NR		2-	1			ļ			OGO: C	or sheen.	
33	130		-	1			ļ					
			3-			# -	ļ			-		
	<u> </u>		4-							-		
			_						<b>S</b> M			
			5-	i								
- ss	4		6-	,		1				-		
<u> </u>			7-	1								
			8-				2.1		i	-		
-			9-		무					Silty S	SAND	
- ss	3.5		10-	1			]				e as above, wet.	
- 55	3.5		107				1		SM			
- ][			11-			-				-		
			12									
NOT	ES				200			-	•			
1. Pc	or reco	very at	≀ 0-4 fee	et because of roc	ck in sampler.							

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

	OCATION Former tra	ansforr	ner storage ar	ea				Davis a Name	WSB-04-25
DRILLING	COMPANY Cascade			-	DRILLER	Terle	ttor	Boring Name	
DRILLING	METHOD(S) GeoProbe		,		DRILL BIT(S)	SIZE	iller	Project Name	
ISOLATION	N CASING				FROM	ches TO	FT.	Project Number ELEVATION AND DATUM	036026.00 TOTAL DEPTH
BLANK CA	N/A SING		<del></del>		N/A FROM	TO	N/A FT.		16.0 ft. bgs
SLOTTED	V/A CASING				N/A FROM	TO	N/A FT.	DATE STARTED 2/25/04	DATE COMPLETED 2/25/04
	V/A TYPE OF FII	TER PAG			N/A FROM	то	N/A FT.	INITIAL WATER DEPTH (FT) 11	
SEAL	N/A				N/A FROM	то	N/A FT.	LOGGED BY SCS	
GROUT 3	3/8 inch B	entonit	te		FROM 0	то	16 FT.	SAMPLING METHODS  1.3 inch Macro Core 3/4	WELL COMPLETION  □ SURFACE HOUSING
N	N/A MPLES	1	<u> </u>		N/A	<del></del>	N/A	1.3 inch Macro Core, 3/4 inch PVC/Parostaltic	☐ STAND PIPE FT
TYPE R	PENETE FEET) BLOWS/	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY	USCS LOG		SAMPLE DESCRIPTION AND	DRILLING REMARKS
- ss -	3	1- 2- 3- 4-	WSB-04-25-5	-		ĞW	Grave Silty S	graded GRAVEL el fill, dry SAND rately yellowish brown to oli y damp. No odor or sheen.	ive gray, silty sand,
- ss	4	5- 6- 7- 8-	WSB-04-20-0	-		SM	-		
- ss	4	10-	WSB-04-25-10 WSB-04-25-GW	- - -			Silty S	<b>AND</b> as above, wet. No odor or s	sheen.
- SS	4	13- 14- 15-		-		SM	-		
- SS	4	14-				SM	-		

SHEET \_\_\_1\_\_OF \_\_\_1\_\_

15 16-SHEET \_\_\_\_OF \_\_\_

F-40.1 (6-87) (3-88) (8-90)

KJ PNW.GDT

PNW WISHRAM FEB.04 036026.00

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

SHEET \_\_1\_\_OF \_\_1\_\_

GPJ KJ PNW.GDT

BORING LOCATION Adjacent	to west side of forme	er powerhouse			Boring Name	WSB-04-37
ORILLING COMPANY  Cascade	Drilling, Inc.		DRILLER Darryl		Project Name	
DRILLING METHOD(S) Hollow-ste	1		DRILL BIT(S) SIZE 9 inches		Project Name	
SOLATION CASING N/A			FROM TO N/A	N/A	ELEVATION AND DATUM	TOTAL DEPTH
BLANK CASING N/A	<del></del>		FROM TO N/A	FT.	DATE STARTED	10.0 ft. bgs DATE COMPLETED
SLOTTED CASING	· · · · · · · · · · · · · · · · · · ·		FROM TO	FT.	4/5/04 INITIAL WATER DEPTH (FT)	4/5/04
N/A SIZE AND TYPE OF FIL	TER PACK	· · · · · · · · · · · · · · · · · · ·	N/A FROM TO	N/A FT.	9	
N/A SEAL	, , , , , , , , , , , , , , , , , , ,		N/A FROM TO	N/A FT.	LOGGED BY GCD	
3/8 inch B	entonite		0 FROM TO	10 FT.	SAMPLING METHODS  1.5 inch Macro Core	WELL COMPLETION  SURFACE HOUSING
N/A SAMPLES			N/A	N/A	1.5 ITIGIT WAGTO COTE	STAND PIPE
TYPE RECOV PENETR	DEPTH (FEET) SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY USCS		SAMPLE DESCRIPTION AND	DRILLING REMARKS
	1-	-		- cobble	SAND rately yellowish brown, silt es, and woody debris, dan eum residue.	y sand with some gravel, np. Moderate odor with
	3-	-		_		
	4-		М. В.	-		
	6-	-		-		
	7 - WSB-04-37-7	-		-		
SS   4	8-	-				
	9-	<u></u>	SM	Silty S Same	AND as above, wet. NAPL pres	ent on groundwater.
	<u>10</u> ~	T CALLEGE .				

SHEET \_\_\_1\_\_OF \_\_1\_\_

KJ PNW.GDT

WISHRAM II 03026.00.GPJ

PNW

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

F-40.1 (6-87) (3-88) (8-90)

KJ PNW WISHRAM II 03026.00.GPJ KJ PNW.GDT

SHEET \_\_\_1\_\_OF \_\_1\_\_

KJ PNW.GDT 11/10/03

KJ PNW WISHRAM

SHEET \_\_\_1\_\_OF \_\_\_

**NOTES** 

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

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

SHEET \_\_\_1\_\_OF \_\_\_1\_\_

SS 3 KJ PNW.GDT 11/10/03 25-SS 3 30-SS 2.5 NOTES 1. Refusal at 32' possibly due to large cobble or bedrock. F-40.1 SHEET \_\_1\_ OF \_\_1\_ (6-87) (3-88) (8-90)

Kennedy/Jenks Consultants

	19 =0										
		am Yaı	d, V	Vishram, WA		<del></del>				Boring Name	WSB-2
DRILLIN	IG COMP	any ade Dril	ling				LER			_	BNSF Wishram
DRILLIN	IG METHO					DRIL	L BIT(S)	SIZE		Project Number	036026.00
ISOLATI	ION CASII				-	FRO	M N/A	то	N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH
BLANK						FRO		то	N/A	N/A DATE STARTED	15.0 ft. bgs DATE COMPLETED
SLOTTE	D CASIN	G	_			FRO	М	то	N/A FT.	9/2/03 INITIAL WATER DEPTH (FT)	9/2/03
SIZE AN		OF FILTER	R PAC	ĸ		FRO		то	FT.	N/A LOGGED BY	
SEAL	N/A	!A O'				FRO	<u>N/A</u>	то	N/A FT.	GCD SAMPLING METHODS	WELL COMPLETION
GROUT		nite Ch	ıps_			FRO	0.5 M	то	15 FT.	4 foot split spoon with liner	☐ SURFACE HOUSING
S	N/A SAMPLES				BACKFILL DETAILS	Ь	N/A	11000	N/A		STAND PIPEF
TYPE	RECOV.	PENETR DE RESIST. (F ILOWS/61	PTH EET)	SAMPLE NUMBER			UTHOLOGY	USCS LOG		SAMPLE DESCRIPTION AND	DRILLING REMARKS
					,,,,,,,,,,,	,			Aspha		
			1-						- Brown	SAND with gravel (fill)  In gravelly fine sand with sile	t and woody debris.
İ								614	mediu	ım dense.	•
ji.			2-					SM	-		
SS	3		3-							graded SAND with grave , fine sand with little gravel	
00			4-						- Blown	i, iiile sand witti little yfavel	, medium dense, dry.
-			5-						-		
								SP			
			6-						-		
ss	3		7-						  -		
		b	8-				***		Poorly	graded SAND	
		X	- 1	WSB-2-8					Gray,	fine sand, loose, moist.	
			9-			ł			-		
			10-			ļ		SP	•		
ss	3		11-						-		
						ŀ					
			12-							graded SAND	
			13-						- Gray, 1 -	ine sand, loose, moist.	
			.			]:		SP			
ss	1.5	<b>L</b> .	14-			ŀ					
		IXI	V	VSB-2-15		ŀ					
NOT	ES		لـ15	1				L			
1. Be	drock er	ncounter	ed at	15 feet bgs, bori	ng terminated due to	refus	sal.				

Boring Log				Kenned	y/Jenks Consultants
BORING LOCATION 20 feet north of former powe	house			Boring Name	WSB-04-38
DRILLING COMPANY Cascade Drilling, Inc.		DRILLER Darryl		1	
DRILLING METHOD(S)		DRILL BIT(S) SIZE		Project Name	
Hollow-stem Auger ISOLATION CASING		9 inches	FT.	Project Number	036026.00
N/A		N/A	N/A ' ' '	ELEVATION AND DATUM	TOTAL DEPTH
BLANK CASING N/A		FROM TO N/A	N/A FT.	DATE STARTED	10.0 ft. bgs DATE COMPLETED
SLOTTED CASING N/A		FROM TO	FT. N/A	4/5/04 INITIAL WATER DEPTH (F	4/5/04
SIZE AND TYPE OF FILTER PACK		FROM TO	FT.	10	' <i> </i>
N/A SEAL		N/A FROM TO	N/A FT.	LOGGED BY GCD	
3/8 inch Bentonite	<del></del>	0	10	SAMPLING METHODS	WELL COMPLETION
GROUT N/A		FROM TO N/A	N/A	1.5 inch Macro Core	☐ SURFACE HOUSING ☐ STAND PIPE FT.
SAMPLES DEPTH	BACKFILL DETAILS			·	BOTABLITE FI.
TYPE RECOV PENETR (FEET) SAMPLE NUMBER (FEET)	`	UTHOLOGY USO	<b>3</b>	SAMPLE DESCRIPTION AI	ND DRILLING REMARKS
1- 2- 3- 4- 5- 6- 7- 8- 9- WSB-04-38-10		SM	- sheer	rately yellowish brown, s	or sheen.

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

BORING	LOCAT	101								<u></u>			
	Sout	hside	of forr	mer turntable		.,			Boring Name	WSB-04-36			
DRILLIN	G COMP Caso	PANY ade [	Drilling	, Inc.		DRILLER	Arlo Te	letter	Project Name				
DRILLIN	G METH					DRILL BI	T(S) SIZE 2 inche		Project Number				
ISOLATI				al)		FROM	TO N/A	T. N/A	ELEVATION AND DATUM	TOTAL DEPTH			
BLANK (				** ·*	<u>*.</u>	FROM TO FT			4	12.0 ft. bgs			
SLOTTE	D CASII	NG				FROM TO FT			2/25/04	DATE COMPLETED 2/25/04			
SIZE AN	N/A D TYPE	OF FIL	TER PAG	CK CK		N/A N/A FROM TO FT			INITIAL WATER DEPTH (FT) 11				
SEAL	N/A		<u> </u>	-		FROM	N/A TO	N/A FT.	LOGGED BY SCS				
GROUT	3/8 ir	nch Be	entonit	te		FROM	0 TO	12 FT.	SAMPLING METHODS	WELL COMPLETION  SURFACE HOUSING			
	N/A	_	,			PROM	1/A	N/A FI.	1.5 inch Macro Core	☐ STAND PIPE FT.			
TYPE	RECOV (FEET)	DENETO	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITH	LITHOLOGY USCS LOG SAMPLE DESCRIPTION AND DRILLING REMARKS						
							nn G	4 1	ly graded GRAVEL el fill, dry				
-	1		1-		-			- Silty	SAND				
- ss	۱ , ,							Mode sand,	erately yellowish brown, sil , slightly damp. No odor o	ty sand, with some coarse r sheen.			
500	2.5		2-					ſ					
}			3-		-			-					
			4-					-					
			X	WSB-04-36-5									
†			<u> </u>					r					
- ss	1.5		6-				SI	1					
<u> </u>			7-					F					
			8-										
<b> </b>			9-					<u> </u>					
- ss	3		10-					-					
  - 			11-		<del>-</del>			Silty S					
			12	1			SM	Same	as above, wet. No odor o	or sheen.			
ļ													
										:			

BORING	G LOCATIO											- Contraction		
	50 fee	et wes	t of fo	rmer powerho	ouse	DRIL	I ED		-	Boring Name		WSB-04-34		
L	Casca	ade Di	rilling	Inc.		-{	Arlo	Terle	etter	Project Name _		Wishram		
	NG METHO GeoP	robe						ches		Project Number		036026.00		
	TON CASII N/A	NG				FRO	M N/A	то	N/A	ELEVATION AND DATU		TOTAL DEPTH		
BLANK	CASING N/A					FRO	M N/A	TO	N/A FT.	DATE STARTED		16.0 ft. bgs DATE COMPLETED		
SLOTTI	ED CASINO N/A	G				FRO		то	N/A	2/25/04 2/25/04 INITIAL WATER DEPTH (FT)				
SIZE AN	ND TYPE O	OF FILT	ER PAC	К	<del></del>	FRO	м	TO	N/A FT.	LOGGED BY		<del></del>		
SEAL	3/8 inc	sh Ro	ntonit			FROM TO FT.		SCS SAMPLING METHODS WELL COMPLETION						
GROUT	-	JII DEI	itoine		A44.1			FT.	1.5 inch Macro Core Parostaltic	,	D SURFACE HOUSING			
	N/A SAMPLES		DEDTU		BACKFILL DETAILS						CI STAND PIPE FT.			
TYPE	RECOV. F (FEET) B	PENETR.   1 RESIST. LOWS/61	DEPTH (FEET)	SAMPLE NUMBER			FILHOFOGA	USCS		SAMPLE DESCRIPTION AND DRILLING REMARKS				
- ss	2		1- 2- 3-		-				Silty S Mode - grave		n, silty sador or sh	and, with some coarse heen.		
- ss	3	<u> </u>	5- 6- 7- 8-	WSB-04-34-5	-			SM	- -					
- ss -	2.5		9-	WSB-04-34-GW	-				- Same	as above, wet. No od	or or sh	een.		
SS	NR		13- 14- 15-		-				-					
<u>NOT</u> 1. A	<u>ES</u> t ~9 feet,	driller		ed large cobbles	3.									

SHEET \_\_\_1\_\_OF \_\_1\_\_

PNW WISHRAM FEB.04 036026.00.GPJ KJ

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

PORIN	G LOCA	TION									zyrosinio ochoditarit	
	60 f	eet so	uthwe	st of former fu	eling island		Boring Name	WSB-04-16				
	NG COM Cas	cade l	Drilling	ı, Inc.			LLER A	rlo Ter	letter	Project Name	· · · · · · · · · · · · · · · · · · ·	
	NG MET Geo	Probe	!			DRI		s) size inches		Project Number		
ISOLAT	TION CA N/A	SING				FRO		TO	N/A	ELEVATION AND DATUM		
BLANK	CASING N/A	;				FRO	DМ	TO	FT.	DATE STARTED	16.0 ft. bgs DATE COMPLETED	
SLOTT	ED CAS	NG		·		FRO	N/	TO	N/A FT.	2/26/04	2/26/04	
SIZE A	N/A ND TYPE	OF FIL	TER PAG	CK		FRO	<u>N/</u> Эм	TO	N/A FT.	INITIAL WATER DEPTH (FT) 11		
SEAL	N/A					N/A N/A			N/A FT.	LOGGED BY SCS		
GROUT	Γ	nch B	entonit	te	- <u></u>		0		16	SAMPLING METHODS	WELL COMPLETION  SURFACE HOUSING	
	N/A SAMPLES				<u> </u>		FROM TO F			1.5 inch Macro Core	STAND PIPE FT.	
TYPE	RECOV (FEET	PENETR. RESIST. BLOWS/6	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	LITHOLOGY USCS LOG					AND DRILLING REMARKS	
ļ.,	1-							GW	Grave			
- ss	0.5		2-	-					Sandy Moder	rately yellowish brown, s	sandy silt, damp. No odor or	
-			3-									
			4-		-							
-			5-									
- ss	0.5		6-			į		ML	-			
-			7-						-			
			8-		-				-			
-			9-				ř.		-			
- ss	3.5		10-		-				-		ı	
-			11-		¥				Sandy			
			12-						Same a	as above, wet. No odor	or sheen.	
.			13-					ML	-			
· ss	4		14-						-			
		-	15- V	VSB-04-16-GW	-							
			16			L			L	<del></del>		
											1	
											İ	

**Kennedy/Jenks Consultants** 

BORING LOCATION Midway between former fueling area and engin DRILLING COMPANY	e house		Boring Name	WSB-04-12	
Cascade Drilling, Inc.	DRILLER Arlo Terle	etter	Project Name	Wishram	
DRILLING METHOD(S) GeoProbe	DRILL BIT(S) SIZE 2 inches		Project Number		
ISOLATION CASING N/A	FROM TO N/A	N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH	
BLANK CASING N/A	FROM TO N/A	N/A FT.	DATE STARTED 2/26/04	12.0 ft. bgs	
SLOTTED CASING N/A	FROM TO N/A	N/A	2/26/04 INITIAL WATER DEPTH (FT)	2/26/04	
SIZE AND TYPE OF FILTER PACK N/A	FROM TO	FT	11 LOGGED BY		
SEAL 3/8 inch Bentonite	N/A FROM TO	N/A FT.	SCS		
GROUT	FROM TO	12 FT.	1.5 inch Macro Core	WELL COMPLETION  SURFACE HOUSING	
N/A  SAMPLES  BACKFILL DETAILS  BACKFILL DETAILS	N/A	IN/A		O STAND PIPE F	
TYPE RECOV PENETR RESIST. (FEET) SAMPLE NUMBER BACKFILL DETAILS SAMPLE NUMBER	LUTHOLOGY USCS		SAMPLE DESCRIPTION AND	DRILLING REMARKS	
	, S. GW	Well-graded GRAVEL Gravel fill.			
SS 2 2		Silty S		- — — — — — — — — - / fine sand, damp. No	
SS 2 6- 7- 8-	SM	-			
SS 2 WSB-04-12-10 WSB-04-12-10 -	SM	Silty S	AND as above, wet.		
0.1					

				·							<del></del>	Torrito Corrotattante
BORING	Nort	h side	of for	mer fueling isl	and				9.1	Boring Name _		WSB-04-09
DRILLIN	Caso	cade [	Orilling	, Inc.		DRIL	Ar	lo Terle	etter	Project Name _		Wishram
DRILLIN	Geol	Probe				DRIL	L BIT(5 2 i	s) SIZE nches		Project Number		
ISOLAT	N/A					FRO	M N/A	TO <b>4</b>	N/A	ELEVATION AND DAT		TOTAL DEPTH
BLANK	CASING N/A				•	FROM TO FT. N/A N/A			DATE STARTED		16.0 ft. bgs DATE COMPLETED	
SLOTTE	D CASII N/A	NG		-		EDOM TO ET			2/25/04 INITIAL WATER DEPT	H (FT)	2/25/04	
SIZE AN		OF FIL	TER PA	CK		FRO		ТО	N/A	LOGGED BY		· · · · · · · · · · · · · · · · · · ·
SEAL		ach R	entoni	to		FRO	М	TO	10/A FT. 16	SCS SAMPLING METHODS	<del></del>	WELL COMPLETION
GROUT		ICH D	EIILOIII	ie		FRO	M	<u>0</u> то	FT.	ł		☐ SURFACE HOUSING
	N/A SAMPLES	Inc. umo	DEBTU		BACKFILL DETAILS		N/A	ucco	N/A			STAND PIPE FT.
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6	DEPTH (FEET)	SAMPLE NUMBER			LITHOLOG	USCS LOG		SAMPLE DESCRIPTION	ONA NC	DRILLING REMARKS
								· GW	Well-	graded GRAVEL el fill.		
			1-					#	Silty			
- ss	3		2-	<u> </u> 	-				- slight	rately yellowish brow y damp. Slight odor,	n to oii	ive gray, sifty sand, een.
			3-									
	<del> </del>	<b></b>	M ⁴-	WSB-04-09-5	-				-			
-			M 5-	1	_				-			
	<b>!</b> .		_					SM				
- ss	4		6-		-				-			
-			7-		-				-			
	L		8-									
			0-									
ŀ			M 9-						-			
- ss	4		∐ 10-	WSB-04-09-10	모							
									Silty S Same		coarse	e gravel, wet. Slight odor
-			11-						no she	een.		
	ļ		12-						-			
			40									
			13-					SM	-			
L			14-						-			
<u>-</u>			15-						<u> </u>			
-	ı l		16-			— ш					<del></del> -	
												İ
												İ

BORING LOCATION		Troinica y/conks consultan		
85 feet west of maintenance shop, south of fi DRILLING COMPANY	Boring Name WSB-04-06			
Cascade Drilling, Inc. DRILLING METHOD(S)	Arlo Terletter  DRILL BIT(S) SIZE	Project Name Wishram		
GeoProbe ISOLATION CASING	2 inches	Project Number036026.00		
N/A BLANK CASING	FROM TO FI	ELEVATION AND DATUM TOTAL DEPTH		
N/A	FROM TO FT N/A	DATE STARTED DATE COMPLETED		
SLOTTED CASING N/A	FROM TO FT N/A N/A	INITIAL WATER DEPTH (FT)		
SIZE AND TYPE OF FILTER PACK N/A	FROM TO FT N/A	LOGGED BY		
SEAL 3/8 inch Bentonite	FROM TO FT 0 16	SCS SAMPLING METHODS WELL COMPLETION		
GROUT N/A	FROM TO FT N/A N/A	1.5 inch Macro Core ☐ SURFACE HOUSING ☐ STAND PIPE FI		
SAMPLES  TYPE RECOV PENETR DEPTH SAMPLE NUMBER  BACKFILL DETAILS  BACKFILL DETAILS		SAMPLE DESCRIPTION AND DRILLING REMARKS		
TYPE RECOV. RESIST. (FEET) SAMPLE NUMBER BACKFILL DETAILS (FEET) BLOWS/6*				
		graded GRAVEL el fill.		
		SAND		
SS 2.5 2-	- shee	erately yellowish brown, silty sand, damp. No odor or n.		
3-				
4-				
5-	_			
SS 4 6-	SM			
7 - WSB-04-6-8				
8-				
9-	-			
SS 4 10-	-			
11-				
12-	Silty	AND		
13-		as above, gray at ~11 feet, wet. Slight odor and		
SS   4   14-	SM -			
15-				
WSB-04-6-GW				
16				
*				

	S LOCAT	TION et sout	h of fo	ormer 100,000	-gallon ASTs					WCD 04 04
DRILLIN	NG COM	PANY	Orilling		guiloti AO I S	DRILLER	0 Te-1		Boring Name	
DRILLIN	IG METH	HOD(S)		, 1110.		DRILL BIT(S		etter	Project Name	
ISOLATI	ION CAS	Probe				FROM 2 ii	nches TO	FT,	Project Number	
BLANK (	N/A CASING	<del></del>				FROM	то	N/A FT.	ELEVATION AND DATUM	TOTAL DEPTH 16.0 ft. bgs
SLOTTE	N/A ED CASII	NG				FROM	ТО	N/A FT.	DATE STARTED 2/26/04	DATE COMPLETED 2/26/04
	N/A		TER PAC			N/A	\	N/A	INITIAL WATER DEPTH (FT) 13	
SEAL	N/A		- CRFAC			FROM N/A		N/A	LOGGED BY SCS	
	3/8 ir	nch Be	ntonit	e		FROM (		16	SAMPLING METHODS	WELL COMPLETION
GROUT	N/A	_				FROM N/A	TO	N/A	1.5 inch Macro Core	D SURFACE HOUSING D STAND PIPE F
TYPE	RECOV (FEET)	PENETR. RESIST. BLOWS/6*	DEPTH (FEET)	SAMPLE NUMBER	BACKFILL DETAILS	UTHOLOG	USCS		SAMPLE DESCRIPTION AND	
SS	3		2- 3- 4-	WSB-04-1-2	-		_GW_	Grave Silty S	SAND rately yellowish brown, silty	sand, damp. No odor or
SS	3.5		5- 6- 7- 8-		-		SM	-		
ss	4		11-	WSB-04-1-10	-			-		
ss	4		13- 14- 15-	7			SM	Silty SA Same a wet. No	AND as above with trace coarse odor or sheen.	gravel at ~13-16 feet,

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

# **Appendix B**

**Laboratory Analytical Reports** 



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

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19 August 2004

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

Jesa Domeny

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	P310207-05	Soil	09/02/03 13:10	09/04/03 10:00
WSB-3-16	P310207-06	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	P310207-08	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

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa Domenighini, Project Manager

Desa Don

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



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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 M	1DL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-1-10 (P3I0207-01) Soil 5	Sampled: 09/02/03 11:	:30	Received: 09/0	04/03 10:	00					
Diesel Range Organics Heavy Oil Range Hydrocarbon	47.6 s 359		25.0 m 50.0	g/kg dry "	1	3090351	09/09/03	09/10/03	NWTPH-Dx "	
Surrogate: 1-Chlorooctadecane	98.4 %		50-150	)		"	n	"	n	
WSB-1-15 (P3I0207-02) Soil S	Sampled: 09/02/03 11:	:45	Received: 09/	04/03 10:	00	. = .				<u></u>
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 m 50.0	ig/kg dry "	1	3090351	09/09/03	09/09/03	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	81.3 %		50-150	)		"	,,	"	n	
WSB-2-14 (P3I0207-03) Soil	Sampled: 09/02/03 12	:50	Received: 09/	04/03 10:	00					
Diesel Range Organics Heavy Oil Range Hydrocarbon	15700 s 10500	_	2500 m 5000	ng/kg dry	100	3090351	09/09/03	09/09/03	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	%		50-150	)		"	"	"	"	S-01
WSB-2-8 (P3I0207-04) Soil S	ampled: 09/02/03 12:3	30 F	Received: 09/0	4/03 10:0	0					
Diesel Range Organics Heavy Oil Range Hydrocarbon	6900 s 4710		250 m 500	ng/kg dry	10	3090412	09/10/03	09/11/03	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	244 %		50-150	9		"	"	"	"	S-01
WSB-3-10 (P3I0207-05) Soil	Sampled: 09/02/03 13	:10	Received: 09/	04/03 10:	00					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 m 50.0	ng/kg dry "	1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	90.8 %		50-150	0		"	,	"	"	
WSB-3-16 (P3I0207-06) Soil	Sampled: 09/02/03 13	:30	Received: 09/	04/03 10:	00					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 m 50.0	ng/kg dry "	1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	85.6 %		50-150	0		"	н	"	"	

North Creek Analytical - Portland

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

Page 2 of 29



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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

Reported: 08/19/04 07:53

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

Project Manager: Galen Davis

Analyte	Result M	1DL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-4-10 (P3I0207-07) Soil S	Sampled: 09/02/03 14:	:00	Received: 09	/04/03 10:	00					
Diesel Range Organics	ND			ng/kg dry	1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0			17			11	
Surrogate: 1-Chlorooctadecane	82.9 %		50-15	0		#	"	n	"	
WSB-5-10 (P3I0207-08) Soil S	Sampled: 09/02/03 14:	45	Received: 09	/04/03 10:	00				<del></del>	
Diesel Range Organics	21000		1000 r	ng/kg dry	20	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbon	s 21600		2000	11	"	#	11	"		
Surrogate: 1-Chlorooctadecane	%		50-15	0		"	"	"	n	S-01
WSB-6-10 (P3I0207-09) Soil S	Sampled: 09/02/03 15:	20	Received: 09	/04/03 10:	00					
Diesel Range Organics	ND		25.0 r	ng/kg dry	1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	ti		**	11	**	11	
Surrogate: 1-Chlorooctadecane	88.4 %		50-15	0		"	"	н	n	
WSB-7-10 (P3I0207-10) Soil S	Sampled: 09/02/03 16:	:00	Received: 09	/04/03 10:	00					
Diesel Range Organics	240		25.0 r	ng/kg dry	1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbon	s 72.3		50.0	**	"	#	**	"	· ·	
Surrogate: 1-Chlorooctadecane	89.8 %		50-15	0		"	"	,,	n	
WSB-6-14 (P3I0207-11) Soil S	Sampled: 09/02/03 15:	30	Received: 09	/04/03 10:	00					
Diesel Range Organics	265		25.0 r	ng/kg dry	1	3090412	09/10/03	09/11/03	NWTPH-Dx	
Heavy Oil Range Hydrocarbon	s 75.4		50.0	11	. #	"	"	#	11	
Surrogate: 1-Chlorooctadecane	99.1 %		50-15	0		"	"	"	"	

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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

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

Analyte	Result	Reporting MDL Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-2-14 (P3I0207-03) Soil	Sampled: 09/02/03 12	2:50 Received: 0	9/04/03 10:	00					
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	11	В
Cadmium	ND	0.385	**	1	*	*	12/19/03	n .	
Chromium	11.7	0.385	11	**	**	"	"	n .	
Mercury	ND	0.0781	11	"	3120687	12/17/03	12/17/03	EPA 7471A	I-08
Lead	37.1	0.385	11	**	3120748	12/18/03	12/19/03	EPA 6020	
Selenium	0.411	0.385	H	**	**	"	12/19/03	•	
WSB-2-8 (P3I0207-04) Soil	Sampled: 09/02/03 12:	30 Received: 09	/04/03 10:0	0					
Silver	ND	0.500	mg/kg dry	1	3120913	12/23/03	12/24/03	EPA 6020	
Arsenic	4.30	0.289	11	"	3120748	12/18/03	12/19/03	"	
Barium	4680	5. <b>7</b> 8		20	11	**	12/19/03	"	В
Cadmium	ND	0.289	11	1	11	**	12/19/03	ıı .	
Chromium	12.3	0.289	11			#	"	11	
Mercury	0.148	0.100	H	"	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	11	1	**	**	12/19/03	n .	
WSB-5-10 (P3I0207-08) Soil	Sampled: 09/02/03 14	1:45 Received: 0	9/04/03 10:	:00					
Silver	ND	0.500	mg/kg dry	1	3120913	12/23/03	12/24/03	EPA 6020	
Arsenic	9.35	0.338	11	**	3120748	12/18/03	12/19/03	*	
Barium	6340	6.76	11	20	**	н	12/19/03	*	В
Cadmium	0.345	0.338	11	1	**	H	12/19/03	*	
Chromium	19.0	0.338	11	**	"	11	"	*	
Mercury	0.0709	0.0641	11	**	3120687	12/17/03	12/17/03	EPA 7471A	I-08
Lead	29.4	0.338	11	**	3120748	12/18/03	12/19/03	EPA 6020	
Selenium	0.836	0.338	**	17	"	•	12/19/03	**	

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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
WSB-1-10 (P3I0207-01) Soil Sam	pled: 09/02/0	3 11:30 R	eceived: 09	/04/03 10:	00		<u>-</u>			
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	ι
Toluene	14.7	6.29	50.0	11	**	**	"	"	**	
Ethylbenzene	ND	9.40	50.0	"	"	11	**	11	**	τ
Xylenes (total)	ND	26.2	100	*1	. "	"	**	**	u	Ţ
Surrogate: 4-BFB	93.3 %		42.6-1	30		"	"	"	"	
Surrogate: 1,2-DCA-d4	109 %		57.3-1	44		"	n	"	"	
Surrogate: Dibromofluoromethane	101 %		45.5-1	30		,,	"	"	n	
Surrogate: Toluene-d8	112 %		42.1-1	44		"	"	"	"	
WSB-1-15 (P3I0207-02) Soil Sam	pled: 09/02/03	3 11:45 R	eceived: 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	"			"	"	"	ŭ
Ethylbenzene	ND	9.40	50.0	**	**	11	**	**	н	Ū
Xylenes (total)	ND	26.2	100	11	"	**	"	"	11	Ū
Surrogate: 4-BFB	83.1 %		42.6-1.	30		"	"	"	"	-
Surrogate: 1,2-DCA-d4	96.1 %		57.3-1-	44		"	"	,,	"	
Surrogate: Dibromofluoromethane	87.8 %		45.5-1.	30		**	"	"	"	
Surrogate: Toluene-d8	99.2 %		42.1-1	44		19	"	"	"	
WSB-2-14 (P3I0207-03) Soil Sam	pled: 09/02/03	12:50 R	eceived: 09/	/04/03 10:	00					
Benzene	ND	8.88	100 ı	ıg/kg dry	2	3090383	09/10/03	09/16/03	EPA 8260B	D, U
Toluene	ND	12.6	100	"	n	**	**	"	"	D, U
Ethylbenzene	687	18.8	100	**	**	**	"	11		_, _
Xylenes (total)	739	52.4	200	H	·	"	11	#	**	D
Surrogate: 4-BFB	73.2 %		42.6-1.	30		"	"	"	n	D
Surrogate: 1,2-DCA-d4	80.9 %		57.3-14	14		"	"	"	"	D
Surrogate: Dibromosluoromethane	74.8 %		45.5-1.	30		n	"	,,	,,	D

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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
WSB-2-8 (P3I0207-04) Soil Samp	led: 09/02/03 1	2:30 R	eceived: 09/	/04/03 10:0	00					R-05
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	11	"	**	**	**		D, U
Ethylbenzene	178	18.8	100	11	**	**	19	H	**	D
Xylenes (total)	81.7	52.4	200	11	"	***			17	J, D
Surrogate: 4-BFB	80.5 %		42.6-	130		"	"	"	"	D
Surrogate: 1,2-DCA-d4	82.8 %		<i>57.3-</i>	144		"	"	"	"	D
Surrogate: Dibromofluoromethane	73.5 %		45.5-	130		"	"	"	"	D
Surrogate: Toluene-d8	82.3 %		42.1	144		"	"	,,	"	D
WSB-3-10 (P3I0207-05) Soil Sam	pled: 09/02/03	13:10	Received: 0	9/04/03 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	11	**	**	**	11	"	U
Ethylbenzene	ND	9.40	50.0	II .	11	*	**	**	**	Ū
Xylenes (total)	ND	26.2	100	11	11	н	11	"	**	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		"	"	"	n	
Surrogate: Toluene-d8	106 %		<i>42.1-1</i>	144		"	**	"	,,	
WSB-3-16 (P3I0207-06) Soil Sam	pled: 09/02/03	13:30 F	Received: 09	9/04/03 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	ti .	"	**	"	**	11	U
Ethylbenzene	ND	9.40	50.0	U	"	"	11	**	н	U
Xylenes (total)	ND	26.2	100	11	tt .	*	"		n .	U
Surrogate: 4-BFB	80.3 %		42.6-1	130		"	"	,,	"	
Surrogate: 1,2-DCA-d4	90.2 %		57.3-1	144		"	"	"	#	
Surrogate: Dibromofluoromethane	82.6 %		45.5-1	130		"	n	"	"	
Surrogate: Toluene-d8	95.1 %		42.1-1	44		**	"	"	n	

North Creek Analytical - Portland



Portland

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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
						Dateil	Trepared	Maryzeu	Menion	Notes
WSB-4-10 (P3I0207-07) Soil San	-				00			<del>,</del> -		
Benzene	ND	8.88		ug/kg dry	2	3090383	09/10/03	09/16/03	EPA 8260B	D, U
Toluene	ND	12.6	100	U	н	"	**	**	"	D, U
Ethylbenzene	299	18.8	100	"	**	"	**	**	**	D
Xylenes (total)	1360	52.4	200	"	- 11	11	"	11	**	D
Surrogate: 4-BFB	76.2 %		42.6-	130		"	"	"	,	D
Surrogate: 1,2-DCA-d4	83.2 %		<i>57.3-</i> .	144		n	"	"	n	D
Surrogate: Dibromofluoromethane	82.0 %		45.5-	130		"	"	"	"	D
Surrogate: Toluene-d8	77.0 %		42.1-	144		"	n	n	"	D
WSB-5-10 (P3I0207-08) Soil San	npled: 09/02/0	3 14:45 R	eceived: 09	9/04/03 10:	00					I-02
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	11	"	11	11	H	•	D
Ethylbenzene	221	18.8	100	11	"	11	**	n	H	D
Xylenes (total)	1650	52.4	200	0	"	n	n	**	**	D
Surrogate: 4-BFB	77.2 %		42.6-	130	-	"	"	"	n.	D
Surrogate: 1,2-DCA-d4	85.8 %		57.3-1	144		"	"	"	*	D
Surrogate: Dibromofluoromethane	82.3 %		45.5-1	130		"	"	"	"	D
Surrogate: Toluene-d8	77.6 %		42.1-1	144		"	n	"	"	D
WSB-6-10 (P3I0207-09) Soil San	npled: 09/02/0	3 15:20 R	eceived: 09	0/04/03 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	**	**	n	···	u u	u	U
Ethylbenzene	ND	9.40	50.0	11	10	n	н	**	"	Ū
Xylenes (total)	ND	26.2	100	11	. "	**	11	**	*	U
Surrogate: 4-BFB	94.8 %		42.6-1	30		#	"	n	"	
Surrogate: 1,2-DCA-d4	101 %		57.3-1	144		"	"	"	,	
Surrogate: Dibromosluoromethane	98.3 %		45.5-1	30		,,	"	"	"	
Surrogate: Toluene-d8	109 %		42.1-1	44		"	"	"	"	

North Creek Analytical - Portland



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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

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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
	Sampled: 09/02/03						- topulou	71	Wichiod	140103
Benzene	ND	4.44	50.0	ug/kg dry	1	3090383	09/10/03	09/12/03	EPA 8260B	T.
Toluene	ND	6.29		11	**	**	n	11		ί
Ethylbenzene	ND	9.40	50.0		**	**	**	**		Ü
Xylenes (total)	ND	26.2	100	11	"	"	"	Ħ	**	ŭ
Surrogate: 4-BFB	96.4 %		42.6-	130		"	"	,,	"	
Surrogate: 1,2-DCA-d4	105 %		<i>57.3</i>	144		#	"	"	"	
Surrogate: Dibromofluoromethan	e 96.4 %		45.5-	130		"	"	"	,,	
Surrogate: Toluene-d8	109 %		42.1-	144		"	n	"	"	
WSB-6-14 (P3I0207-11) Soil S	ampled: 09/02/03	15:30	Received: 05	9/04/03 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		"	**	**	**	11	"	Ü
Ethylbenzene	ND	9.40	50.0	**	10	u	tı	**	n	U
Xylenes (total)	ND	26.2	100	11	"	"			**	Ü
Surrogate: 4-BFB	86.6 %		42.6-	130		"	"	,,	"	
Surrogate: 1,2-DCA-d4	92.9 %		57.3-	144		"	"	"	,,	
Surrogate: Dibromofluoromethan	e 87.9 %		45.5-	130		,,	,,	,,	"	
Surrogate: Toluene-d8	97.3 %		42.1-1	144		"	"	"	**	

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



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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

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

Analyte	Result MI	Reporting DL Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-2-14 (P3I0207-03) Soil	Sampled: 09/02/03 12:5	0 Received: 0	9/04/03 10:	:00					R-05
Acenaphthene	ND	16.5	mg/kg dry	5	3090304	09/08/03	09/17/03	EPA 8270C	
Acenaphthylene	ND	16.5	11	11	u	"	**	··	
Anthracene	ND	16.5	**	**		**	**	n	
Benzo (a) anthracene	ND	16.5	U	"	n	"	"	u u	
Benzo (a) pyrene	ND	16.5	Ħ	"	**	u	**	**	
Benzo (b) fluoranthene	ND	16.5	11	"	**	n	**	**	
Benzo (ghi) perylene	ND	16.5	11	**	"	**	**	"	
Benzo (k) fluoranthene	ND	16.5	11	17	"	**	**	"	
Benzoic Acid	ND	50.0	**	11	"	**	**		
Benzyl alcohol	ND	16.5	0	**	**	"		"	
4-Bromophenyl phenyl ether	ND	16.5	0	"	**	**		•	
Butyl benzyl phthalate	ND	16.5	0	"	**	"		**	
4-Chloro-3-methylphenol	ND	16.5	H		**	"	n	11	
4-Chloroaniline	ND	100	H	**	"	**	**	п	
Bis(2-chloroethoxy)methane	ND	16.5	#	**	"	**	**	u u	
Bis(2-chloroethyl)ether	ND	16.5	11	**	11	11	**	n	
Bis(2-chloroisopropyl)ether	ND	16.5	n	"	**	0	"	11	
2-Chloronaphthalene	ND	16.5	11	11	**	**	"	u	
2-Chlorophenol	ND	16.5	**	11	11	**	**	n.	
4-Chlorophenyl phenyl ether	ND	16.5	11	11	**		**	"	
Chrysene	ND	16.5	D.	"	Ħ		n	**	
Di-n-butyl phthalate	ND	50.0	у, н	"	**	n	н	"	
Di-n-octyl phthalate	ND	16.5	H	н		**	**	"	
Dibenzo (a,h) anthracene	ND	16.5	11	н	"	н	н	**	
Dibenzofuran	ND	16.5	0		**	11	"	**	
1,2-Dichlorobenzene	ND	50.0	11	"	Ħ	"	"	"	
1,3-Dichlorobenzene	ND	50.0	11	n	"	**	"	11	
1,4-Dichlorobenzene	ND	50.0	"	**	11	**	**	**	
3,3'-Dichlorobenzidine	ND	50.0	u .	11	**	H	19	**	
2,4-Dichlorophenol	ND	16.5	ŧ1	"	**	n	**	H	
Diethyl phthalate	ND	16.5	11	**	•	11	**	"	
2,4-Dimethylphenol	ND	50.0	11	**	n	**	"	**	
Dimethyl phthalate	ND	16.5	17		**	н	**		
4,6-Dinitro-2-methylphenol	ND	50.0	ir	"	*	n	**	"	
2,4-Dinitrophenol	ND	100	11	**	11	**		11	
2,4-Dinitrotoluene	ND	25.0		"	**	"	"	**	
2,6-Dinitrotoluene	ND	25.0	11		"	"	**	"	

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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

#### 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					R-05
Bis(2-ethylhexyl)phthalate	ND		100 1	ng/kg dry	5	3090304	09/08/03	09/17/03	EPA 8270C	
Fluoranthene	ND		16.5	11	11	**	Ħ	Ħ	**	
Fluorene	ND		16.5	11	"	**	H	**	"	
Hexachlorobenzene	ND		16.5	11	"	"	Ħ	11	••	
Hexachlorobutadiene	ND		50.0	100	"		**	n	**	
Hexachlorocyclopentadiene	ND		50.0	H	11	**	n	"	#	
Hexachloroethane	ND		50.0	11	**	11	"	n	**	
Indeno (1,2,3-cd) pyrene	ND		16.5	11	**	19	H	**	"	
Isophorone	ND		16.5	"	W.	11	Ħ	**	11	
2-Methylnaphthalene	61.9		16.5	n	"		u	"	**	
2-Methylphenol	ND		16.5	11	n	**	11	11	**	
3-,4-Methylphenol	ND		16.5	H	"	n	11	"	**	
Naphthalene	23.8		16.5	**	11	Ħ	11	**	"	
2-Nitroaniline	ND		16.5	**	11	11	**		u	
3-Nitroaniline	ND		50.0	**	11	11	"	"	**	
4-Nitroaniline	ND		16.5	11	"	"	"	"	**	
Nitrobenzene	ND		16.5	H	11	**	**	и	n .	
2-Nitrophenol	ND		16.5	Ħ	**	11	11	"	"	
4-Nitrophenol	ND		50.0	0	**	"	.,	n	11	
N-Nitrosodi-n-propylamine	ND		16.5	11	**	**	**	11	"	
N-Nitrosodiphenylamine	ND		16.5	**	11	11	**		**	
Pentachlorophenol	ND		50.0	**	*	u	**	**	**	
Phenanthrene	41.0		16.5	n	**	**	"	**	"	
Phenol	ND		16.5	**	**	**	*		11	
Pyrene	18.1		16.5	**	, 11	"	**	ıı .	"	
1,2,4-Trichlorobenzene	ND		16.5	11	"	n		Ħ	"	
2,4,5-Trichlorophenol	ND		16.5	17	**	**	Ħ	**	11	
2,4,6-Trichlorophenol	ND		16.5	tr.	"	**	н	"	*	
Surrogate: 2-Fluorobiphenyl	125 %		44-14	6		"	"	"	"	J
Surrogate: 2-Fluorophenol	95.6 %		42-12	6		"	"	"	"	J
Surrogate: Nitrobenzene-d5	112 %		42-12	6		"	"	"	,,	J
Surrogate: Phenol-d6	87.6 %		42-13	1		"	"	"	"	J
Surrogate: p-Terphenyl-d14	106 %		49-15			*	"	,,	,,	J
Surrogate: 2,4,6-Tribromopheno	ol 71.3 %		48-11			"	,,	"	,,	J

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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
WSB-4-10 (P3I0207-07) Soil	Sampled: 09/02/03 1	14:00	Received: 09	/04/03 10:	00			-		
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	"	"	**	**		11	
Benzo (b) fluoranthene	ND		13.4	U		"	**	H	11	
Benzo (k) fluoranthene	ND		13.4	#	**	11	"	Ħ	11	
Chrysene	ND		13.4	H	**	**	11	н	"	
Dibenzo (a,h) anthracene	ND		13.4	ti	н	**	11			
Indeno (1,2,3-cd) pyrene	ND		13.4		H	"		*	H	
Surrogate: Benzo (a) pyrene-d1	2 88.1 %		40-1.	50		"	"	"	"	

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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	Diluti	on Batch	Prepared	Analyzed	Method	Notes
WSB-1-10 (P3I0207-01) Soil	Sampled: 09/02/03 1	1:30	Received: 09/04/03 10	0:00		<u> </u>	<u> </u>	·	
% Solids	95.5		1.00% by Weig	gh 1	3090385	09/09/03	09/10/03	NCA SOP	
WSB-1-15 (P3I0207-02) Soil	Sampled: 09/02/03 1	1:45	Received: 09/04/03 10	0:00					
% Solids	78.7		1.00% by Weig	gh 1	3090385	09/09/03	09/10/03	NCA SOP	
WSB-2-14 (P3I0207-03) Soil	Sampled: 09/02/03 1	2:50	Received: 09/04/03 10	0:00					
% Solids	81.5		1.00% by Weig	gh 1	3090385	09/09/03	09/10/03	NCA SOP	
WSB-2-8 (P3I0207-04) Soil	Sampled: 09/02/03 12	:30 ]	Received: 09/04/03 10:	00					
% Solids	93.0		1.00% by Weig	gh 1	3090385	09/09/03	09/10/03	NCA SOP	- "
WSB-3-10 (P3I0207-05) Soil	Sampled: 09/02/03 1	3:10	Received: 09/04/03 10	0:00					
% Solids	90.6		1.00% by Weig	gh 1	3090385	09/09/03	09/10/03	NCA SOP	
WSB-3-16 (P3I0207-06) Soil	Sampled: 09/02/03 1	3:30	Received: 09/04/03 10	0:00	<u>.</u>				
% Solids	75.8		1.00% by Weig	;h 1	3090385	09/09/03	09/10/03	NCA SOP	
WSB-4-10 (P3I0207-07) Soil	Sampled: 09/02/03 1	4:00	Received: 09/04/03 10	0:00					
% Solids	78.2		1.00% by Weig	jh 1	3090385	09/09/03	09/10/03	NCA SOP	
WSB-5-10 (P3I0207-08) Soil	Sampled: 09/02/03 1	4:45	Received: 09/04/03 10	):00					
% Solids	86.1		1.00% by Weig	h 1	3090385	09/09/03	09/10/03	NCA SOP	
WSB-6-10 (P3I0207-09) Soil	Sampled: 09/02/03 1	5:20	Received: 09/04/03 10	00:00					
% Solids	86.8		1.00% by Weig	;h 1	3090385	09/09/03	09/10/03	NCA SOP	

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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

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-7-10 (P3I0207-10) Soil	Sampled: 09/02/03 1	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	
WSB-6-14 (P3I0207-11) Soil	Sampled: 09/02/03 1	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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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	Reporting MDL Limit		Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Matas
	-		Units	Level	Result	70KEC	Limits	KPD	Limit	Notes
Batch 3090351: Prepared 09	/09/03 Using	g 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: P	310189-0	1			
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: P	310189-0	2			
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		n	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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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

			Reporting		Spike	Source		%REC		RPD	
Analyte	Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3090412: Prepared 09	/10/03 Using	g EPA 355	0 Fuels								
Duplicate (3090412-DUP1)						Source: I	2310103-0	3			
Diesel Range Organics	50.4		25.0 n	ng/kg dry		53.2			5.41	50	
Heavy Oil Range Hydrocarbons	489		50.0	**		485			0.821	50	
Surrogate: 1-Chlorooctadecane	4.25			"	5.48		77.6	50-150			
Duplicate (3090412-DUP2)						Source: I	P3I0103-0	4			
Diesel Range Organics	44.2		25.0 n	ng/kg dry		86.8			65.0	50	Q-14
Heavy Oil Range Hydrocarbons	ND		50.0	11		ND			NA	50	
Surrogate: 1-Chlorooctadecane	6.40			"	6.90		92.8	50-150			

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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

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

l				eporting		Spike	Source		%REC		RPD	
Analyte	F	Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3120687:	Prepared 12/17/03	Usin	g EPA 7471									
Blank (3120687-B	LK1)											
Mercury		ND		0.100	mg/kg							
LCS (3120687-BS	1)											
Мегсигу	,, <del>, = 1.                                  </del>	1.03		0.100	mg/kg	1.00		103	80-120			
Duplicate (312068	7-DUP1)						Source: P	310207-0	3			5
Mercury		0475		0.100 r	ng/kg dry		0.0558			16.1	40	
Matrix Spike (312	0687-MS1)						Source: P	310207-0	3			
Mercury		1.14		0.0862r	ng/kg dry	1.06	0.0558	102	75-125	-		
Batch 3120748:	Prepared 12/18/03	Usin	g EPA 3050									
Blank (3120748-B			<del></del>				-					
Arsenic		ND		0.500	mg/kg							
Barium	C	).775		0.500	"							
Cadmium		ND		0.500	"							
Chromium		ND		0.500	**							
Lead		ND		0.500	"							
Selenium		ND		0.500	"							
LCS (3120748-BS	2)											
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			
Lcau		10.1		0.500		10.0		101	00-120			

North Creek Analytical - Portland

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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 - Quality Control North Creek Analytical - Portland

				eporting		Spike	Source		%REC		RPD	
Analyte	1	Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3120748:	Prepared 12/18/03	Using	EPA 3050									
Duplicate (312074	8-DUP1)						Source: I	2310207-0	3			
Arsenic		6.69		0.5001	mg/kg dry		5.27			23.7	40	
Barium		7780		25.0	"		6500			17.9	40	E
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	11		0.411			38.7	40	
Matrix Spike (312	0748-MS1)						Source: F	2310207-0	3			
Arsenic		15.0		0.403 r	ng/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	Ħ	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 (312	0748-MS2)						Source: P	2310207-0	4			
Arsenic		11.3		0.292 r	ng/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	11	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-Bl	LK2)											
Silver		ND		0.500	mg/kg			·				

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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 - Quality Control North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3120913:	Prepared 12/23/03 Usin	g EPA 305	0					···			
LCS (3120913-BS2	)					-			·		
Silver	4.98	_	0.500	mg/kg	5.00		99.6	80-120			
<b>Duplicate (3120913</b>				Source: P	3L0468-0	03					
Silver	0.0986		0.5001	ng/kg dry		0.0905			8.57	40	
Matrix Spike (3120913-MS1) Source: P3L0468-03											
Silver	4.74		0.3551	ng/kg dry	4.72	0.0905	98.5	75-125			

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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 - Quality Control North Creek Analytical - Portland

Analyte	Result	Re MDL	eporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3090383: Prepared 09/1		g EPA 5035					,,,,,				110103
Blank (3090383-BLK1)											
1,2-Dibromoethane	ND	11.6	50.0	ug/kg							ι
1,2-Dichloroethane	ND	11.2	50.0	"							ι
Benzene	ND	4.44	50.0	"							ι
Toluene	ND	6.29	50.0	"							ι
Ethylbenzene	ND	9.40	50.0	"							ι
Xylenes (total)	ND	26.2	100	"							ι
Methyl tert-butyl ether	ND	11.9	200	"							ι
Naphthalene	20.0	14.1	200	**							
1,2,4-Trimethylbenzene	ND	6.75	100	11							ι
1,3,5-Trimethylbenzene	ND	9.33	50.0	**							ι
lsopropylbenzene	ND	9.55	200	**							ι
n-Propylbenzene	ND	9.89	50.0	**							ι
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		110	81.9-125			
Toluene	2660	6.29	50.0		2500		106	80-125			
Surrogate: 4-BFB	1920			"	2000		96.0	42.6-130		,	
Surrogate: 1,2-DCA-d4	2320			n	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: P	310207-0	)1			
Benzene	2670	4.44	50.0 เ	ıg/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			<u> </u>
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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Project: BNSF-Wishram Project Number: 036026.00

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Reported: 08/19/04 07:53

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

Project Manager: Galen Davis

Analyte	Result	MDL	eporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3090383: Prepared 09/1	0/03 Using	g EPA 5035									
Matrix Spike Dup (3090383-MSD1	)					Source: P	310207-0	01	-		781
Benzene	2690	4.44	50.0 ı	ıg/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	
Surrogate: 4-BFB	2000			"	2090		95.7	42.6-130			
Surrogate: 1,2-DCA-d4	2310			"	2090		111	57.3-144			
Surrogate: Dibromofluoromethane	2150			"	2090		103	45.5-130			
Surrogate: Toluene-d8	2340			"	2090		112	42.1-144			

North Creek Analytical - Portland



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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

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

A 1				eporting	•••	Spike	Source		%REC		RPD	
Analyte		Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3090304:	Prepared 09/08/03	Using	EPA 3550									
Blank (3090304-BLI	<b>K1</b> )											
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	2	ND		0.330	**							
Benzo (ghi) perylene		ND		0.330	**							
Benzo (k) fluoranthen	e	ND		0.330	**							
Benzoic Acid		ND		1.00	u u							
Benzyl alcohol		ND		0.330	11							
4-Bromophenyl pheny	l ether	ND		0.330	**							
Butyl benzyl phthalate	;	ND		0.330	11							
4-Chloro-3-methylphe	enol	ND		0.330	11							
4-Chloroaniline		ND		2.00	•							
Bis(2-chloroethoxy)m	ethane	ND		0.330	**							
Bis(2-chloroethyl)ethe	r	ND		0.330	"							
Bis(2-chloroisopropyl)	ether	ND		0.330	"							
2-Chloronaphthalene		ND		0.330	**							
2-Chlorophenol		ND		0.330	"							
4-Chlorophenyl pheny	l ether	ND		0.330	"							
Chrysene		ND		0.330	n							
Di-n-butyl phthalate		ND		1.00	**							
Di-n-octyl phthalate		ND		0.330	**							
Dibenzo (a,h) anthrace	ne	ND		0.330								
Dibenzofuran		ND		0.330	17							
1,2-Dichlorobenzene		ND		1.00	**							
1,3-Dichlorobenzene		ND		1.00								
,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								

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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

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

Blank (1090304-BLK1)	Analyte		Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Dimethyl phthalate	Batch 3090304:	Prepared 09/08/0	03 Using	EPA 355	0	-							
4.6-Dinitro-2-methylphenol ND 1.00 " 2.4-Dinitrophenol ND 2.00 " 2.4-Dinitropluene ND 0.500 " Bis(2-ethylhexyl)phthalate ND 0.500 " Bis(2-ethylhexyl)phthalate ND 0.330 " Fluoranthene ND 0.330 " Fluoranthene ND 0.330 " Hexachlorobenzene ND 0.330 " Hexachlorobenzene ND 1.00 " Hexachlorobenzene ND 1.00 " Hexachlorobenzene ND 1.00 " Hexachlorobenzene ND 1.00 " Hexachlorobenzene ND 1.00 " Hexachlorobenzene ND 1.00 " Hexachlorobenzene ND 1.00 " Hexachlorobenzene ND 0.330 " Lachethylphenol ND 0.330 " 2-Methylphenol ND 0.330 " 2-Methylphenol ND 0.330 " 2-Methylphenol ND 0.330 " 2-Nitroaniline ND 0.330 " 3-Nitroaniline ND 0.330 " 3-Nitroaniline ND 0.330 " 3-Nitroaniline ND 0.330 " 2-Nitrobenzene ND 0.330 " 3-Nitrobenzene ND 0.330 " 2-Nitrobenzene ND 0.330 " 2-Nitrobenzene ND 0.330 " 3-Nitrobenzene ND 0.330 "	Blank (3090304-BL)	K1)								<u> </u>			
2,4-Dinitrophenol         ND         2,00         "           2,4-Dinitrotoluene         ND         0,500         "           2,6-Dinitrotoluene         ND         0,500         "           Bis(2-ethylbexyl)phthalate         ND         0,330         "           Fluoranthene         ND         0,330         "           Fluorene         ND         0,330         "           Hexachlorobutadiene         ND         1,00         "           Hexachlorocytladiene         ND         1,00         "           Hexachlorocytlame         ND         1,00         "           Hexachlorocytlame         ND         0,330         "           Indeno (1,2,3-ed) pyrene         ND         0,330         "           2-Methylnaphthalene         ND         0,330         "           2-Methylphenol         ND         0,330         "           3-4-Methylphenol         ND         0,330         "           2-Nitroaniline         ND         0,330         "           2-Nitrobanzene         ND         0,330         "           Nitrobenzene         ND         0,330         "           N-Nitrosodi-n-propylamine         ND	Dimethyl phthalate		ND		0.330	mg/kg							.,,
2,4-Dinitrotoluene         ND         0.500         "           2,6-Dinitrotoluene         ND         0.500         "           Bisi(2-ethylkexyl)phthalate         ND         0.300         "           Fluoranthene         ND         0.330         "           Hexachlorobenzene         ND         0.330         "           Hexachlorobutadiene         ND         1.00         "           Hexachlorocyclopentadiene         ND         1.00         "           Index of 1,2,3-ed pyrene         ND         0.330         "           Isophorone         ND         0.330         "           2-Methylphenol         ND         0.330         "           3-4-Methylphenol         ND         0.330         "           4-Nitrosniline         ND         0.330         "           4-Nitrop	4,6-Dinitro-2-methyl	phenol	ND		1.00	"							
Description   Description	2,4-Dinitrophenol		ND		2.00	"							
Bis(2-ethylhexyl)phthalate	2,4-Dinitrotoluene		ND		0.500	"							
Fluoranthene ND 0.330 " Fluorene ND 0.330 " Hexachlorobenzene ND 0.330 " Hexachlorobutadiene ND 1.00 " Hexachlorochtane ND 1.00 " Hexachlorochtane ND 1.00 " Indeno (1,2,3-cd) pyrene ND 0.330 " Isophorone ND 0.330 " Isoph	2,6-Dinitrotoluene		ND		0.500	**							
Fluorene ND 0.330 "  Hexachlorobenzene ND 0.330 "  Hexachlorocyclopentadiene ND 1.00 "  Hexachlorocyclopentadiene ND 1.00 "  Hexachlorocyclopentadiene ND 1.00 "  Hexachlorocyclopentadiene ND 1.00 "  Hexachlorocyclopentadiene ND 0.330 "  Isophorone ND 0.330 "  2-Methylnaphthalene ND 0.330 "  2-Methylphenol ND 0.330 "  3-,4-Methylphenol ND 0.330 "  3-,4-Methylphenol ND 0.330 "  3-,4-Methylphenol ND 0.330 "  3-,4-Methylnaphthalene ND 0.330 "  Naphthalene ND 0.330 "  Naphthalene ND 0.330 "  2-Nitroaniline ND 0.330 "  Nitrobenzene ND 0.330 "  Nitrobenzene ND 0.330 "  Nitrobenzene ND 0.330 "  4-Nitrosodi-n-propylamine ND 0.330 "  N-Nitrosodi-n-propylamine ND 0.330 "  Pentachlorophenol ND 1.00 "  Phenanthrene ND 0.330 "  Phenanthrene ND 0.330 "  Phenanthrene ND 0.330 "  Phenol ND 0.330 "  Pyerne ND 0.330 "  Pyerne ND 0.330 "  Pyerne ND 0.330 "	Bis(2-ethylhexyl)phth	ıalate	ND		2.00	Ħ							
Hexachlorobenzene ND 0.330 " Hexachlorocyclopentadiene ND 1.00 " Hexachlorocyclopentadiene ND 1.00 " Hexachlorocyclopentadiene ND 1.00 " Indeno (1,2,3-ed) pyrene ND 0.330 " Indeno (1,2,3-ed) pyrene ND 0.330 " 2-Methylaphthalene ND 0.330 " 2-Methylphenol ND 0.330 " 3-,4-Methylphenol ND 0.330 " Naphthalene ND 0.330 " 3-,4-Methylphenol ND 0.330 " 3-Nitroaniline ND 0.330 " 3-Nitroaniline ND 0.330 " 3-Nitroaniline ND 0.330 " Nitrobenzene ND 0.330 " Nitrobenzene ND 0.330 " 2-Nitrophenol ND 0.330 " Nitrosodi-n-propylamine ND 0.330 " N-Nitrosodi-n-propylamine ND 0.330 "	Fluoranthene		ND		0.330	**							
Hexachlorobutadiene         ND         1.00         "           Hexachlorocyclopentadiene         ND         1.00         "           Hexachloroethane         ND         1.00         "           Indeno (1,2,3-ed) 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         0.330         "           4-Nitroaniline         ND         0.330         "           4-Nitrophenol         ND         0.330         "           2-Nitrophenol         ND         0.330         "           4-Nitrosodi-n-propylamine         ND         0.330         "           N-Nitrosodi-phylamine         ND         0.330         "           Pentachlorophenol         ND         0.330         "           Phenol         ND         0.330	Fluorene		ND		0.330	"							
Hexachlorocyclopentadiene         ND         1.00         "           Hexachloroethane         ND         1.00         "           Indeno (1,2,3-ed) 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         0.330         "           4-Nitrophenol         ND         0.330         "           2-Nitrophenol         ND         0.330         "           4-Nitrophenol         ND         0.330         "           N-Nitrosodi-n-propylamine         ND         0.330         "           N-Nitrosodi-propylamine         ND         0.330         "           Pentachlorophenol         ND         0.330         "           Phenol         ND         0.330         "           Phenol         ND         0.330         "	Hexachlorobenzene		ND		0.330	"							
Hexachloroethane	Hexachlorobutadiene		ND		1.00	"							
Indeno (1,2,3-ed) 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         0.330         "           4-Nitrobanzene         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         0.330         "           Phenol         ND         0.330         "           Phenol         ND         0.330         "           Pyrene         ND         0.330         "           1,2,4-Trichlorobenzene         ND         0.330         " </td <td>Hexachlorocyclopenta</td> <td>diene</td> <td>ND</td> <td></td> <td>1.00</td> <td>"</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Hexachlorocyclopenta	diene	ND		1.00	"							
Sophorone	Hexachloroethane		ND		1.00	**							
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       0.330       "         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       "	Indeno (1,2,3-cd) pyre	ene	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 0.330 " 4-Nitroaniline ND 0.330 " Nitrobenzene ND 0.330 " 2-Nitrophenol ND 0.330 " 2-Nitrophenol ND 0.330 " N-Nitrosodi-n-propylamine ND 0.330 " N-Nitrosodi-n-propylamine ND 0.330 " N-Nitrosodiphenylamine ND 0.330 " Pentachlorophenol ND 1.00 " Phenanthrene ND 0.330 " Phenol ND 0.330 " Phenol ND 0.330 " Pyrene ND 0.330 " Pyrene ND 0.330 "	lsophorone		ND		0.330	"							
3-,4-Methylphenol       ND       0.330       "         Naphthalene       ND       0.330       "         2-Nitroaniline       ND       0.330       "         3-Nitroaniline       ND       0.330       "         4-Nitroaniline       ND       0.330       "         Nitrobenzene       ND       0.330       "         2-Nitrophenol       ND       0.330       "         4-Nitrophenol       ND       0.330       "         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-Methylnaphthalene		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       0.330       "         Phenanthrene       ND       0.330       "         Phenol       ND       0.330       "         Pyrene       ND       0.330       "         1,2,4-Trichlorobenzene       ND       0.330       "	2-Methylphenol		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 1.00 " N-Nitrosodi-n-propylamine ND 0.330 " N-Nitrosodiphenylamine ND 0.330 " N-Nitrosodiphenol ND 1.00 " N-Nitrosodiphenol 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 "	3-,4-Methylphenol		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 1.00 " N-Nitrosodi-n-propylamine ND 0.330 " N-Nitrosodiphenylamine ND 0.330 " N-Nitrosodiphenol ND 1.00 " N-Nitrosodiphenol 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 "	Naphthalene		ND		0.330	11							
4-Nitrobenzene 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 "  Pyrene ND 0.330 "  1,2,4-Trichlorobenzene ND 0.330 "	2-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       "	3-Nitroaniline		ND			tt							
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 " Pyrene ND 0.330 " 1,2,4-Trichlorobenzene ND 0.330 "	4-Nitroaniline		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       "	Nitrobenzene		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-Nitrophenol				0.330								
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 "	4-Nitrophenol				1.00	**							
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         "		mine	ND			**							
Pentachlorophenol         ND         1.00         "           Phenanthrene         ND         0.330         "           Phenol         ND         0.330         "           Pyrene         ND         0.330         "           1,2,4-Trichlorobenzene         ND         0.330         "													
Phenanthrene         ND         0.330         "           Phenol         ND         0.330         "           Pyrene         ND         0.330         "           1,2,4-Trichlorobenzene         ND         0.330         "	Pentachlorophenol					**							
Phenol         ND         0.330         "           Pyrene         ND         0.330         "           1,2,4-Trichlorobenzene         ND         0.330         "	Phenanthrene					**							
Pyrene         ND         0.330         "           1,2,4-Trichlorobenzene         ND         0.330         "	Phenol					**							
1,2,4-Trichlorobenzene ND 0.330 "	Pyrene					"							
	•	e				*1							
	2,4,5-Trichlorophenol		ND		0.330								

North Creek Analytical - Portland



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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	Reporting MDL Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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		n	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	- 47	82.0	30-115			
4-Chloro-3-methylphenol	4.07	0.330		5.00		81.4	40-110			
2-Chlorophenol	4.53	0.330	Ħ	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			
Phenoi	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: P	310004-1	3			
Acenaphthene	2.25	0.330r	ng/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			

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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

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Portland

Bend

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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

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

Project: BNSF-Wishram Project Number: 036026.00

Reported:

Project Manager: Galen Davis

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
Batch 3090304: Prepared 09/08/	03 Using	EPA 355	0								
Matrix Spike (3090304-MS1)					<u></u>	Source: P	310004-1	8			
2,4-Dinitrotoluene	2.40		0.500 n	ng/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	Ħ	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: P	310004-1	8			
Acenaphthene	2.37		0.330n	ng/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	Ħ	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	н	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	H	2.87	ND	80.8	40-110	3.06	40	
1,2,4-Trichlorobenzene	1.96		0.330	H	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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07.563.9200 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

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

Batch 3090304: Prepared 09/08/03 Using EPA 3550

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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

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

Analyte	Result	R MDL	eporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3090359: Prepared 09	•	EPA 3550		-				2		Dillit	110100
Blank (3090359-BLK1)		,									
Acenaphthene	ND		13.4	ug/kg					<del></del>		
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	11							
Chrysene	ND		13.4	н							
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	11							
Surrogate: Fluorene-d10	66.1			"	83.3		79.4	40-150			
Surrogate: Pyrene-d10	91.1			"	83.3		109	40-150			
Surrogate: Benzo (a) pyrene-d12	78.8			"	83.3		94.6	40-150			
LCS (3090359-BS1)											
Acenaphthene	140		13.4	ug/kg	167		83.8	33-139			
Benzo (a) pyrene	161		13.4	n	167		96.4	45-149			
Pyrene	151		13.4	**	167		90.4	39-138			
Surrogate: Fluorene-d10	63.2			"	83.3		75.9	40-150			
Surrogate: Pyrene-d10	78.8			"	83.3		94.6	40-150			
Surrogate: Benzo (a) pyrene-d12	73.4			n	83.3		88.1	40-150			

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North Creek Analytical, Inc. Page 26 of 29 **Environmental Laboratory Network** 



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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

Reported:

Project Manager: Galen Davis 08/19/04 07:53

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

Analyte	R	esult	R MDL	eporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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-dl	0	79.7			"	83.3		95.7	40-150			
Surrogate: Benzo (a)	pyrene-d12	73.9			"	83.3		88.7	40-150			
Matrix Spike (3090	359-MS1)						Source: P	310140-0	4			R-05
Acenaphthene		200		26.8 ı	ıg/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-dl	0	98.4			"	96.0		102	40-150			
Surrogate: Benzo (a)	pyrene-d12	84.6			n	96.0		88.1	40-150			
Matrix Spike Dup (	3090359-MSD1)						Source: P	310140-0	4			R-05
Acenaphthene		207		26.8 ι	ıg/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	Ħ	192	35.8	95.4	39-138	0.00	60	
Surrogate: Fluorene-	d10	78.6			"	96.0		81.9	40-150			
Surrogate: Pyrene-dl	0	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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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

			R	eporting		Spike	Source		%REC		RPD	
Analyte		Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 3090385:	Prepared 09/09/0	3 Using	g Dry Weig	ht								
Duplicate (309038	5-DUP1)				_		Source: I	23I0189-0	1			
% Solids		90.7		1.00	% by Weight		90.7			0.00	20	
Duplicate (309038	5-DUP2)						Source: I	2310189-0	4			
% Solids		92.7		1.00	% by Weight		92.8			0.108	20	
Duplicate (309038	5-DUP3)						Source: F	310189-0	7			
% Solids		95.0		1.00	% by Weight		94.9			0.105	20	
Duplicate (309038	5-DUP4)						Source: F	310189-0	8			
% Solids		93.0		1.00	% by Weight		92.9			0.108	20	

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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

#### **Notes and Definitions**

D	Anator decaded in the mode of these
В	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



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#### 19 August 2004

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

Jesa Domeny

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** 



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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

Reported: 08/19/04 07:49

#### ANALYTICAL REPORT FOR SAMPLES

Project Manager: Galen Davis

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 13:40         02/25/04 17:30           WSB-04-34-GW         P4B0784-09         Water         02/25/04 13:40         02/25/04 17:30           WSB-04-34-GW         P4B0784-10         Soil         02/25/04 13:40         02/25/04 17:30           WSB-04-35-5         P4B0784-10         Soil         02/25/04 13:40         02/25/04 17:30           WSB-04-11-10         P4B0784-11         Soil         02/25/04 13:30         02/25/04 17:30           WSB-04-13-16         P4B0784-12         Soil	Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
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 11:20         02/25/04 17:30           WSB-04-34-5         P4B0784-08         Water         02/25/04 11:20         02/25/04 17:30           WSB-04-34-5         P4B0784-09         Water         02/25/04 13:40         02/25/04 17:30           WSB-04-34-GW         P4B0784-10         Soil         02/25/04 13:40         02/25/04 17:30           WSB-04-35-5         P4B0784-11         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 12:55         02/25/04 17:30           WSB-04-14-5         P4B0784-13         Soil         02/24/04 16:30         02/25/04 17:30           WSB-04-14-10         P4B0784-15         Soil	WSB-04-25-10	P4B0784-01	Soil	02/25/04 09:30	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         P4B0784-06         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-04-13-10         P4B0784-11         Soil         02/24/04 12:55         02/25/04 17:30           WSB-04-17-9         P4B0784-12         Soil         02/24/04 14:30         02/25/04 17:30           WSB-04-14-15         P4B0784-13         Soil         02/24/04 14:55         02/25/04 17:30           WSB-04-14-10         P4B0784-15         Soil         02/24/04 15:30         02/25/04 17:30           WSB-04-13-16         P4B0784-16         Soil         02/24/04 15:30         02/25/04 17:30           WSB-04-11-10         P4B0784-18         Soil	WSB-04-15-GW	P4B0784-02	Water	02/25/04 09:20	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 13:40         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-04-18-10         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-04-18-10         P4B0784-12         Soil         02/24/04 14:55         02/25/04 17:30           WSB-04-18-10         P4B0784-13         Soil         02/24/04 14:55         02/25/04 17:30           WSB-04-11-2         P4B0784-14         Soil         02/24/04 15:30         02/25/04 17:30           WSB-04-11-10         P4B0784-15         Soil         02/24/04 16:30         02/25/04 17:30           WSB-04-15-10         P4B0784-19         Soil	WSB-04-09-5	P4B0784-03	Soil	02/25/04 10:10	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-04-18-10         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-04-11-10         P4B0784-18         Soil         02/24/04 16:40         02/25/04 17:30           WSB-04-15-10         P4B0784-20         Soil	WSB-04-09-10	P4B0784-04	Soil	02/25/04 10:30	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-04-13-16         P4B0784-15         Soil         02/24/04 16:20         02/25/04 17:30           WSB-04-11-2         P4B0784-16         Soil         02/24/04 16:30         02/25/04 17:30           WSB-04-15-10         P4B0784-18         Soil         02/24/04 16:40         02/25/04 17:30           WSB-04-25-5         P4B0784-20         Soil         02/25/04 08:50         02/25/04 17:30           WSB-04-25-GW         P4B0784-22         Soil	WSB-04-26-02	P4B0784-05	Soil	02/25/04 10:50	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       P4B0784-16       Soil       02/24/04 15:30       02/25/04 17:30         WSB-04-13-16       P4B0784-16       Soil       02/24/04 16:30       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       P4B0784-20       Soil       02/25/04 08:50       02/25/04 17:30         WSB-04-25-5       P4B0784-21       Soil       02/25/04 09:20       02/25/04 17:30         WSB-04-25-GW       P4B0784-22       Water       02/25/04 14:30       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-GW WSB-04-35-5 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-04-11-10 P4B0784-17 Soil 02/24/04 16:30 02/25/04 17:30 WSB-04-15-10 P4B0784-19 Soil 02/24/04 16:40 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-04-34-5	P4B0784-07	Soil	02/25/04 12:00	02/25/04 17:30
WSB-04-35-5 WSB-04-20-10 P4B0784-11 Soil 02/25/04 13:50 02/25/04 17:30 WSB-04-18-10 P4B0784-12 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 15:30 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 16:20 02/25/04 17:30 WSB-04-11-10 P4B0784-18 Soil 02/24/04 16:30 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-04-26-GW	P4B0784-08	Water	02/25/04 11:20	02/25/04 17:30
WSB-04-20-10 WSB-04-18-10 WSB-04-18-10 WSB-04-17-9 P4B0784-12 Soil O2/24/04 14:30 O2/25/04 17:30 WSB-04-14-5 WSB-04-14-5 P4B0784-14 Soil O2/24/04 15:30 O2/25/04 17:30 WSB-04-14-10 WSB-04-13-16 P4B0784-15 Soil O2/24/04 16:20 O2/25/04 17:30 WSB-04-11-2 P4B0784-17 Soil O2/24/04 16:20 O2/25/04 17:30 WSB-04-11-10 P4B0784-18 Soil O2/24/04 16:20 O2/25/04 17:30 WSB-04-15-10 P4B0784-19 Soil O2/24/04 16:40 O2/25/04 17:30 WSB-04-25-5 P4B0784-20 Soil O2/25/04 18:50 O2/25/04 17:30 WSB-04-36-10 P4B0784-21 Soil O2/25/04 18:50 O2/25/04 17:30	WSB-04-34-GW	P4B0784-09	Water	02/25/04 13:40	02/25/04 17:30
WSB-04-18-10 WSB-04-17-9 P4B0784-12 Soil O2/24/04 14:30 O2/25/04 17:30 WSB-04-14-5 P4B0784-14 Soil O2/24/04 15:30 O2/25/04 17:30 WSB-04-14-10 P4B0784-15 Soil O2/24/04 15:30 O2/25/04 17:30 WSB-04-13-16 P4B0784-16 Soil O2/24/04 16:20 O2/25/04 17:30 WSB-04-11-2 P4B0784-17 Soil O2/24/04 16:30 O2/25/04 17:30 WSB-04-11-10 P4B0784-18 Soil O2/24/04 16:30 O2/25/04 17:30 WSB-04-15-10 P4B0784-19 Soil O2/24/04 16:40 O2/25/04 17:30 WSB-04-25-5 P4B0784-20 Soil O2/25/04 08:50 O2/25/04 17:30 WSB-04-25-GW WSB-04-25-GW WSB-04-25-GW	WSB-04-35-5	P4B0784-10	Soil	02/25/04 13:50	02/25/04 17:30
WSB-04-17-9  WSB-04-14-5  P4B0784-13  Soil  02/24/04 14:55  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 15:40  02/25/04 17:30  WSB-04-11-2  P4B0784-17  Soil  02/24/04 16:20  02/25/04 17:30  WSB-04-11-10  P4B0784-18  Soil  02/24/04 16:30  02/25/04 17:30  WSB-04-15-10  P4B0784-19  Soil  02/24/04 16:40  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  02/25/04 17:30  WSB-04-25-GW	WSB-04-20-10	P4B0784-11	Soil	02/24/04 12:55	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-04-15-10       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-04-18-10	P4B0784-12	Soil	02/24/04 14:30	02/25/04 17:30
WSB-04-14-10  WSB-04-13-16  WSB-04-11-2  P4B0784-17  Soil  O2/24/04 16:20  O2/25/04 17:30  WSB-04-11-10  P4B0784-17  Soil  O2/24/04 16:20  O2/25/04 17:30  WSB-04-11-10  P4B0784-18  Soil  O2/24/04 16:30  O2/25/04 17:30  WSB-04-15-10  P4B0784-19  Soil  O2/25/04 08:50  O2/25/04 17:30  WSB-04-25-5  P4B0784-20  Soil  O2/25/04 09:20  O2/25/04 17:30  WSB-04-36-10  P4B0784-21  Soil  O2/25/04 14:30  O2/25/04 17:30  WSB-04-25-GW	WSB-04-17-9	P4B0784-13	Soil	02/24/04 14:55	02/25/04 17:30
WSB-04-13-16 WSB-04-11-2 P4B0784-17 Soil O2/24/04 16:20 O2/25/04 17:30 WSB-04-11-10 P4B0784-18 Soil O2/24/04 16:30 O2/25/04 17:30 WSB-04-15-10 P4B0784-19 Soil O2/25/04 08:50 O2/25/04 17:30 WSB-04-25-5 P4B0784-20 Soil O2/25/04 09:20 O2/25/04 17:30 WSB-04-36-10 P4B0784-21 Soil O2/25/04 14:30 O2/25/04 17:30 WSB-04-25-GW	WSB-04-14-5	P4B0784-14	Soil	02/24/04 15:30	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-04-14-10	P4B0784-15	Soil	02/24/04 15:40	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-04-13-16	P4B0784-16	Soil	02/24/04 16:20	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-04-11-2	P4B0784-17	Soil	02/24/04 16:30	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-04-11-10	P4B0784-18	Soil	02/24/04 16:40	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-04-15-10	P4B0784-19	Soil	02/25/04 08:50	02/25/04 17:30
WSB-04-25-GW P4B0784-22 Water 02/25/04 14:30 02/25/04 17:30	WSB-04-25-5	P4B0784-20	Soil	02/25/04 09:20	02/25/04 17:30
322000000000000000000000000000000000000	WSB-04-36-10	P4B0784-21	Soil	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	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

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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

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

Amaluta	Danile		eporting		Dil et	D . 1				
Analyte	Result	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-09-5 (P4B0784-03) Soil	Sampled: 02/2	25/04 10:10	Received	: 02/25/04	17:30					
Gasoline Range Hydrocarbons	1210		40.0 n	ng/kg dry	10	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	94.3 %		50-15	0		"	"	"	"	
WSB-04-09-10 (P4B0784-04) Soil	Sampled: 02	/25/04 10:30	Receive	d: 02/25/04	17:30					
Gasoline Range Hydrocarbons	977		40.0 n	ng/kg dry	10	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	92.8 %		50-15	0		**	n	"	"	
WSB-04-26-10 (P4B0784-06) Soil	Sampled: 02	/25/04 11:20	Receive	d: 02/25/04	17:30					
Gasoline Range Hydrocarbons	606		40.0 n	ng/kg dry	10	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	105 %		50-15	0		**	"	"	"	
WSB-04-20-10 (P4B0784-11) Soil	Sampled: 02	/24/04 12:55	Receive	d: 02/25/04	17:30					
Gasoline Range Hydrocarbons	4.48		4.00 n	ng/kg dry	1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	96.4 %		50-15	0		"	"	"	"	
WSB-04-14-10 (P4B0784-15) Soil	Sampled: 02	/24/04 15:40	Receive	d: 02/25/04	17:30					
Gasoline Range Hydrocarbons	ND		4.00 n	ng/kg dry	1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	94.0 %		50-15	0		"	"	,,	"	
WSB-04-15-10 (P4B0784-19) Soil	Sampled: 02	/25/04 08:50	Receive	d: 02/25/04	17:30					
Gasoline Range Hydrocarbons	ND		4.00 n	ng/kg dry	1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	92.2 %		50-15	0		"	"	"	"	

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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



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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

1										
Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-15-GW (P4B0784-02) Wa	ter Sample	d: 02/25/04	09:20 Rec	eived: 02	2/25/04 17:3	30				
Benzene	ND	0.300	0.500	ug/l	1	4030037	03/01/04	03/01/04	NW-G, 802	υ
Toluene	ND	0.300	0.500	11	**	"	n	11	11	υ
Ethylbenzene	ND	0.300	0.500	**	**	"	n	11	u	U
Xylenes (total)	ND	0.600	1.00	**	**	"	n	11	•	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	11	*1	"	n	11	н	U
Surrogate: 4-BFB (FID)	84.8 %		50-15	50		"	"	"	"	
Surrogate: 4-BFB (PID)	98.8 %		70-13	30		"	"	"	н	
WSB-04-26-GW (P4B0784-08) Wa	ter Sample	d: 02/25/04	11:20 Rec	eived: 02	2/25/04 17:3	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	"	11	11	11	U
Ethylbenzene	0.709	0.300	0.500	"	"	n	11	"	n	
Xylenes (total)	6.40	0.600	1.00		**	**	n	"	tt	
Gasoline Range Hydrocarbons	140	50.0	80.0			**	11	"	**	
Surrogate: 4-BFB (FID)	99.4 %		50-15	50		"	"	,	"	
Surrogate: 4-BFB (PID)	109 %		70-13	30		**	"	"	"	
WSB-04-34-GW (P4B0784-09) Wa	ter Sample	d: 02/25/04	13:40 Rec	eived: 02	/25/04 17:3	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	Ð	11	"	**	**	11	
Ethylbenzene	ND	0.300	0.500	11		**	#	"	**	U
Xylenes (total)	ND	0.600	1.00	0	"	**	**	u	**	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	tt	11	11	11		**	U
Surrogate: 4-BFB (FID)	81.8%		50-15	50		"	н	"	"	
Surrogate: 4-BFB (PID)	96.2 %		70-13	80		"	#	"	"	

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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
WSB-04-25-GW (P4B0784-22) Water	Sample	d: 02/25/04	14:30 Rec	eived: 02	2/25/04 17:3	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	11		"		n	"	U
Ethylbenzene	ND	0.300	0.500	**	H	u		**	**	U
Xylenes (total)	ND	0.600	1.00	Ħ	u u	u	"	n	"	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	17	11	"	u .	**		U
Surrogate: 4-BFB (FID)	84.4 %		50-15	50		"	"	"	"	
Surrogate: 4-BFB (PID)	98.8 %		70-13	10		"	"	"	"	

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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

Reported: 08/19/04 07:49

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

Project Manager: Galen Davis

Analyte	Result	MDL Re	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-25-10 (P4B0784-01) Soil	Sampled: 02	2/25/04 09:30	Receive	d: 02/25/0	4 17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 i 50.0	mg/kg dry "	1	4021023	02/26/04	02/26/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	88.2 %		50-15	50		"	"	"	"	
WSB-04-15-GW (P4B0784-02) Wa	ter Sample	1: 02/25/04 09	:20 Rec	eived: 02/	25/04 17:3	30		==		
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		250 500	mg/l "	1	4021070	02/27/04	02/27/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	75.7 %		50-15	50		"	n	"	**	
WSB-04-09-5 (P4B0784-03) Soil	Sampled: 02/	25/04 10:10	Received	: 02/25/04	17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	12100 604		125 ı 250	mg/kg dry	5 "	4030063	03/02/04	03/03/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	415 %		50-15	50		"	"	"	,,	S-02
WSB-04-09-10 (P4B0784-04) Soil	Sampled: 02	2/25/04 10:30	Receive	d: 02/25/0	4 17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	23900 602		250 i 500	mg/kg dry "	10	4030063	03/02/04	03/02/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	763 %		50-15	50		"	"	n	n	S-02
WSB-04-26-02 (P4B0784-05) Soil	Sampled: 02	/25/04 10:50	Receive	d: 02/25/0	4 17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 r 50.0	ng/kg dry	1 "	4021068	02/27/04	02/27/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	98.0 %		50-15	50		"	"	"	"	
WSB-04-26-10 (P4B0784-06) Soil	Sampled: 02	/25/04 11:20	Receive	d: 02/25/0	4 17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	21100 14000		6250 r 12500	ng/kg dry	250	4030063	03/02/04	03/02/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	%		50-15	50		"	"	"	"	S-01

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2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

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	R MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-34-5 (P4B0784-07) Soil	Sampled: 02	/25/04 12:00	Received	l: 02/25/04	17:30				_	
Diesel Range Organics	ND		25.0 1	ng/kg dry	1	4021068	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	11	**		"	**	11	
Surrogate: 1-Chlorooctadecane	96.3 %		50-13	50		"	"	n	"	
WSB-04-26-GW (P4B0784-08) Wa	ater Sample	d: 02/25/04 11	:20 Rec	eived: 02/	25/04 17:3	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	11	"	**	#	"	***	
Surrogate: 1-Chlorooctadecane	92.9 %		50-15	50		"	"	"	n	
WSB-04-34-GW (P4B0784-09) Wa	ater Sample	d: 02/25/04 13	3:40 Rec	eived: 02/	25/04 17:3	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 %		50-15	50		"	"	"	"	
WSB-04-35-5 (P4B0784-10) Soil	Sampled: 02	/25/04 13:50	Received	l: 02/25/04	17:30					
Diesel Range Organics	ND		25.0 1	ng/kg dry	1	4021068	02/27/04	02/27/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	Ħ	n		11	11	Ħ	
Surrogate: 1-Chlorooctadecane	98.1 %		50-15	50		"	"	n	n	
WSB-04-20-10 (P4B0784-11) Soil	Sampled: 0	2/24/04 12:55	Receive	d: 02/25/0	4 17:30					
Diesel Range Organics	ND		25.0 1	ng/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	11	. 11	**	#	**		
Surrogate: 1-Chlorooctadecane	94.5 %		50-15	50		"	n	"	"	
WSB-04-18-10 (P4B0784-12) Soil	Sampled: 0	2/24/04 14:30	Receive	d: 02/25/0	4 17:30					
Diesel Range Organics	ND		25.0 1	ng/kg dry	1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	110		50.0	U	"	#	,,,	11	н	
Surrogate: 1-Chlorooctadecane	99.0 %		50-15	50		"	"	"	n	

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Project: BNSF-Wishram Project Number: 036026.00

Reported: 08/19/04 07:49

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

Project Manager: Galen Davis

Analyte	Result	MDL F	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-17-9 (P4B0784-13) Soil	Sampled: 02/24	4/04 14:55	Receive	d: 02/25/04	17:30		•			
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 50.0	mg/kg dry	1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	96.9 %		50-1	50		"	<b>n</b>	"	и	
WSB-04-14-5 (P4B0784-14) Soil	Sampled: 02/2	4/04 15:30	Receive	d: 02/25/04	17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND <b>50.7</b>		25.0 50.0	mg/kg dry	1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	98.5 %		50-1	50		,,	"	Ħ	"	
WSB-04-14-10 (P4B0784-15) Soil	Sampled: 02/2	24/04 15:40	Receiv	ed: 02/25/0	17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 50.0	mg/kg dry "	1 "	4030063	03/02/04	03/02/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	98.1 %		50-1	50		"	"	"	n n	
WSB-04-13-16 (P4B0784-16) Soil	Sampled: 02/2	24/04 16:20	Receiv	ed: 02/25/0	4 17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 50.0	mg/kg dry "	1 "	4021068	02/27/04	02/27/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	96.2 %		50-1	50		"	"	,,	Ħ	
WSB-04-11-2 (P4B0784-17) Soil	Sampled: 02/2	4/04 16:30	Receive	d: 02/25/04	17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 50.0	mg/kg dry "	1	4021068	02/27/04	03/01/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	94.2 %		50-1	50		n	"	"	"	
WSB-04-11-10 (P4B0784-18) Soil	Sampled: 02/2	24/04 16:40	Receiv	ed: 02/25/0	4 17:30					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND		25.0 50.0	mg/kg dry "	1	4030004	03/01/04	03/01/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	101 %		50-1	50		"	"	"	"	

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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

		R	eporting							
Analyte	Result	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-15-10 (P4B0784-19) Soil	Sampled: 02/	25/04 08:50	Receive	d: 02/25/0	4 17:30					
Diesel Range Organics	ND		25.0 1	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	**	"	11	n		11	
Surrogate: 1-Chlorooctadecane	87.4 %		50-15	50		"	"	"	n	
WSB-04-25-5 (P4B0784-20) Soil	Sampled: 02/2	5/04 09:20	Received	: 02/25/04	17:30					
Diesel Range Organics	ND		25.0 1	mg/kg dry	1	4030004	03/01/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	<u> </u>	50.0	**	"	Ħ	17	"	"	
Surrogate: 1-Chlorooctadecane	101 %		50-15	50		"	"	"	n	
WSB-04-36-10 (P4B0784-21) Soil	Sampled: 02/	25/04 14:30	Receive	d: 02/25/0	4 17:30				·	
Diesel Range Organics	ND		25.0 1	mg/kg dry	1	4030004	03/01/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	11	. "	"	n,	"	11	
Surrogate: 1-Chlorooctadecane	103 %		50-12	50		"	"	**	n	
WSB-04-35-GW (P4B0784-23) Wa	ter Sampled:	02/25/04 14	:30 Rec	eived: 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	0	**	"	n	. "	"	
Surrogate: 1-Chlorooctadecane	82.5 %		50-12	50		"	n	,,	"	

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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

Reported: Project Manager: Galen Davis 08/19/04 07:49

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

Analyte	Result		orting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-34-GW (P4B0784-09) Wa	ter Sampled	: 02/25/04 13:4	0 Re	ceived: 02/	25/04 17:3	30				
Silver	ND	0.0	00100	mg/l	1	4030213	03/05/04	03/06/04	EPA 6020	
Arsenic	0.00648	0.0	00100	ti	"	11	11	"	11	
Barium	0.134	0.0	00100	tt	n	11		"	и	
Cadmium	ND	0.0	00100	11	"	"	**	"	**	
Chromium	0.0104	0.0	00100	Ħ	"	11	"	"	"	
Mercury	ND	0.00	00200	11	"	4030059	03/02/04	03/02/04	EPA 7470A	
Lead	0.00633	0.0	00100	u .	"	4030213	03/05/04	03/06/04	EPA 6020	
Selenium	0.00146	0.0	00100	11	"	**	"	11	**	
WSB-04-36-10 (P4B0784-21) Soil	Sampled: 02	/25/04 14:30 I	Receiv	ed: 02/25/0	4 17:30					
Silver	ND		0.373	mg/kg dry	1	4030219	03/05/04	03/07/04	EPA 6020	
Arsenic	1.69		0.373	ti	"	n	"	*	**	
Barium	83.7		0.373	н	"	**	**	"	**	
Cadmium	ND		0.373	n	"	**	**	**	**	
Chromium	10.5		0.373	u	n	**	11	11	11	
Mercury	ND	0	.0641	11	н	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	3.34		0.373	11	11	4030219	03/05/04	03/07/04	EPA 6020	
Selenium	ND		0.373	11	11	H	**	**	••	

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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

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-25-5 (P4B0784-20) Soil	Sampled: 02/2	25/04 09:20	Receive	d: 02/25/04	17:30					
Aroclor 1016	ND		67.0	ug/kg dry	1	4030010	03/01/04	03/02/04	EPA 8082	
Aroclor 1221	ND		134	11	"	"	"	"	*	
Aroclor 1232	ND		67.0	**	**	u	"		**	
Aroclor 1242	ND		67.0	n	**	**	u u	"	**	
Aroclor 1248	ND		67.0	11	**	u	"	11	H	
Aroclor 1254	ND		67.0	II .		"	"	11	"	
Aroclor 1260	ND		67.0	11	11	**	**	. "		
Surrogate: 2,4,5,6-Tetrachloro-m-x	111%		36-1	40		"	"	"	,,	
Surrogate: Decachlorobiphenyl	95.0 %		16-1	49		"	"	"	"	
WSB-04-25-GW (P4B0784-22) Wa	ter Sampled	l: 02/25/04 1	4:30 Rec	eived: 02/	25/04 17:3	30				
Aroclor 1016	ND		0.500	ug/l	1	4030020	03/01/04	03/06/04	EPA 8082	
Aroclor 1221	ND		1.00	11	11	11	17	"	**	
Aroclor 1232	ND		0.500	**	#1		"	11	11	
Aroclor 1242	ND		0.500	11	17	"	11	"	"	
Aroclor 1248	ND		0.500	**	**	"	**	11		
Aroclor 1254	ND		0.500	U	н	11	н	n		
Aroclor 1260	ND		0.500	#	n	**	**	11	"	
Surrogate: 2,4,5,6-Tetrachloro-m-x	87.9 %		16-1.	37		"	"	,,	tr	
Surrogate: Decachlorobiphenyl	64.0 %		12-1.	30		"	"	"	"	

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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

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

			Reporting							
Analyte	Result	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-34-GW (P4B0784-09) Water	Sample	d: 02/25/04 1	13:40 Rec	eived: 02	/25/04 17:3	<b>30</b>	<u> </u>			
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	**	11	"	II.	"	n	U
Bromobenzene	ND	0.333	1.00	**	11	"	"	"	H	U
Bromochloromethane	ND	0.266	1.00	**	11	"	"	"	n	U
Bromodichloromethane	ND	0.183	1.00	11	17	"	n	**	"	U
Bromoform	ND	0.174	1.00	**	"	**	11	11	11	U
Bromomethane	ND	0.282	5.00	11	"	**	**	**	17	ប
2-Butanone	ND	1.60	10.0	11	"	**	11	**	**	U
n-Butylbenzene	ND	0.183	5.00	**	"	**	**	**	**	U
sec-Butylbenzene	ND	0.193	1.00	11	"	**	11	**	"	U
tert-Butylbenzene	ND	0.206	1.00	H	"	n	**	**	**	U
Carbon disulfide	ND	0.233	10.0	**	"	**	11	**	44	U
Carbon tetrachloride	ND	0.140	1.00	n n	"	**	**		••	U
Chlorobenzene	ND	0.136	1.00	0	u	11	17	11	u	U
Chloroethane	ND	0.327	1.00	U		11	**	**	u	U
Chloroform	ND	0.143	1.00	0	"	**	**		•	U
Chloromethane	ND	0.159	5.00	**	**		"	**	n	U
2-Chlorotoluene	ND	0.110	1.00	11	**	н		18	**	U
4-Chlorotoluene	ND	0.120	1.00	**	**	11	**	**	**	U
1,2-Dibromo-3-chloropropane	ND	0.405	5.00	11	u	**	**		n	บ
Dibromochloromethane	ND	0.133	1.00	**		17	**		"	U
1,2-Dibromoethane	ND	0.187	1.00	11		"	**	*		U
Dibromomethane	ND	0.117	1.00	**		**	**	n	•	U
1,2-Dichlorobenzene	ND	0.0859	1.00	n	**	11	*	**	**	U
1,3-Dichlorobenzene	ND	0.132	1.00	11	**	11		11	"	U
1,4-Dichlorobenzene	ND	0.187	1.00	**	**			**	**	U
Dichlorodifluoromethane	ND	0.312	5.00	**	**	**	Ħ		••	Ū
1,1-Dichloroethane	ND	0.157	1.00	**	"	**	**		**	U
1,2-Dichloroethane	ND	0.142	1.00		11	**	11	n	**	Ū
1,1-Dichloroethene	ND	0.197	1.00	11	11	"	11	n		U
cis-1,2-Dichloroethene	ND	0.170	1.00	**	11	"	"	**	H	U
trans-1,2-Dichloroethene	ND	0.175	1.00	**	11	•	**	"	11	Ü
1,2-Dichloropropane	ND	0.266	1.00	**		и	11	n	Ħ	Ū
1,3-Dichloropropane	ND	0.151	1.00	**	"	**	**	и	11	Ü
2,2-Dichloropropane	ND	0.104	1.00	0	"	**	**	n	**	U
1,1-Dichloropropene	ND	0.149	1.00	n	**	**	и	**	**	U
cis-1,3-Dichloropropene	ND	0.128	1.00	11	**	"	n	"	11	U
, F E			-,,							

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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

Reported: Project Manager: Galen Davis 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
WSB-04-34-GW (P4B0784-09) Water	Sample	d: 02/25/04	13:40 Rec	eived: 02	/25/04 17:3	30				
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	H	11	11	"	"	"	U
Hexachlorobutadiene	ND	0.878	2.00	11	"	"	"	"		U
2-Hexanone	ND	1.10	10.0	11	ıı	**	"	"		U
Isopropylbenzene	ND	0.107	2.00	11	"	**	"	"	**	U
p-lsopropyltoluene	ND	0.149	2.00	11	"	"	"	"	•	U
4-Methyl-2-pentanone	ND	1.49	5.00	11	**	"	*	"	"	U
Methyl tert-butyl ether	ND	0.0865	1.00	**	н	"	**	11	**	U
Methylene chloride	ND	2.50	5.00	**	"	"	**	17	**	U
Naphthalene	ND	0.0989	2.00	11	11	"	**	n	**	U
n-Propylbenzene	ND	0.138	1.00	**	н	"	**	11	11	U
Styrene	ND	0.0723	1.00	*1	n	"	**	11	"	U
1,1,1,2-Tetrachloroethane	ND	0.148	1.00	11	**		**	**	*	U
1,1,2,2-Tetrachloroethane	ND	0.294	1.00	**	n	"	Ħ	11	**	U
Tetrachloroethene	ND	0.109	1.00	**	11	H	**	**	11	U
Toluene	2.14	0.155	1.00	Ħ	11		**	**	**	
1,2,3-Trichlorobenzene	ND	0.219	1.00	n	11	11	"	**	"	U
1,2,4-Trichlorobenzene	ND	0.213	1.00	11	**	**	II .	**	"	U
1,1,1-Trichloroethane	ND	0.0859	1.00	H	n	**	**		"	U
1,1,2-Trichloroethane	ND	0.301	1.00	н		Ħ	11	**	н	U
Trichloroethene	ND	0.241	1.00	**	*		**	**	**	U
Trichlorofluoromethane	ND	0.160	1.00	**		n	**	**	**	U
1,2,3-Trichloropropane	ND	0.365	1.00	**	11	н	19	#	Ħ	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	11	n	11	"	"	**	U
1,3,5-Trimethylbenzene	ND	0.157	1.00	0	**	n	"	"	Ħ	U
Vinyl chloride	ND	0.152	1.00	n	**	**			**	U
o-Xylene	ND	0.187	1.00	11	**	n	"	11	"	U
m,p-Xylene	ND	0.295	2.00		"	#	11	**	"	U
Surrogate: 4-BFB	97.0 %		75-12	20		"	"	"	"	
Surrogate: 1,2-DCA-d4	101%		77-12	9		"	"	"	*	
Surrogate: Dibromofluoromethane	100 %		80-12	21		,,	"	n	"	
Surrogate: Toluene-d8	100 %		80-12	20		,,	"	"	"	

North Creek Analytical - Portland



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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

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

Analyte	Result	R MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-36-10 (P4B0784-21) Soil	Sampled: 02	/25/04 14:30	Receive	ed: 02/25/(	04 17:30					
Acetone	ND	144	2500	ug/kg dry	1	4021053	02/26/04	02/27/04	EPA 8260B	U
Benzene	ND	4.44	100	**	**	"	**	10	n	U
Bromobenzene	ND	12.2	100	"	**	"	**	**	**	U
Bromochloromethane	ND	16.4	100	**	**	"	**	**	**	U
Bromodichloromethane	ND	10.2	100	**	**	"	11	**	**	U
Bromoform	ND	15.8	100	"	"	н	**	"	**	U
Bromomethane	ND	5.09	500	"	"	H	"	11	"	U
2-Butanone	ND	148	1000	**	"	n	**	**	**	U
n-Butylbenzene	ND	11.3	500	"	"	n	"	**	**	U
sec-Butylbenzene	ND	7.45	100	н	"	**	•	n	··	U
tert-Butylbenzene	ND	15.2	100	11	"	**	**	n	**	U
Carbon disulfide	ND	7.19	1000	**	"	11	**	"	11	U
Carbon tetrachloride	ND	7.64	100	11	**	11		"	"	U
Chlorobenzene	ND	8.09	100	11	"	Ħ	••	**	H	U
Chloroethane	ND	10.7	100	"	**	**	"	11	**	U
Chloroform	ND	7.26	100	**	"	**		11		U
Chloromethane	ND	6.72	500		n	#	Ħ	11	**	U
2-Chlorotoluene	ND	11.0	100	n	11	17	**	**	"	U
4-Chlorotoluene	ND	10.4	100	**	Ħ	**	11	n	**	U
1,2-Dibromo-3-chloropropane	ND	26.0	500	11	#		"	11	**	U
Dibromochloromethane	ND	11.2	100	**	11	11	"	**	н	U
1,2-Dibromoethane	ND	11.6	100	**	**	**	"	11	н	U
Dibromomethane	ND	14.7	100	**	11	*		**		U
1,2-Dichlorobenzene	ND	14.4	100	**	**	**	"	**	n	U
1,3-Dichlorobenzene	ND	5.86	100	**	н	**	**	11	"	U
1,4-Dichlorobenzene	ND	14.9	100	**	"	11	**	u	**	U
Dichlorodifluoromethane	ND	11.8	500	0		**	"	u u	**	U
1,1-Dichloroethane	ND	11.9	100	**	"	**	"	"	**	U
1,2-Dichloroethane	ND	11.2	100	n	**	**	n	n	"	U
1,1-Dichloroethene	ND	11.9	100	11	**	H	u u	11		U
cis-1,2-Dichloroethene	ND	12.6	100	"	**	17	n	**	"	U
trans-1,2-Dichloroethene	ND	8.97	100	11	**	**	n	"	n	U
1,2-Dichloropropane	ND	7.45	100	**		"	Ħ	•	"	U
1,3-Dichloropropane	ND	17.4	100		н	"	**	"	**	U
2,2-Dichloropropane	ND	8.09	100	U	11	•	"	11	**	U
1,1-Dichloropropene	ND	10.9	100	**	**	11	H	**	**	U
cis-1,3-Dichloropropene	ND	4.95	100	**	"	n	n	**	•	U

North Creek Analytical - Portland



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Anchorage

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	R MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-36-10 (P4B0784-21) Soil	Sampled: 02	/25/04 14:30	Receiv	ed: 02/25/(	04 17:30					
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	11	"	**		"	u .	U
Hexachlorobutadiene	ND	69.4	200	11	*	**	**	"	н	U
2-Hexanone	ND	57.2	1000	17	17	**	n	**	u .	U
Isopropylbenzene	ND	9.55	200	17	**	**	"	**	"	U
p-Isopropyltoluene	ND	9.68	200	11	**	**	11	***	11	U
4-Methyl-2-pentanone	ND	117	500	11	"	*	11	**	17	U
Methyl tert-butyl ether	ND	11.9	100	It	**		н	**	**	U
Methylene chloride	ND	250	500	H	11		11	**	**	U
Naphthalene	ND	14.1	200	**	11	Ħ	**		**	U
n-Propylbenzene	ND	9.89	100	11	u	n.		u	**	U
Styrene	ND	8.89	100	Ħ	**	n	**	**	"	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	11	**	**	**	**	**	U
1,1,2,2-Tetrachloroethane	ND	21.1	100	Ħ	"	**	"	**	•	U
Tetrachloroethene	ND	16.9	100	ti		n	**	**	•	U
Toluene	ND	6.29	100	11		**	•	n		U
1,2,3-Trichlorobenzene	ND	16.9	100	**		11	**	**	**	U
1,2,4-Trichlorobenzene	ND	21.4	100	**			**	11	**	U
1,1,1-Trichloroethane	ND	6.13	100	11	11	"	**	.11	**	U
1,1,2-Trichloroethane	ND	18.1	100	11		"	H	11	•	U
Trichloroethene	ND	12.0	100	**	"	**	н	"	**	U
Trichlorofluoromethane	ND	8.97	100	U	n	Ħ	н	Ħ	<b>H</b>	U
1,2,3-Trichloropropane	ND	49.2	100	n		**	"	**	"	υ
1,2,4-Trimethylbenzene	ND	6.75	100	11	n	"	**	#	**	U
1,3,5-Trimethylbenzene	ND	9.33	100	**	11	"	**	11	**	U
Vinyl chloride	ND	5.74	100	**	Ħ	11	"	"	**	U
o-Xylene	ND	11.6	100	**	11	**	"	11		U
m,p-Xylene	ND	11.4	200	***	"	"	"	11	11	U
Surrogate: 4-BFB	106 %		42.6-	130		"	"	"	"	
Surrogate: 1,2-DCA-d4	118 %		<i>57.3-</i> .	144		"	"	n	"	
Surrogate: Dibromofluoromethane	106 %		45.5-	130		"	"	n	"	
Surrogate: Toluene-d8	122 %		42.1	144		"	#	"	"	

North Creek Analytical - Portland



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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

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-35-GW (P4B0784-23) Water	Sample	ed: 02/25/04	14:30 Rec	eived: 02	/25/04 17:3	30				
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	н	11	"	"	"	**	U
Bromobenzene	ND	0.333	1.00	II .	17	"	11	**	"	U
Bromochloromethane	ND	0.266	1.00	0	**	"	· ·	"	17	U
Bromodichloromethane	ND	0.183	1.00	**	**	"	"	**	**	U
Bromoform	ND	0.174	1.00	II .	"	"		"	II .	U
Bromomethane	ND	0.282	5.00	H	"	**		"	11	U
2-Butanone	ND	1.60	10.0	U	"	"	•	н	**	U
n-Butylbenzene	ND	0.183	5.00	0	"	"	**	**	n	U
sec-Butylbenzene	ND	0.193	1.00	II.		н		**	n	U
tert-Butylbenzene	ND	0.206	1.00	n		n	**	"	n	U
Carbon disulfide	ND	0.233	10.0	11	**	"	"	n	n	U
Carbon tetrachloride	ND	0.140	1.00	II.	"	н	n	"	10	U
Chlorobenzene	ND	0.136	1.00	11	n	**	*	**	11	U
Chloroethane	ND	0.327	1.00	H	11	**	"	**	11	U
Chloroform	ND	0.143	1.00	n	11	**	**	11	**	U
Chloromethane	ND	0.159	5.00	#	11	**	**	**	**	U
2-Chlorotoluene	ND	0.110	1.00	**	Ħ	**	"	н	"	U
4-Chlorotoluene	ND	0.120	1.00	11	**	"	"	**	"	U
1,2-Dibromo-3-chloropropane	ND	0.405	5.00	"	11	**	"	11	**	U
Dibromochloromethane	ND	0.133	1.00	11	н	**	"	**	**	U
1,2-Dibromoethane	ND	0.187	1.00	11	**	**	"	11	"	U
Dibromomethane	ND	0.117	1.00	11	н	17	**	**		U
1,2-Dichlorobenzene	ND	0.0859	1.00	11	"		**		**	U
1,3-Dichlorobenzene	ND	0.132	1.00	11	**		"	n	11	U
1,4-Dichlorobenzene	ND	0.187	1.00	**	**	**	"	11	11	U
Dichlorodifluoromethane	ND	0.312	5.00	н	**			11	**	U
1,1-Dichloroethane	ND	0.157	1.00	**	"	11	11		**	U
1,2-Dichloroethane	ND	0.142	1.00	11	"	"	n		**	Ū
1,1-Dichloroethene	ND	0.197	1.00	11	"		P)	.,	**	Ū
cis-1,2-Dichloroethene	ND	0.170	1.00	n	n	**	н	**	n	U
trans-1,2-Dichloroethene	ND	0.175	1.00	**	**	"	n	"	**	Ŭ
1,2-Dichloropropane	ND	0.266	1.00	**	**	"		**	н	U
1,3-Dichloropropane	ND	0.151	1.00	n	•	"	"	"	11	U
2,2-Dichloropropane	ND	0.104	1.00	0		**	,,	"	"	Ŭ
1,1-Dichloropropene	ND	0.149	1.00	н		17	**	11	**	U
cis-1,3-Dichloropropene	ND	0.128	1.00	**	**		**	**	"	U
			1.00							J

North Creek Analytical - Portland



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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

Bend

Reported: 08/19/04 07:49

Project Manager: Galen Davis

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-35-GW (P4B0784-23) Water	r Sample	d: 02/25/04	14:30 Rec	eived: 02	/25/04 17:3	30				
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	11	"	11	11	"	•	U
Hexachlorobutadiene	ND	0.878	2.00	**	"	**	"		"	U
2-Hexanone	ND	1.10	10.0	**	**	"	**	"	"	U
Isopropylbenzene	ND	0.107	2.00	**	**	"	"	**	11	U
p-Isopropyltoluene	ND	0.149	2.00	"	**	н	**	**	**	U
4-Methyl-2-pentanone	ND	1.49	5.00	"	**	**	**	**	11	U
Methyl tert-butyl ether	ND	0.0865	1.00	**	**	**	**	"	**	U
Methylene chloride	ND	2.50	5.00	11	q	**	**	**	11	U
Naphthalene	ND	0.0989	2.00	**	**	11	н	"	"	U
n-Propylbenzene	ND	0.138	1.00	**	"	**	п	"		U
Styrene	ND	0.0723	1.00	**		**	**	"	u	U
1,1,1,2-Tetrachloroethane	ND	0.148	1.00	**	**	**	•	11	**	U
1,1,2,2-Tetrachloroethane	ND	0.294	1.00	11	**	"	**	19	**	U
Tetrachloroethene	ND	0.109	1.00	**	**	n	**	It	**	U
Toluene	ND	0.155	1.00	11	**	11	**	**	**	U
1,2,3-Trichlorobenzene	ND	0.219	1.00	11	11	н	**	11	•	U
1,2,4-Trichlorobenzene	ND	0.213	1.00	11	u	**	**	**		U
1,1,1-Trichloroethane	ND	0.0859	1.00	11	"	*	n	**	**	U
1,1,2-Trichloroethane	ND	0.301	1.00	11	**	n	**	**	11	U
Trichloroethene	ND	0.241	1.00	11	**	n	**	"	•	U
Trichlorofluoromethane	ND	0.160	1.00	11	n	"	**	"	**	U
1,2,3-Trichloropropane	ND	0.365	1.00	H	"	**	**	**	•	U
1,2,4-Trimethylbenzene	ND	0.0884	1.00	11	Ħ	"	"	"	**	Ū
1,3,5-Trimethylbenzene	ND	0.157	1.00	41	#	n		**	**	U
Vinyl chloride	ND	0.152	1.00	**	41	11		**	tt	U
o-Xylene	ND	0.187	1.00	"	17	**	n	"	**	U
m,p-Xylene	ND	0.295	2.00	н	"	**	**	11	"	U
Surrogate: 4-BFB	93.5 %		75-12	0		"	n	"	"	
Surrogate: 1,2-DCA-d4	94.5 %		77-12	9		*	"	n	"	
Surrogate: Dibromofluoromethane	97.0 %		80-12	21		"	"	"	"	
Surrogate: Toluene-d8	97.0 %		80-12	0		"	"	"	"	

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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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

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

Analyte	Result	R MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-09-5 (P4B0784-03) Soil	Sampled: 02/2	25/04 10:10	Receive	d: 02/25/04	17:30			· · · · · -		
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	11	**	**	**		**	U
Ethylbenzene	286	9.40	50.0	11	11	**	"		**	
Xylenes (total)	514	26.2	100	H	"	"	**	. "	п	
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		"	n	n	**	
Surrogate: Toluene-d8	96.5 %		42.1-	144		"	"	"	"	
WSB-04-09-10 (P4B0784-04) Soil	Sampled: 02	/25/04 10:30	Receiv	ed: 02/25/0	4 17:30					
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	11	"	n .	"	"	"	U
Ethylbenzene	2030	9.40	50.0	0		"	**	11	"	
Xylenes (total)	2980	26.2	100	11	11	**	**	u	11	
Surrogate: 4-BFB	87.5 %		42.6-	130		"	n	n	"	
Surrogate: 1,2-DCA-d4	89.7 %		<i>57.3-</i>	144		"	"	"	n	
Surrogate: Dibromofluoromethane	80.2 %		45.5-	130		"	"	"	n	
Surrogate: Toluene-d8	93.5 %		42.1-	144		"	"	"	"	
WSB-04-26-10 (P4B0784-06) Soil	Sampled: 02	/25/04 11:20	Receiv	ed: 02/25/0	4 17:30					
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	*1	**	**	u	**	**	
Ethylbenzene	623	9.40	50.0	**	**	**	"	***	**	
Xylenes (total)	1470	26.2	100	n	"	H	"	11	**	
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		"	"	"	"	

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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

**Anchorage** 

Reported: 08/19/04 07:49

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

Project Manager: Galen Davis

Analyte	Result	MDL R	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-20-10 (P4B0784-11) Soil	Sampled: 02	2/24/04 12:55	Receiv	ed: 02/25/0	04 17:30					
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	11	"	"	11	"	**	U
Ethylbenzene	ND	9.40	50.0	11	11	u	**	"	**	U
Xylenes (total)	ND	26.2	100	"		"	Ħ	"	**	U
Surrogate: 4-BFB	71.6 %		42.6-	130		"	"	"	"	
Surrogate: 1,2-DCA-d4	79.7 %		57.3-	144		"	n	"	#	
Surrogate: Dibromofluoromethane	74.3 %		45.5-	130		"	n	"	n	
Surrogate: Toluene-d8	83.3 %		42.1-	144		"	,,	"	"	
WSB-04-14-10 (P4B0784-15) Soil	Sampled: 02	2/24/04 15:40	Receiv	ed: 02/25/(	04 17:30					
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	11	11	n	**	**	"	U
Ethylbenzene	ND	9.40	50.0	н	"	**	n	**	"	U
Xylenes (total)	ND	26.2	100	11	**	**		"	· ·	U
Surrogate: 4-BFB	67.6 %		42.6-	130		"	"	"	#	
Surrogate: 1,2-DCA-d4	75.5 %		<i>57.3</i> -	144		"	"	"	н	
Surrogate: Dibromofluoromethane	68.0 %		45.5-	130		"	"	"	"	
Surrogate: Toluene-d8	80.5 %		42.1-	144		"	"	"	•	
WSB-04-15-10 (P4B0784-19) Soil	Sampled: 02	2/25/04 08:50	Receiv	ed: 02/25/0	17:30					
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	11	11	Ħ	11	*	u	U
Ethylbenzene	ND	9.40	50.0	11	**	11	**	11	11	U
Xylenes (total)	ND	26.2	100	11	#	11	11	"	"	U
Surrogate: 4-BFB	68.9 %		42.6-	130		"	"	"	"	
Surrogate: 1,2-DCA-d4	78.7 %		<i>57.3</i>	144		"	"	"	"	
Surrogate: Dibromofluoromethane	69.8 %		45.5-	130		"	n	"	#	
Surrogate: Toluene-d8	80.4 %		42.1-	144		"	"	"	"	

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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

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

Analyte	Result M	Reporting DL Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-17-9 (P4B0784-13) Soil	Sampled: 02/24/04	14:55 Receive	d: 02/25/0	17:30					R-0:
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	"	11	"	**	17	**	
Benzo (a) anthracene	ND	33.5	n	"		11	**	**	
Benzo (a) pyrene	ND	33.5	n .	17	"	**	**	**	
Benzo (b) fluoranthene	ND	33.5	11	**	11	"	Ħ	u	
Benzo (ghi) perylene	ND	33.5	н	"	**	"	"	H	
Benzo (k) fluoranthene	ND	33.5	"	11	**	11	11	н	
Chrysene	ND	33.5	11	**	**	"		u u	
Dibenzo (a,h) anthracene	ND	33.5	11	"	**		"	11	
Fluoranthene	ND	33.5	**	"	**	"		11	
Fluorene	ND	33.5	11	11	**	"		11	
Indeno (1,2,3-cd) pyrene	ND	33.5	11	"	**	"	**	11	
Naphthalene	ND	33.5		**	**	**	**	**	
Phenanthrene	ND	33.5	11	**	**	**	**	11	
Pyrene	ND	33.5	11	**	11	11	11	11	
Surrogate: Fluorene-d10	87.2 %	40-1	50		"	"	"	n	
Surrogate: Pyrene-d10	92.9 %	40-1	50		"	"	"	11	
Surrogate: Benzo (a) pyrene-d12	97.4 %	40-1	50		"	"	n	"	
WSB-04-14-10 (P4B0784-15) Soil	Sampled: 02/24/04	15:40 Receive	ed: 02/25/0	04 17:30					
Acenaphthene	ND	13.4	ug/kg dry	1	4030067	03/02/04	03/05/04	EPA 8270m	
Acenaphthylene	ND	13.4	11	**	"	11	**	**	
Anthracene	ND	13.4	"	11	"	**	**	"	
Benzo (a) anthracene	ND	13.4	"	**	•	11	"	"	
Benzo (a) pyrene	ND	13.4	**	11	rr	**		"	
Benzo (b) fluoranthene	ND	13.4	,11	"	11	· ·	n	**	
Benzo (ghi) perylene	ND	13.4		"	H	n	11	**	
Benzo (k) fluoranthene	ND	13.4	**	н	**	Ħ	**	u	
Chrysene	ND	13.4	**	**	*	н		**	
Dibenzo (a,h) anthracene	ND	13.4	11	**	"	17		•	
Fluoranthene	ND	13.4	**	11	"	"	11	**	
Fluorene	ND	13.4	u u	**	"		**	#	
Indeno (1,2,3-cd) pyrene	ND	13.4	"		n		**	**	
Naphthalene	ND	13.4	н		**	**	**	**	
•			2			"	"		
Phenanthrene	ND	13.4	• •	**	"	"	"	**	

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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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

Reported:

Project Manager: Galen Davis

08/19/04 07:49

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

Analyte	Result	Ro MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-14-10 (P4B0784-15) Soil	Sampled: 02	/24/04 15:40	Receive	ed: 02/25/0	04 17:30					
Surrogate: Fluorene-d10	76.0 %		40-1.	50		4030067	03/02/04	03/05/04	EPA 8270m	
Surrogate: Pyrene-d10	81.0 %		40-1.	50		"	**	"	**	
Surrogate: Benzo (a) pyrene-d12	87.2 %		40-1.	50		"	"	#	"	
WSB-04-11-10 (P4B0784-18) Soil	Sampled: 02	/24/04 16:40	Receive	ed: 02/25/0	04 17:30					
Acenaphthene	ND		13.4	ug/kg dry	1	4030067	03/02/04	03/05/04	EPA 8270m	
Acenaphthylene	ND		13.4	11	"	**	н	**	*	
Anthracene	ND		13.4	19	"	"	"	**	Ħ	
Benzo (a) anthracene	ND		13.4	11	**	**	**	**	"	
Benzo (a) pyrene	ND		13.4	"	**	**	"	17	16	
Benzo (b) fluoranthene	ND		13.4	**	**	"	"	n	**	
Benzo (ghi) perylene	ND		13.4	"	**	**	"	n	**	
Benzo (k) fluoranthene	ND		13.4	***	**	**	11	"	n	
Chrysene	ND		13.4	11	**	"	"	11	**	
Dibenzo (a,h) anthracene	ND		13.4	"	**	"	11	11	н	
Fluoranthene	ND		13.4	"	**	11	"	11	#	
Fluorene	ND		13.4	11	**	"	n	11	n	
Indeno (1,2,3-cd) pyrene	ND		13.4	11	**	**	"	**		
Naphthalene	ND		13.4	"	,11	u	11	"		
Phenanthrene	ND		13.4	"	"	"	11	"	· ·	
Pyrene	ND		13.4	11	"	н	11	"	11	
Surrogate: Fluorene-d10	78.9 %		40-1.	50		"	"	"	"	
Surrogate: Pyrene-d10	82.2 %		40-1.	50		"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	86.7 %		40-1.	50		"	**	"	"	

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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 R	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-36-10 (P4B0784-21) Soil	Sampled: 02/25/04 14:30		Receive	ed: 02/25/0	4 17:30					
Acenaphthene	ND		13.4	ug/kg dry	1	4030067	03/02/04	03/05/04	EPA 8270m	
Acenaphthylene	ND		13.4	11	"	"	17	**	H	
Anthracene	ND		13.4	**		11	**	n	"	
Benzo (a) anthracene	ND		13.4	11		11	**	**	II .	
Benzo (a) pyrene	ND		13.4	**	11	**	**	**	u	
Benzo (b) fluoranthene	ND		13.4	**	"	**	**	**		
Benzo (ghi) perylene	ND		13.4	"	"	"	11	**	н	
Benzo (k) fluoranthene	ND		13.4	11	"	"	"	**	**	
Chrysene	ND		13.4	**	"	"	**	**	11	
Dibenzo (a,h) anthracene	ND		13.4	0	"		"	**	и	
Fluoranthene	ND		13.4	u	"		**	**	n	
Fluorene	ND		13.4	0	"		**	**	**	
Indeno (1,2,3-cd) pyrene	ND		13.4	11	u u	"	**	**	4	
Naphthalene	ND		13.4		**	"	**	11	**	
Phenanthrene	ND		13.4	17	**	"	**	11	n	
Pyrene	ND		13.4	n	**	n	"		11	
Surrogate: Fluorene-d10	80.5 %		40-13	50		"	"	"	"	
Surrogate: Pyrene-d10	87.9 %		40-13	50		"	"	"	n	
Surrogate: Benzo (a) pyrene-d12	94.7 %		40-13	50		"	"	"	,,	

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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

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

			eporting							
Analyte	Result 1	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-25-10 (P4B0784-01) Soil	Sampled: 02/25/	04 09:30	Receive	d: 02/25/0	4 17:30					
% Solids	89.9		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-09-5 (P4B0784-03) Soil	Sampled: 02/25/0	4 10:10	Received	: 02/25/04	17:30					
% Solids	88.5		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-09-10 (P4B0784-04) Soil	Sampled: 02/25/	04 10:30	Receive	d: 02/25/0	4 17:30					
% Solids	86.1		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-26-02 (P4B0784-05) Soil	Sampled: 02/25/	04 10:50	Receive	d: 02/25/0	4 17:30				_	
% Solids	95.5		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-26-10 (P4B0784-06) Soil	Sampled: 02/25/	04 11:20	Receive	d: 02/25/0	4 17:30					
% Solids	91.5		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-34-5 (P4B0784-07) Soil	Sampled: 02/25/0	4 12:00	Received	: 02/25/04	17:30					
% Solids	92.5		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-35-5 (P4B0784-10) Soil	Sampled: 02/25/0	4 13:50	Received	: 02/25/04	17:30					
% Solids	92.0		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-20-10 (P4B0784-11) Soil	Sampled: 02/24/	04 12:55	Receive	d: 02/25/0	4 17:30					
% Solids	90.2		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-18-10 (P4B0784-12) Soil	Sampled: 02/24/	04 14:30	Receive	d: 02/25/0	4 17:30					
% Solids	95.7		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	

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

Spokane

Reported:

08/19/04 07:49

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

		R	eporting							
Analyte	Result	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-17-9 (P4B0784-13) Soil	Sampled: 02/24/0	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	•
WSB-04-14-5 (P4B0784-14) Soil	Sampled: 02/24/0	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	
WSB-04-14-10 (P4B0784-15) Soil	Sampled: 02/24	/04 15:40	Receive	d: 02/25/0	4 17:30		<u>.</u> .			
% Solids	83.0		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-13-16 (P4B0784-16) Soil	Sampled: 02/24	/04 16:20	Receive	d: 02/25/0	4 17:30					
% Solids	91.1		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-11-2 (P4B0784-17) Soil	Sampled: 02/24/0	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	
WSB-04-11-10 (P4B0784-18) Soil	Sampled: 02/24	/04 16:40	Receive	d: 02/25/0	4 17:30					
% Solids	83.5		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-15-10 (P4B0784-19) Soil	Sampled: 02/25	/04 08:50	Receive	d: 02/25/0	4 17:30					
% Solids	85.0		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	
WSB-04-25-5 (P4B0784-20) Soil	Sampled: 02/25/0	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	
WSB-04-36-10 (P4B0784-21) Soil	Sampled: 02/25	/04 14:30	Receive	d: 02/25/0	4 17:30					
% Solids	90.3		1.00%	by Weigh	1	4030089	03/02/04	03/03/04	NCA SOP	

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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

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

!		Re	porting		Spike	Source		%REC		RPD	
Analyte	Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4030051: Prepared 03/	01/04 Using	g EPA 5035									
Blank (4030051-BLK1)											
Gasoline Range Hydrocarbons	ND		4.00	mg/kg		-					
Surrogate: a,a,a-TFT	2.39			"	2.50		95.6	50-150			
LCS (4030051-BS1)											
Gasoline Range Hydrocarbons	58.6	·	4.00	mg/kg	62.5		93.8	70-130			
Surrogate: a,a,a-TFT	2.22			n	2.50		88.8	50-150			
Duplicate (4030051-DUP1)						Source: P	4B0633-	02			
Gasoline Range Hydrocarbons	ND		4.001	mg/kg dry		ND			NA	40	
Surrogate: a,a,a-TFT	2.79			"	3.01		92.7	50-150			
Duplicate (4030051-DUP2)						Source: P	4B0846-	02			
Gasoline Range Hydrocarbons	ND		4.001	ng/kg dry		ND			NA	40	
Surrogate: a,a,a-TFT	2.50			"	2.68		93.3	50-150			
Matrix Spike (4030051-MS1)						Source: P	4B0784-0	)3			
Gasoline Range Hydrocarbons	1250		40.01	ng/kg dry	70.6	1210	56.7	65-130			Q-99
Surrogate: a,a,a-TFT	2.49			r	2.82		88.3	50-150			

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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

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

Project Manager: Galen Davis

Analyte	I	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030037:	Prepared 03/01/04	Usin	g EPA 50	30B								<del></del> _
Blank (4030037-BI	LK1)							•				-
Benzene		ND	0.300	0.500	ug/l							υ
Toluene		ND	0.300	0.500	"							υ
Ethylbenzene		ND	0.300	0.500	"							U
Xylenes (total)		ND	0.600	1.00								U
Gasoline Range Hydr	ocarbons	ND	50.0	80.0	**							υ
Surrogate: 4-BFB (F	CID)	39.9			"	50.0		79.8	50-150			
Surrogate: 4-BFB (F	OIP)	46.4			"	50.0		92.8	70-130			
LCS (4030037-BS1	l)											
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	n	150		100	70-130			
Surrogate: 4-BFB (F	UD)	50.8			"	50.0		102	70-130	-		
LCS (4030037-BS2	2)											
Gasoline Range Hydr	ocarbons	916	50.0	80.0	ug/l	1500		61.1	50-150			
Surrogate: 4-BFB (F	TID)	42.4			"	50.0		84.8	50-150			
Duplicate (4030037	-DUP2)						Source: P	4B0784-0	08			
Gasoline Range Hydr	ocarbons	203	50.0	80.0	ug/l		140			36.7	50	
Surrogate: 4-BFB (F	ID)	48.9			"	50.0		97.8	50-150			
Matrix Spike (403)	0037-MS1)						Source: P	4B0717-0	)1			
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 (P	ID)	49.4			"	50.0		98.8	70-130			

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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

### 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
Batch 4030037:	Prepared 03/01/0	4 Using	EPA 503	0В								
Matrix Spike Dup	(4030037-MSD1)						Source: F	4B0717-0	)1			
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	H	150	ND	87.3	70-130	7.35	20	
Surrogate: 4-BFB (I	PID)	52.1		_	"	50.0		104	70-130			

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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

## 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
Batch 4021023:	Prepared 02/26/0	4 Using	EPA 355						2			110103
Blank (4021023-BI	<del></del>			<u></u>						-		
Diesel Range Organic	:s	ND		25.0	mg/kg			_				
Heavy Oil Range Hye	drocarbons	ND		50.0	**							
Surrogate: 1-Chlorod	octadecane	4.68			n	4.80		97.5	50-150			
LCS (4021023-BS1	)				-							
Diesel Range Organic	s	127		25.0	mg/kg	125		102	50-150			
Heavy Oil Range Hye	drocarbons	82.8		50.0	11	75.0		110	50-150			
Surrogate: 1-Chlorod	octadecane	4.49			"	4.80		93.5	50-150			
Duplicate (4021023	-DUP1)						Source: I	P4B0632-	14			
Diesel Range Organic	S	ND		25.0r	ng/kg dry		ND			NA	50	
Heavy Oil Range Hyd	drocarbons	ND		50.0	н		ND			NA	50	
Surrogate: 1-Chlorog	octadecane	4.83			"	5.11		94.5	50-150			
Duplicate (4021023	3-DUP2)						Source: F	4B0636-0	04			
Diesel Range Organic	s	5550		94.3 r	ng/kg dry		6300	-		12.7	50	
Heavy Oil Range Hyd	drocarbons	492		189	11		596			19.1	50	
Surrogate: 1-Chlorod	octadecane	17.0			"	18.1		93.9	50-150			
Batch 4021068:	Prepared 02/27/0	4 Using	EPA 355	0 Fuels								
Blank (4021068-BL	.K1)											
Diesel Range Organic	s	ND		25.0	mg/kg							
Heavy Oil Range Hyd	drocarbons	ND		50.0	**							
Surrogate: 1-Chlorod	octadecane	4.63			n	4.80		96.5	50-150			
LCS (4021068-BS1	)											
Diesel Range Organic	s	138		25.0	mg/kg	125		110	50-150			
Heavy Oil Range Hyd	lrocarbons	84.0		50.0		75.0		112	50-150			
Surrogate: 1-Chlorod	octadecane	5.13			"	4.80		107	50-150			

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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

#### 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
Batch 4021068:	Prepared 02/27/0		ing EPA 35				- >					
Duplicate (402106	8-DUP1)		<del></del>				Source: P	4B0813-0	)1			
Diesel Range Organie	cs	ND		25.0 n	ıg/kg dry		ND			NA	50	
Heavy Oil Range Hy	drocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chloro	octadecane	5.19			,,	5.56		93.3	50-150			,
Duplicate (402106	8-DUP2)						Source: P	4B0813-0	)2			
Diesel Range Organie	es	ND		25.0 n	ng/kg dry		ND	_		NA	50	
Heavy Oil Range Hy	drocarbons	ND		50.0	"		ND			NA	50	
Surrogate: 1-Chloro	octadecane	5.14			"	5.51		93.3	50-150		<u> </u>	
Batch 4021070:	Prepared 02/27/0	)4 Us	ing EPA 35	10 Fuels								
Blank (4021070-Bl	LK1)											
Diesel Range Organie	es	ND		0.250	mg/l							
Heavy Oil Range Hy	drocarbons	ND		0.500	"							
Surrogate: 1-Chloro												
	octaaecane	0.0909			"	0.0960		94.7	50-150			
LCS (4021070-BS:		0.0909			,,	0.0960		94.7	50-150			
	1)	2.17		0.250	mg/l	0.0960 2.50		94.7 86.8	<i>50-150</i> 50-150			
LCS (4021070-BS: Diesel Range Organic Heavy Oil Range Hy	l)			0.250 0.500							·	
Diesel Range Organic Heavy Oil Range Hy	l) es drocarbons	2.17			mg/l	2.50		86.8	50-150			
Diesel Range Organic Heavy Oil Range Hy Surrogate: 1-Chloro	drocarbons  octadecane	2.17 1.45			mg/l	2.50 1.50		86.8 96.7	50-150 50-150			
Diesel Range Organic Heavy Oil Range Hy Surrogate: 1-Chloro LCS Dup (4021070	drocarbons  octadecane  D-BSD1)	2.17 1.45			mg/l	2.50 1.50		86.8 96.7	50-150 50-150	4.24	50	
Diesel Range Organic	drocarbons  octadecane  0-BSD1)	2.17 1.45 0.0935		0.500	mg/l "	2.50 1.50 0.0960		86.8 96.7 97.4	50-150 50-150 50-150	4.24 2.72	50 50	

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Project: BNSF-Wishram Project Number: 036026.00

Reported: Project Manager: Galen Davis 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	Da	sult	MDL	Reporting Limit	Units	Spike	Source	0/DEC	%REC	D DD	RPD	N
				•••	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4030004: Prepa	red 03/01/04	Using	EPA 355	0 Fuels							·	
Blank (4030004-BLK1)												
Diesel Range Organics	1	ND		25.0	mg/kg							
Heavy Oil Range Hydrocarbo	ns :	ND		50.0	Ħ							
Surrogate: 1-Chlorooctadeca	ne 5	.11			n	4.80		106	50-150			
LCS (4030004-BS1)												
Diesel Range Organics	1	17		25.0	mg/kg	125		93.6	50-150			
Heavy Oil Range Hydrocarbo	ns 8	0.9		50.0	**	75.0		108	50-150			
Surrogate: I-Chlorooctadeca	ne 5	.10			"	4.80	-	106	50-150			
Duplicate (4030004-DUP1)	<u> </u>						Source: 1	P4B0784-	18			
Diesel Range Organics	1	ND		25.01	ng/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbo	ns 1	ND		50.0			ND			NA	50	
Surrogate: 1-Chlorooctadeca	ne 5	.8 <i>3</i>		21	"	5.75		101	50-150			
Duplicate (4030004-DUP2)	)			_			Source: I	P4B0784-:	20			
Diesel Range Organics	1	ND		25.0r	ng/kg dry		ND			NA	50	
Heavy Oil Range Hydrocarbo	ns 1	ND		50.0	•		ND			NA	50	
Surrogate: 1-Chlorooctadeca	ne 5.	.25			"	5.18	•	101	50-150			
Batch 4030063: Prepa	red 03/02/04	Using	EPA 355	0 Fuels								
Blank (4030063-BLK1)												•
Diesel Range Organics	1	ND		25.0	mg/kg						-	
Heavy Oil Range Hydrocarbo	ns ]	ND		50.0	"							
Surrogate: 1-Chlorooctadeca	ne 3.	79			"	4.80		79.0	50-150			
LCS (4030063-BS1)												
Diesel Range Organics	1	05		25.0	mg/kg	125		84.0	50-150			
Heavy Oil Range Hydrocarbo	ns 70	6.7		50.0	"	75.0		102	50-150			
Surrogate: 1-Chlorooctadeca	ne 4.	79			"	4.80		99.8	50-150			

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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
Batch 4030063: Prepared 03/	/02/04 Using	g EPA 35	50 Fuels								
Duplicate (4030063-DUP1)						Source: F	24B0846-	01			
Diesel Range Organics	15.0		25.0 n	ng/kg dry		20.9	•		32.9	50	
Heavy Oil Range Hydrocarbons	85.4		50.0	11		111			26.1	50	
Surrogate: 1-Chlorooctadecane	4.87			"	5.23		93.1	50-150			
Duplicate (4030063-DUP2)						Source: F	P4B0846-	03			
Diesel Range Organics	ND		25.0 n	ng/kg dry		ND		•	NA	50	
Heavy Oil Range Hydrocarbons	ND		50.0	11		ND			NA	50	
Surrogate: 1-Chlorooctadecane	4.08			p	5.22		78.2	50-150			

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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	Re	esult	R MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Notes
	Prepared 03/01/04								Z.iiito		- Saint	110103
Blank (4030035-BLI	<b>(1)</b>											<del></del>
Mercury		ND		0.100	mg/kg							
LCS (4030035-BS1)												
Мегсигу	0.	994		0.100	mg/kg	1.00		99.4	80-120		<u> </u>	
<b>Duplicate</b> (4030035-	DUP1)						Source: P	4B0773-0	)1			
Mercury	0.0	825		0.0862 n	ng/kg dry		0.0708			15.3	40	
Matrix Spike (40300	035-MS1)						Source: P	4B0773-0	)1			
Mercury	0.	930		0.0658n	ng/kg dry	0.872	0.0708	98.5	75-125			
Matrix Spike (40300	035-MS2)						Source: P	4B0773-0	)2			
Mercury	2	2.43		0.229 n	ng/kg dry	2.29	0.157	99.3	75-125			
Batch 4030059:	Prepared 03/02/04	Using	g EPA 7470	A								
Blank (4030059-BLk	<b>Κ1)</b>									_		
Mercury		ND	0	0.000200	mg/l							
LCS (4030059-BS1)												
Mercury	0.00	510	0	.000200	mg/l	0.00500		102	85-115			
Duplicate (4030059-)	DUP1)						Source: P	4B0784-0	19			
Mercury	<del></del>	ND	0	.000200	mg/l		ND			NA	20	
Matrix Spike (40300	059-MS1)						Source: P	4B0784-0	19			
Mercury	0.00	518	0	0.000200	mg/l	0.00500	ND	104	75-125			

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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	R	sult	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD	Notes
Batch 4030213:	Prepared 03/05/04		EPA 20		Oilita	Level	Kesuit	/OKEC	Limits	KFD	Limit	Notes
Blank (4030213-B)		Osing	EFAZU	0/3003						<del></del>		
Silver	LKI)	ND		0.00100	mg/l	<del></del>						
Arsenic		ND		0.00100	m "							
Barium		ND 11		0.00100	**							
Cadmium		ND		0.00100	"							
Chromium		ND		0.00100	"							
Lead		ND		0.00100	"							
Selenium		ND		0.00100	"							
LCS (4030213-BS	1)											
Silver		490		0.00100	mg/l	0.0500	***	98.0	80-120			
Arsenic	0.0	922		0.00100	**	0.100		92.2	80-120			
Barium	0.0	927		0.00100		0.100		92.7	80-120			
Cadmium	0.0	913		0.00100	**	0.100		91.3	80-120			
Chromium	0.0	966		0.00100	H	0.100		96.6	80-120			
Lead	0.0	956		0.00100	**	0.100		95.6	80-120			
Selenium	0.0	893		0.00100	**	0.100		89.3	80-120			
Duplicate (403021	3-DUP1)						Source: P	4B0783-0	01			
Silver		ND		0.00100	mg/l		ND			NA	20	
Arsenic		ND		0.00100	**		ND			NA	20	
Barium	0.0	124		0.00100	H		0.0119			4.12	20	
Cadmium		ND		0.00100	"		ND			NA	20	
Chromium	0.00	358		0.00100	n		0.00360			0.557	20	
Lead	0.00	829		0.00100	11		0.00852			2.74	20	
Selenium		ND		0.00100	"		ND			NA	20	
Matrix Spike (403	0213-MS1)						Source: P	4B0783-0	)1			
Silver	0.0	198		0.00100	mg/l	0.0500	ND	99.6	75-125			
Arsenic	0.0	970		0.00100	**	0.100	ND	97.0	75-125			
Barium	0.	108		0.00100	"	0.100	0.0119	96.1	75-125			
Cadmium	0.09	965		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	0.09	948		0.00100	**	0.100	ND	94.8	75-125			
		<del></del>										

North Creek Analytical - Portland

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Portland Bend

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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

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

Analyte	R	esult	MDL	Reporting Limit		Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030213:	Prepared 03/05/04	Usin	g EPA 200	/3005		- · · · · · · · · · · · · · · · · · · ·						
Matrix Spike (403	0213-MS2)						Source: P	4B0783-	03			
Silver	0.0	490		0.00100	mg/l	0.0500	ND	98.0	75-125			
Arsenic	0.0	943		0.00100	"	0.100	ND	94.3	75-125			
Barium	0	103		0.00100	"	0.100	0.0103	92.7	75-125			
Cadmium	0.0	965		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	0.0	940		0.00100	**	0.100	ND	94.0	75-125			
Batch 4030219:	Prepared 03/05/04	Usin	g EPA 305	0			_					
Blank (4030219-B	LK2)											
Silver		ND		0.500	mg/kg							
Arsenic		ND		0.500	**							
Barium		ND		0.500	*							
Cadmium		ND		0.500	"							
Chromium		ND		0.500	19							
Lead		ND		0.500	"							
Selenium		ND		0.500	n							
LCS (4030219-BS	2)											
Silver	:	5.66		0.500	mg/kg	5.00		113	80-120			
Arsenic		1.1		0.500	н	10.0		111	80-120			
Barium		0.7		0.500	**	10.0		107	80-120			
Cadmium		0.5		0.500	***	10.0		105	80-120			
Chromium		1.2		0.500	•	10.0		112	80-120			
Lead	1	0.5		0.500	••	10.0		105	80-120			
Selenium	1	0.8		0.500	**	10.0		108	80-120			

North Creek Analytical - Portland

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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

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

Analyte	R	esult	Re MDL	eporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030219:	Prepared 03/05/04		EPA 3050		2				Zimito			110103
Duplicate (403021	9-DUP1)						Source: P	4C0117-	 01			
Silver	0.0	864		0.350 n	ng/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 (403	30219-MS1)						Source: P	4C0117-	01			
Silver		7.38		0.500 n	ng/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-1
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	n	12.5	ND	96.8	75-125			

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

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

Analyte	Result	Re MDL	porting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Notes
Batch 4030010: Prepared 03		g EPA 3550	Dillitt	Jints	20101	resuit	70KEC	Limits	NI D	Liiiit	ivotes
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	**							
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	30.2			n	33.3		90.7	36-140			
Surrogate: Decachlorobiphenyl	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			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	33.8	, <u> </u>		"	33.3		102	36-140			
Surrogate: Decachlorobiphenyl	34.2			"	33.3		103	16-149			
Matrix Spike (4030010-MS1)						Source: P	4B0568-4	18			
Aroclor 1016	294		67.0 ı	ıg/kg dry	399	ND	73.7	37-145			
Aroclor 1260	320		67.0	**	399	ND	80.2	25-144			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	33.1			n	39.9		83.0	36-140			
Surrogate: Decachlorobiphenyl	29.2			"	39.9		73.2	16-149			
Matrix Spike Dup (4030010-MS)	D1)					Source: P	4B0568-4	18			
Aroclor 1016	321		67.0 t	ıg/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	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	36.6			n	39.9		91.7	36-140			
Surrogate: Decachlorobiphenyl	29.0			"	39,9		72.7	16-149			

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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	Re	esult	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030020:	Prepared 03/01/04	Usiı	ng EPA 35	10/600 Se	ries							
Blank (4030020-BL)	K1)									-		
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	11							
Aroclor 1254		ND		0.500	**							
Aroclor 1260		ND		0.500								
Surrogate: 2,4,5,6-Tetrachloro-m		476	-		"	0.500		95.2	16-137			
Surrogate: Decachlore	obiphenyl 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	1.79		0.500	n	5.00		95.8	62-120			
Surrogate: 2,4,5,6-Tetrachloro-m		484		-	"	0.500		96.8	16-137			
Surrogate: Decachlore	obiphenyl 0.	378			"	0.500		75.6	12-130			
LCS Dup (4030020-	BSD1)											
Aroclor 1016		.77		0.500	ug/l	5.00		95.4	57-122	3.85	22	
Aroclor 1260		.81		0.500	**	5.00		96.2	62-120	0.417	23	
Surrogate: 2,4,5,6-Tetrachloro-m		496			n	0.500		99.2	16-137		·	
Surrogate: Decachloro	obiphenyl 0.	381			"	0.500		76.2	12-130			

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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 - Quality Control North Creek Analytical - Portland

Blank (4021053-BLK1)   Second Prepared 02/26/04   Using EPA 5035   Using	U U U U U U
Acetone         ND         144         2500         ug/kg           Benzene         ND         4.44         100         "           Bromobenzene         ND         12.2         100         "           Bromochloromethane         ND         16.4         100         "           Bromodichloromethane         ND         10.2         100         "           Bromoform         ND         15.8         100         "           Bromoform         ND         5.09         500         "           2-Butanone         ND         148         1000         "           n-Butylbenzene         ND         11.3         500         "           sec-Butylbenzene         ND         7.45         100         "           tert-Butylbenzene         ND         15.2         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         10.7         100         "           Chlorotoform         ND         7.26         100         "           Chlorotoluene         ND	ט ט ט ט ט
Benzene         ND         4.44         100         "           Bromobenzene         ND         12.2         100         "           Bromochloromethane         ND         16.4         100         "           Bromodichloromethane         ND         10.2         100         "           Bromoform         ND         15.8         100         "           Bromomethane         ND         5.09         500         "           2-Butanone         ND         148         1000         "           n-Butylbenzene         ND         11.3         500         "           sec-Butylbenzene         ND         7.45         100         "           tert-Butylbenzene         ND         7.52         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chloroform         ND         7.26         100         "           Chloroform         ND         7.26         100         "           Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene	ט ט ט ט ט
Bromobenzene         ND         12.2         100         "           Bromochloromethane         ND         16.4         100         "           Bromodichloromethane         ND         10.2         100         "           Bromoform         ND         15.8         100         "           Bromomethane         ND         5.09         500         "           2-Butanone         ND         148         1000         "           n-Butylbenzene         ND         11.3         500         "           sec-Butylbenzene         ND         7.45         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chlorotethane         ND         7.26         100         "           Chloroform         ND         7.26         100         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         26.0         500         "           1,2-Dibromo-3-chloroprop	υ υ υ υ
Bromochloromethane         ND         16.4         100         "           Bromodichloromethane         ND         10.2         100         "           Bromoform         ND         15.8         100         "           Bromomethane         ND         5.09         500         "           2-Butanone         ND         148         1000         "           n-Butylbenzene         ND         11.3         500         "           sec-Butylbenzene         ND         7.45         100         "           tert-Butylbenzene         ND         15.2         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chloroform         ND         7.26         100         "           Chloroform         ND         6.72         500         "           2-Chlorotoluene         ND         10.4         100         "           4-Chlorotoluene         ND         26.0         500         "           Dibromochloromethane </td <td>υ υ υ υ</td>	υ υ υ υ
Bromodichloromethane   ND   10.2   100   "     Bromoform   ND   15.8   100   "     Bromomethane   ND   5.09   500   "     2-Butanone   ND   148   1000   "     n-Butylbenzene   ND   11.3   500   "     sec-Butylbenzene   ND   7.45   100   "     tert-Butylbenzene   ND   15.2   100   "     Carbon disulfide   ND   7.19   1000   "     Carbon tetrachloride   ND   7.64   100   "     Chlorobenzene   ND   8.09   100   "     Chlorothane   ND   10.7   100   "     Chloroform   ND   7.26   100   "     Chloroform   ND   7.26   100   "     Chlorothane   ND   11.0   100   "     2-Chlorotoluene   ND   11.0   100   "     4-Chlorotoluene   ND   10.4   100   "     1,2-Dibromo-3-chloropropane   ND   26.0   500   "     Dibromochloromethane   ND   11.2   100   "     1,2-Dibromoethane   ND   11.6   100   "	ນ ນ ນ
Bromoform         ND         15.8         100         "           Bromomethane         ND         5.09         500         "           2-Butanone         ND         148         1000         "           n-Butylbenzene         ND         11.3         500         "           sec-Butylbenzene         ND         7.45         100         "           tert-Butylbenzene         ND         15.2         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chlorotethane         ND         7.26         100         "           Chloroform         ND         6.72         500         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         26.0         500         "           1,2-Dibromo-3-chloropropane         ND         11.2         100         "           Dibromochloromethane         ND         11.6         100         "	บ บ บ
Bromomethane   ND   5.09   500   "	ប ប
2-Butanone ND 148 1000 " n-Butylbenzene ND 11.3 500 " sec-Butylbenzene ND 7.45 100 " tert-Butylbenzene ND 15.2 100 " Carbon disulfide ND 7.19 1000 " Carbon tetrachloride ND 7.64 100 " Chlorobenzene ND 8.09 100 " Chlorothane ND 10.7 100 " Chlorothane ND 7.26 100 " Chlorothane ND 7.26 100 " Chlorothane ND 11.0 100 " Chlorotoluene ND 11.0 100 " 1,2-Dibromo-3-chloropropane ND 26.0 500 " Dibromochloromethane ND 11.2 100 " 1,2-Dibromochloromethane ND 11.6 100 "	U
n-Butylbenzene         ND         11.3         500         "           sec-Butylbenzene         ND         7.45         100         "           tert-Butylbenzene         ND         15.2         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chlorothane         ND         10.7         100         "           Chloroform         ND         7.26         100         "           Chlorothane         ND         6.72         500         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	
sec-Butylbenzene         ND         7.45         100         "           tert-Butylbenzene         ND         15.2         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chlorothane         ND         10.7         100         "           Chloroform         ND         7.26         100         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	11
tert-Butylbenzene         ND         15.2         100         "           Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chlorothane         ND         10.7         100         "           Chloroform         ND         7.26         100         "           Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	
Carbon disulfide         ND         7.19         1000         "           Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chloroethane         ND         10.7         100         "           Chloroform         ND         7.26         100         "           Chloromethane         ND         6.72         500         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	U
Carbon tetrachloride         ND         7.64         100         "           Chlorobenzene         ND         8.09         100         "           Chloroethane         ND         10.7         100         "           Chloroform         ND         7.26         100         "           Chloromethane         ND         6.72         500         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	U
Chlorobenzene         ND         8.09         100         "           Chloroethane         ND         10.7         100         "           Chloroform         ND         7.26         100         "           Chloromethane         ND         6.72         500         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	บ
Chloroethane         ND         10.7         100         "           Chloroform         ND         7.26         100         "           Chloromethane         ND         6.72         500         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	U
Chloroform       ND       7.26       100       "         Chloromethane       ND       6.72       500       "         2-Chlorotoluene       ND       11.0       100       "         4-Chlorotoluene       ND       10.4       100       "         1,2-Dibromo-3-chloropropane       ND       26.0       500       "         Dibromochloromethane       ND       11.2       100       "         1,2-Dibromoethane       ND       11.6       100       "	U
Chloromethane         ND         6.72         500         "           2-Chlorotoluene         ND         11.0         100         "           4-Chlorotoluene         ND         10.4         100         "           1,2-Dibromo-3-chloropropane         ND         26.0         500         "           Dibromochloromethane         ND         11.2         100         "           1,2-Dibromoethane         ND         11.6         100         "	υ
2-Chlorotoluene       ND       11.0       100       "         4-Chlorotoluene       ND       10.4       100       "         1,2-Dibromo-3-chloropropane       ND       26.0       500       "         Dibromochloromethane       ND       11.2       100       "         1,2-Dibromoethane       ND       11.6       100       "	U
4-Chlorotoluene ND 10.4 100 " 1,2-Dibromo-3-chloropropane ND 26.0 500 " Dibromochloromethane ND 11.2 100 " 1,2-Dibromoethane ND 11.6 100 "	U
1,2-Dibromo-3-chloropropane ND 26.0 500 "  Dibromochloromethane ND 11.2 100 "  1,2-Dibromoethane ND 11.6 100 "	U
Dibromochloromethane ND 11.2 100 " 1,2-Dibromoethane ND 11.6 100 "	บ
1,2-Dibromoethane ND 11.6 100 "	υ
	บ
Dikromomethene ND 147 100 B	U
Dibromomethane ND 14.7 100 "	U
1,2-Dichlorobenzene ND 14.4 100 "	U
1,3-Dichlorobenzene ND 5.86 100 "	υ
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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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 F	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4021053:	Prepared 02/26/0	4 Using	EPA 5035	· · · · · · · · · · · · · · · · · · ·								
Blank (4021053-B)	LK1)											
1,2-Dichloropropane	e	ND	7.45	100	ug/kg		_					Ū
1,3-Dichloropropan	e	ND	17.4	100	**							U
2,2-Dichloropropane	e	ND	8.09	100	"							U
1,1-Dichloropropend	e	ND	10.9	100	11							U
cis-1,3-Dichloroprop	oene	ND	4.95	100	"							U
trans-1,3-Dichlorop	ropene	ND	8.29	100	**							U
Ethylbenzene		ND	9.40	100	**							U
Hexachlorobutadiene	•	ND	69.4	200	**							U
2-Hexanone		ND	57.2	1000	"							U
lsopropylbenzene		ND	9.55	200	"							U
p-Isopropyltoluene		ND	9.68	200	**							U
4-Methyl-2-pentano	ne	ND	117	500	**							U
Methyl tert-butyl etl	her	ND	11.9	100	17							U
Methylene chloride		ND	250	500	**							υ
Naphthalene		ND	14.1	200	**							U
n-Propylbenzene		ND	9.89	100	**							U
Styrene		ND	8.89	100	"							U
1,1,1,2-Tetrachloroe	ethane	ND	9.25	100	**							U
1,1,2,2-Tetrachloroe	ethane	ND	21.1	100	**							U
Tetrachloroethene		ND	16.9	100	"							U
Toluene		ND	6.29	100	**							U
1,2,3-Trichlorobenze	ene	ND	16.9	100	**							U
1,2,4-Trichlorobenze	ene	ND	21.4	100	н							U
1,1,1-Trichloroethar	ne	ND	6.13	100	**							U
1,1,2-Trichloroethar	ie	ND	18.1	100	**							U
Trichloroethene		ND	12.0	100	**							. υ
Trichlorofluorometh	ane	ND	8.97	100	**							U
1,2,3-Trichloropropa	ine	ND	49.2	100	**							U
1,2,4-Trimethylbenz	ene	ND	6.75	100	**							υ
1,3,5-Trimethylbenz	ene	ND	9.33	100	**							U
Vinyl chloride		ND	5.74	100	**							υ
o-Xylene		ND	11.6	100	**							U
												J

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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

Reported:

Project Manager: Galen Davis 08/19/04 07:49

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

Analyte	Re	esult	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Notes
Batch 4021053: Pre	pared 02/26/04	Usiı	ng EPA 5035		-							110103
Blank (4021053-BLK1)	· ·						·					
m,p-Xylene		ND	11.4	200	ug/kg						<del></del> .	ū
Surrogate: 4-BFB	1	940			"	2000		97.0	42.6-130			
Surrogate: 1,2-DCA-d4	2	290			"	2000		114	57.3-144			
Surrogate: Dibromofluoro	methane 2	140			"	2000		107	45.5-130			
Surrogate: Toluene-d8	2	100			"	2000		105	42.1-144			
LCS (4021053-BS1)												
Benzene	1	980	4.44	100	ug/kg	2000		99.0	81.9-125			
Chlorobenzene	2	000	8.09	100	n	2000		100	79.2-125			
1,1-Dichloroethene	1	950	11.9	100	#	2000		97.5	66.1-125			
Toluene	1	990	6.29	100	11	2000		99.5	80-125			
Trichloroethene	1	940	12.0	100	Ħ	2000		97.0	76-125			
Surrogate: 4-BFB	2	040			"	2000		102	42.6-130			· · · · · ·
Surrogate: 1,2-DCA-d4	2	330			"	2000		116	57.3-144			
Surrogate: Dibromofluoro	methane 2	280			"	2000		114	45.5-130			
Surrogate: Toluene-d8	2	280			"	2000		114	42.1-144			
Matrix Spike (4021053-	MS1)						Source: P	4B0733-0	01			
Benzene	2	670	4.44	100 u	g/kg dry	2710	ND	98.5	68.5-125			
Chlorobenzene	2	680	8.09	100		2710	ND	98.9	65.9-125			
1,1-Dichloroethene	2:	530	11.9	100	**	2710	ND	93.4	55.8-125			
Toluene	20	660	6.29	100	н	2710	ND	98.2	70.3-125			
Trichloroethene	2	760	12.0	100	H	2710	ND	102	65.5-125			
Surrogate: 4-BFB	20	830			н	2710		104	42.6-130			
Surrogate: 1,2-DCA-d4	3.	210			"	2710		118	57.3-144			
Surrogate: Dibromofluoroi	nethane 32	200			*	2710		118	45.5-130			
Surrogate: Toluene-d8	32	290			"	2710		121	42.1-144			

North Creek Analytical - Portland

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%REC

Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776 Portland

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Spike

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Source

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

Reporting

Reported:

08/19/04 07:49

RPD

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

Analyte	Result	MDL K	Limit	Units	Spike	Source	0/BEC	%REC	B	RPD	
	·			Onits	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4021053: Prepared 02/2	6/04 Usin	g EPA 5035									
Matrix Spike Dup (4021053-MSD1	)					Source: F	P4B0733-	01			
Benzene	2440	4.44	100 t	ug/kg dry	2710	ND	90.0	68.5-125	9.00	25	
Chlorobenzene	2440	8.09	100	"	2710	ND	90.0	65.9-125	9.38	25	
1,1-Dichloroethene	2300	11.9	100	**	2710	ND	84.9	55.8-125	9.52	25	
Toluene	2440	6.29	100	**	2710	ND	90.0	70.3-125	8.63	25	
Trichloroethene	2490	12.0	100	11	2710	ND	91.9	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			
D 4 1 4030000 D 10040	<b>.</b>		_								
Batch 4030075: Prepared 03/0	2/04 Usin	g EPA 5030	В					<del></del>			
Blank (4030075-BLK1)											
Acetone	ND	2.34	25.0	ug/l							1
Benzene	ND	0.147	1.00	u							t
Bromobenzene	ND	0.333	1.00	n							t
Bromochloromethane	ND	0.266	1.00	н							τ
Bromodichloromethane	ND	0.183	1.00	"							τ
Bromoform	ND	0.174	1.00	**							Ţ
Bromomethane	ND	0.282	5.00	11							τ
2-Butanone	ND	1.60	10.0	u							τ
1-Butylbenzene	ND	0.183	5.00	**							τ
sec-Butylbenzene	ND	0.193	1.00	"							τ
ert-Butylbenzene	ND	0.206	1.00	"							τ
Carbon disulfide	ND	0.233	10.0	Ħ							τ
Carbon tetrachloride	ND	0.140	1.00	"							τ
Chlorobenzene	ND	0.136	1.00	n							τ
Chloroethane	ND	0.327	1.00	"							τ
Chloroform	ND	0.143	1.00	**							τ
Chloromethane	ND	0.159	5.00	•							ι
-Chlorotoluene	ND	0.110	1.00	••							τ
l-Chlorotoluene	ND	0.120	1.00	н							τ
,2-Dibromo-3-chloropropane	ND	0.405	5.00	n							ι

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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

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

Analyte	R	lesult	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030075:	Prepared 03/02/04	Usir	ng EPA 50	30B								
Blank (4030075-BL	K1)					-						
Dibromochlorometha	ne	ND	0.133	1.00	ug/l							τ
1,2-Dibromoethane		ND	0.187	1.00	**							τ
Dibromomethane		ND	0.117	1.00	••							τ
1,2-Dichlorobenzene		ND	0.0859	1.00	11							τ
1,3-Dichlorobenzene		ND	0.132	1.00	11							τ
1,4-Dichlorobenzene		ND	0.187	1.00	11							τ
Dichlorodifluorometh	ane	ND	0.312	5.00	н							t
1,1-Dichloroethane		ND	0.157	1.00	"							τ
1,2-Dichloroethane		ND	0.142	1.00	**							τ
1,1-Dichloroethene		ND	0.197	1.00	**							τ
cis-1,2-Dichloroether	ie	ND	0.170	1.00	**							τ
trans-1,2-Dichloroeth	iene	ND	0.175	1.00	"							τ
1,2-Dichloropropane		ND	0.266	1.00	17							t
1,3-Dichloropropane		ND	0.151	1.00	**							ι
2,2-Dichloropropane		ND	0.104	1.00	n							τ
1,1-Dichloropropene		ND	0.149	1.00	**							t
cis-1,3-Dichloroprope	ene	ND	0.128	1.00	**							t
trans-1,3-Dichloropro	pene	ND	0.152	1.00								t
Ethylbenzene		ND	0.110	1.00	**							ι
Hexachlorobutadiene		ND	0.878	2.00	**							L
2-Hexanone		ND	1.10	10.0								ι
lsopropylbenzene		ND	0.107	2.00	17							ι
p-Isopropyltoluene		ND	0.149	2.00	11							t
4-Methyl-2-pentanon	e	ND	1.49	5.00	· ·							υ
Methyl tert-butyl ethe	er	ND	0.0865	1.00	*							t
Methylene chloride		ND	2.50	5.00	**							U
Naphthalene		ND	0.0989	2.00	11							u
n-Propylbenzene		ND	0.138	1.00	**							U
Styrene		ND	0.0723	1.00	n							U
1,1,2-Tetrachloroet	hane	ND	0.148	1.00	#							U
1,1,2,2-Tetrachloroet		ND	0.294	1.00	11							U
Tetrachloroethene		ND	0.109	1.00	,,							U

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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

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

Analyte	Resi	ılt MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030075: Pre	epared 03/02/04	Using EPA 50	030B								710105
Blank (4030075-BLK1)											
Toluene	N	D 0.155	1.00	ug/l							U
1,2,3-Trichlorobenzene	N	D 0.219	1.00	W							U
1,2,4-Trichlorobenzene	N	D 0.213	1.00	"							U
1,1,1-Trichloroethane	N	D 0.0859	1.00	**							U
1,1,2-Trichloroethane	N	D 0.301	1.00								U
Trichloroethene	N	D 0.241	1.00	"							U
Trichlorofluoromethane	N	D 0.160	1.00	**							U
1,2,3-Trichloropropane	N	D 0.365	1.00	**							U
1,2,4-Trimethylbenzene	N	D 0.0884	1.00	"							U
1,3,5-Trimethylbenzene	N	D 0.157	1.00	"							U
Vinyl chloride	N	D 0.152	1.00	**							U
o-Xylene	N	D 0.187	1.00	11							U
m,p-Xylene	N	D 0.295	2.00	"							U
Surrogate: 4-BFB	18.	.8		"	20.0		94.0	75-120			
Surrogate: 1,2-DCA-d4	20.	.0		H	20.0		100	77-129			
Surrogate: Dibromofluoro	omethane 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.	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: Dibromofluoro	methane 20.	4		"	20.0		102	80-121			
Surrogate: Toluene-d8	21.	1		"	20.0		106	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

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

			R	eporting		Spike	Source		%REC		RPD	
Analyte	R	esult	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4030075: Prep	ared 03/02/04	Usi	ng EPA 5030	В								
Matrix Spike (4030075-N	/IS1)						Source: P	4B0838-	01			
Benzene		20.2	0.147	1.00	ug/l	20.0	ND	101	80-124			
Chlorobenzene		20.3	0.136	1.00	11	20.0	ND	102	72.9-134			
1,1-Dichloroethene		20.3	0.197	1.00	n	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: Dibromofluorom	iethane	19.5			"	20.0		97.5	80-121			
Surrogate: Toluene-d8		20.0			**	20.0		100	80-120			
Matrix Spike Dup (40300	75-MSD1)						Source: P	4B0838-	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	tt	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: Dibromofluorom	ethane	19.7			**	20.0		98.5	80-121			
Surrogate: Toluene-d8	2	20.3			"	20.0		102	80-120			

North Creek Analytical - Portland

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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

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

Analyte	Result		porting	11-14-	Spike	Source	n/pro	%REC		RPD	
		MDL S035	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Blank (4030050: Prepared 03/01	1/04 USIN	g EPA 5035			<del></del>						
Benzene	ND	4.44	50.0	ug/kg							
Toluene	ND	6.29	50.0	ug/kg							U
Ethylbenzene	ND	9.40	50.0								U U
Xylenes (total)	ND	26.2	100	11							U
Surrogate: 4-BFB	1950			"	2000		97.5	42.6-130		<del></del>	
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: P	4B0633-	02			
Benzene	2550	4.44	50.0 ı	ıg/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: P	4B0633-	02			
Benzene	2530	4.44	50.0 u	ıg/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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Desa Don



Bend

Spike

Source

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%REC

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Anchorage 07 563 9700 fav 907 563 9710

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Naphthalene

Phenanthrene

Pyrene

Project: BNSF-Wishram

Project Number: 036026.00 Project Manager: Galen Davis

Reporting

ND

ND

ND

Reported: 08/19/04 07:49

**RPD** 

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

Analyte		Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4030067:	Prepared 03/02/0	4 Using	EPA 3550									710103
Blank (4030067-BL	.K1)											
Acenaphthene	-	ND		13.4	ug/kg							
Acenaphthylene		ND		13.4	H							
Anthracene		ND		13.4	**							
Benzo (a) anthracene		ND		13.4								
Benzo (a) pyrene		ND		13.4	*							
Benzo (b) fluoranther	ne	ND		13.4	"							
Benzo (ghi) perylene		ND		13.4								
Benzo (k) fluoranthei	ne	ND		13.4	**							
Chrysene		ND		13.4	"							
Dibenzo (a,h) anthrac	ene	ND		13.4								
Fluoranthene		ND		13.4	**							
Fluorene		ND		13.4	11							
Indeno (1,2,3-cd) pyr	ene	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		

13.4

13.4

13.4

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Jesa Domes



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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

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

Analyte	Resul	t MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030067: Prepa	red 03/02/04 U	sing EPA 35	50			<del></del>					110103
Matrix Spike (4030067-M	S1)		•			Source: F	P4B0784-	13			R-05
Acenaphthene	167	7	33.5	ug/kg dry	192	ND	87.0	33-139			14-0.
Benzo (a) pyrene	193	3	33.5	Ħ	192	ND	101	45-149			
Pyrene	184	1	33.5	"	192	ND	95.8	39-138			
Surrogate: Fluorene-d10	85.3	5		"	95.8		89.2	40-150			
Surrogate: Pyrene-d10	88.5	5		"	95.8		92.4	40-150			
Surrogate: Benzo (a) pyrene-	d12 99.4	1		"	95.8		104	40-150			
Matrix Spike Dup (403006	7-MSD1)					Source: P	<b>4B0784</b> -1	13			R-05
Acenaphthene	166		33.5 ι	ıg/kg dry	192	ND	86.5	33-139	0.601	60	14-02
Benzo (a) pyrene	177	,	33.5	"	192	ND	92.2	45-149	8.65	60	
Pyrene	171		33.5	11	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	i		"	95.8		90.3	40-150			
Surrogate: Benzo (a) pyrene-c	112 96.9	)		"	95.8		101	40-150			

North Creek Analytical - Portland

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

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Project: BNSF-Wishram

Spokane

Bend

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

			porting		Spike	Source		%REC		RPD	
Analyte	Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4030089: Prepared 03	3/02/04 Using	Dry Weigh	t							<b></b>	
Duplicate (4030089-DUP1)						Source: 1	P4B0784-0	)1			
% Solids	90.0		1.00	% by Weight		89.9			0.111	20	
Duplicate (4030089-DUP2)						Source: I	P4B0784-0	)3			
% Solids	88.3		1.00	% by Weight		88.5			0.226	20	

North Creek Analytical - Portland

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

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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.

The matrix spike recovery, and/or RPD, for this QC sample is outside of control limits due to a non-homogeneous sample matrix. Q-14

The spike recovery, and/or RPD, for this QC sample is outside of established control limits. Review of associated batch QC Q-99 indicates the recovery for this analyte does not represent an out-of-control condition for the batch.

Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, R-05 and/or matrix interference.

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or S-01 matrix interferences.

The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds S-02 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

dгу Sample results reported on a dry weight basis

RPD Relative Percent Difference

North Creek Analytical - Portland

Desa Domes

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Lisa Domenighini, Project Manager

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

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19 August 2004

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

Jesa Domenis

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** 



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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-04-2 <b>7</b> -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

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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 I	Reporting Limit	Units	Dilution	Darah	D- 1			
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/25/					Batch	Prepared	Analyzed	Method	Notes
		U4 14:4U			13:25					
Gasoline Range Hydrocarbons	ND		4.00 n	ng/kg dry	1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	92.5 %		50-15	0		"	"	"	"	
WSB-04-2-12 (P4B0846-14) Soil	Sampled: 02/26/	04 09:10	Received	: 02/27/04	13:25					
Gasoline Range Hydrocarbons	ND		4.00 n	ng/kg dry	1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	90.3 %		50-15	0		"	"	"	n	
WSB-04-12-5 (P4B0846-18) Soil	Sampled: 02/26/0	04 11:40	Received	<b>: 02/27</b> /04	13:25					
Gasoline Range Hydrocarbons	ND		4.00 n	ng/kg dry	1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	91.0 %		50-15	0		"	"	"	n	
WSB-04-12-10 (P4B0846-19) Soil	Sampled: 02/26	/04 11:50	Receive	d: 02/27/0	4 13:25					
Gasoline Range Hydrocarbons	ND		4.00 n	ng/kg dry	1	4030051	03/01/04	03/06/04	NW TPH-G	
Surrogate: a,a,a-TFT	82.8 %		50-15	0	<u> </u>	"	"	"	п	

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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

Amelia			Reporting							
Analyte	Result	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-6-GW (P4B0846-16) Water	Sample	d: 02/26/04	09:30 Rece	ived: 02/	27/04 13:25	5				
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	**	n n	**	**	"	11	U
Ethylbenzene	5.10	0.300	0.500	11	"	"	u	**	u	_
Xylenes (total)	18.2	0.600	1.00	**	"	**	11	"	н	
Gasoline Range Hydrocarbons	390	50.0	80.0		. 11	"	**	**	Ħ	
Surrogate: 4-BFB (FID)	109 %		50-15	0		"	"	"	"	
Surrogate: 4-BFB (PID)	116%		70-13	0		n	,,	,,	"	
WSB-04-16-GW (P4B0846-17) Water	Sample	ed: 02/26/04	10:20 Rec	eived: 02	/27/04 13:2	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	H	**	11	11	"	"	U
Ethylbenzene	ND	0.300	0.500	**	"	**	**	11	"	U
Xylenes (total)	ND	0.600	1.00		11	"	"	**	"	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	11	11	**	**	**		U
Surrogate: 4-BFB (FID)	97.0 %		50-15	o		,,	"	,,	"	
Surrogate: 4-BFB (PID)	112%		70-13	0		"	n	"	"	
WSB-04-27-GW (P4B0846-21) Water	Sample	ed: 02/26/04	13:30 Rece	ived: 02	/27/04 13:2	5				
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	11	"	11	**	11	"	U
Ethylbenzene	ND	0.300	0.500	**	**	11	н	""		Ü
Xylenes (total)	ND	0.600	1.00	11	**	11	**	**	*	U
Gasoline Range Hydrocarbons	ND	50.0	80.0	**		"	u	n	н	U
Surrogate: 4-BFB (FID)	91.0%		50-15	0		"	"	"	n	
Surrogate: 4-BFB (PID)	108 %		70-13	0		"	"	"	"	

North Creek Analytical - Portland

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Federal Way, WA 98003

Project: BNSF-Wishram

Anchorage

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

		_							
Result M		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sampled: 02/25/04	14:30	Received	l: 02/27/04	13:25					
ND 111		25.0 i 50.0	mg/kg dry	1 "	4030063	03/02/04	03/03/04	NWTPH-Dx	
94.8 %	_	50-15	50		"	"	"	"	
Sampled: 02/25/04	13:10	Received	: 02/27/04	13:25					
ND ND		25.0 r 50.0	ng/kg dry	1 "	4030063	03/02/04	03/02/04	NWTPH-Dx	
76.8 %		50-15	50		,,	"	"	"	
Sampled: 02/25/04	15:20	Received	: 02/27/04	13:25					
ND ND		25.0 r 50.0	ng/kg dry "	1	4030063	03/02/04	03/03/04	NWTPH-Dx	
88.2 %		50-15	0		"	"	"	n	
Sampled: 02/25/04	15:30	Receive	d: 02/27/0	4 13:25					
ND ND		25.0 n 50.0	ng/kg dry "	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
73.4 %		50-15	0		"	,,	"	м	
Sampled: 02/25/04	15:40	Received	: 02/27/04	13:25					
ND ND		25.0 n 50.0	ng/kg dry "	1	4030063	03/02/04	03/03/04	NWTPH-Dx	
96.8 %		50-15	0		"	"	"	"	
Sampled: 02/25/04 1	6:10	Received:	02/27/04	13:25					
ND ND		25.0 m 50.0	ng/kg dry "	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
76.3 %		50-15	0		,	"	"	n	
	Sampled: 02/25/04  ND 111 94.8 % Sampled: 02/25/04  ND ND 76.8 % Sampled: 02/25/04  ND ND 88.2 % Sampled: 02/25/04  ND ND 73.4 % Sampled: 02/25/04  ND ND 73.4 % Sampled: 02/25/04  ND ND ND 96.8 % Sampled: 02/25/04	Result MDL  Sampled: 02/25/04 14:30  ND 111  94.8 %  Sampled: 02/25/04 13:10  ND ND ND 76.8 %  Sampled: 02/25/04 15:20  ND ND ND ND ND  73.4 %  Sampled: 02/25/04 15:40  ND ND ND ND ND ND ND 73.4 %  Sampled: 02/25/04 16:10  ND ND ND ND ND ND ND ND ND ND ND ND ND	Sampled: 02/25/04 14:30       Received         ND       25.0 m         94.8 %       50-13         Sampled: 02/25/04 13:10       Received         ND       25.0 m         ND       50.0         76.8 %       50-13         Sampled: 02/25/04 15:20       Received         ND       25.0 m         ND       50.0         88.2 %       50-15         Sampled: 02/25/04 15:30       Received         ND       50.0         73.4 %       50-15         Sampled: 02/25/04 15:40       Received         ND       50.0         96.8 %       50-15         Sampled: 02/25/04 16:10       Received:         ND       25.0 m         ND       50.15         Sampled: 02/25/04 16:10       Received:         ND       25.0 m         ND       50.0	Result         MDL         Limit         Units           Sampled: 02/25/04 14:30         Received: 02/27/04           ND         25.0 mg/kg dry           111         50.0 "           94.8 %         50-150           Sampled: 02/25/04 13:10         Received: 02/27/04           ND         25.0 mg/kg dry           ND         50.0 "           76.8 %         50-150           Sampled: 02/25/04 15:20         Received: 02/27/04           ND         25.0 mg/kg dry           ND         50.0 "           88.2 %         50-150           Sampled: 02/25/04 15:30         Received: 02/27/0           ND         25.0 mg/kg dry           ND         50-150           Sampled: 02/25/04 15:40         Received: 02/27/04           ND         25.0 mg/kg dry           ND         50-150           Sampled: 02/25/04 16:10         Received: 02/27/04           ND         25.0 mg/kg dry           ND         25.0 mg/kg	Result         MDL         Limit         Units         Dilution           Sampled: 02/25/04 14:30         Received: 02/27/04 13:25           ND         25.0 mg/kg dry         1           111         50.0 "         "           94.8 %         50-150           Sampled: 02/25/04 13:10         Received: 02/27/04 13:25           ND         25.0 mg/kg dry         1           ND         50.0 "         "           88.2 %         50-150           Sampled: 02/25/04 15:20         Received: 02/27/04 13:25           ND         25.0 mg/kg dry         1           ND         25.0 mg/kg dry         1           ND         25.0 mg/kg dry         1           ND         50.0 "         "           73.4 %         50-150           Sampled: 02/25/04 15:40         Received: 02/27/04 13:25           ND         25.0 mg/kg dry         1           ND         50.0 "         "           96.8 %         50-150           Sampled: 02/25/04 16:10         Received: 02/27/04 13:25           ND         25.0 mg/kg dry         1           ND         50.0 "         "           96.8 %         50-150           S	Result         MDL         Limit         Units         Dilution         Batch           Sampled: 02/25/04 14:30         Received: 02/27/04 13:25         Head of the control of the	Result         MDL         Limit         Units         Dilution         Batch         Prepared           Sampled: 02/25/04 14:30         Received: 02/27/04 13:25         3:25           ND         25.0 mg/kg dry         1         4030063         03/02/04           111         50.0 "" "" "         "         "           94.8 %         50-150 "" "         "         "           ND         25.0 mg/kg dry         1         4030063         03/02/04           ND         50.0 "" "         "         "           76.8 %         50-150 "         "         "           Sampled: 02/25/04 15:20         Received: 02/27/04 13:25         "         "           ND         25.0 mg/kg dry         1         4030063         03/02/04           ND         50.0 "         "         "         "           Sampled: 02/25/04 15:30         Received: 02/27/04 13:25         "         "           ND         25.0 mg/kg dry         1         4030063         03/02/04           ND         50.150         "         "         "           Sampled: 02/25/04 15:40         Received: 02/27/04 13:25         "         "           ND         50.0 "         " <t< td=""><td>Result         MDL         Limit         Units         Dilution         Batch         Prepared         Analyzed           Sampled: 02/25/04 14:30         Received: 02/27/04 13:25         3.30063         03/02/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/02/04         03/02/04         03/02/04         03/02/04         03/02/04         03/02/04         03/03/04</td><td>  Result   MDL   Limit   Units   Dilution   Batch   Prepared   Analyzed   Method    </td></t<>	Result         MDL         Limit         Units         Dilution         Batch         Prepared         Analyzed           Sampled: 02/25/04 14:30         Received: 02/27/04 13:25         3.30063         03/02/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/03/04         03/02/04         03/02/04         03/02/04         03/02/04         03/02/04         03/02/04         03/03/04	Result   MDL   Limit   Units   Dilution   Batch   Prepared   Analyzed   Method

North Creek Analytical - Portland

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Project: BNSF-Wishram

Anchorage

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		Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-29-5 (P4B0846-09) Soil	Sampled: 02/25/04 16	20 Receiv	ed: 02/27/04	13:25					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND	25.0 50.0	mg/kg dry	1 "	4030063	03/02/04	03/02/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	94.2 %	50-	150	<del>-</del>	"	"	"	,,	
WSB-04-29-10 (P4B0846-10) So	il Sampled: 02/25/04 1	5:30 Receiv	ved: 02/27/0	4 13:25					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND	25.0 50.0	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	84.1 %	50-			"	"	"	,,	
WSB-04-1-2 (P4B0846-11) Soil	Sampled: 02/26/04 08:1	0 Received	l: 02/27/04 1	3:25					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND	25.0 50.0	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	88.7 %	50-1	150		"	<i>n</i>	"		
WSB-04-1-12 (P4B0846-12) Soil	Sampled: 02/26/04 08:	30 Receive	d: 02/27/04	13:25					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND	25.0 50.0	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	<del></del> -
Surrogate: 1-Chlorooctadecane	81.5 %	50-1	50		"	"	"	"	
WSB-04-2-2 (P4B0846-13) Soil	Sampled: 02/26/04 08:5	Received	: 02/27/04 1	3:25					
Diesel Range Organics Heavy Oil Range Hydrocarbons	ND ND	25.0 50.0	mg/kg dry	1	4030063	03/02/04	03/02/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	85.2 %	50-1	50		"	"	,,	"	
WSB-04-2-12 (P4B0846-14) Soil	Sampled: 02/26/04 09:	0 Receive	d: 02/27/04	13:25					
Diesel Range Organics	ND		mg/kg dry		4030063	03/02/04	03/02/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND	50.0	"	"	"	11	"	nwiph-Dx	
Surrogate: 1-Chlorooctadecane	90.9 %	50-1	50		"	"	"	"	

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Project: BNSF-Wishram

Spokane

Anchorage

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
WSB-04-6-8 (P4B0846-15) Soil	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	11	**	"	**	н	n	
Surrogate: 1-Chlorooctadecane	82.6 %		50-1.	50		"	,,	"	"	
WSB-04-16-GW (P4B0846-17) W	ater Sampled:	02/26/04 1	0:20 Rec	eived: 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	n		11	"	"	"	R-01
Surrogate: 1-Chlorooctadecane	96.2 %		50-13	50		,,	"	"	,,	K-01
WSB-04-12-5 (P4B0846-18) Soil	Sampled: 02/26/	/04 11:40	Received	l: 02/27/04	13:25					
Diesel Range Organics	ND		25.0 1	mg/kg dry	1	4030103	03/03/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	**	н	11	"	"	
Surrogate: 1-Chlorooctadecane	99.4 %		50-15	50		,,	"	,,	<u>"</u>	
WSB-04-12-10 (P4B0846-19) Soil	Sampled: 02/20	5/04 11:50	Receive	d: 02/27/0	4 13:25					
Diesel Range Organics	ND		25.0 г	ng/kg dry	1	4030103	03/03/04	03/04/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	11	"	"	# US/US/US	WAIFH-DX	
Surrogate: 1-Chlorooctadecane	91.6 %		50-15	0		"	"	"	"	
WSB-04-27-10 (P4B0846-20) Soil	Sampled: 02/26	5/04 13:20	Receive	d: 02/27/04	13:25					
Diesel Range Organics	ND		25.0 n	ng/kg dry	1	4030103	03/03/04	03/03/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	"	**	"	#	11	"	
Surrogate: 1-Chlorooctadecane	88.5 %		50-15	0		"	"	,,	"	

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Project: BNSF-Wishram

Spokane

Bend

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

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

Analyte	Result MD	Reportin L Limi		Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/25/04 14	1:40 Receiv	red: 02/27/04	13:25		-			
Silver	ND	0.37	3 mg/kg dry	1	4030219	03/05/04	03/07/04	EPA 6020	
Arsenic	1.72	0.37		"	"	"	03/07/04	EPA 0020	
Barium	89.7	0.37	3 "	**	н	11	"		
Cadmium	ND	0.37	3 "	**	**	H	**	**	
Chromium	11.1	0.373	3 "	"	11			,,	
Mercury	ND	0.0714	4 "	**	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	3.80	0.373	3 "		4030219	03/01/04	03/01/04	EPA 6020	
Selenium	ND	0.373	3 "		"	"	03/0//04	EPA 6020	
WSB-04-33-10 (P4B0846-05) Soil	Sampled: 02/25/04 1	5:30 Recei	ved: 02/27/0	4 13:25					
Silver	ND		mg/kg dry	1	4030219	03/05/04	03/07/04	FD4 (000	
Arsenic	1.85	0.345		,	1030219	11	03/07/04	EPA 6020	
Barium	92.8	0.345			**	,,	"		
Cadmium	ND	0.345	, "	**	11	"	"	"	
Chromium	11.7	0.345		**	11	н		"	
Mercury	ND	0.0676			4030035	03/01/04	03/01/04		
Lead	4.21	0.345		"	4030219	03/01/04	160	EPA 7471A	
Selenium	ND	0.345	**	**	"	"	03/07/04	EPA 6020	
WSB-04-30-5 (P4B0846-06) Soil	Sampled: 02/25/04 15	:40 Receive	ed: 02/27/04	13:25					
Silver	ND	0.500	mg/kg dry	1	4030308	03/08/04	03/09/04	EPA 6020	
Arsenic	1.16	0.500		**	"	11	U3/U3/U4	EFA 0020	
Barium	79.1	0.500	11	**		**		#	
Cadmium	ND	0.500	11	н	**	,,	10		
Chromium	8.44	0.500	**	"	**	н	**		
Mercury	ND	0.0806	11		4030035	03/01/04	03/01/04	EPA 7471A	
Lead	3.13	0.500	11		4030308	03/01/04	03/01/04		
Selenium	ND	0.500	11	"	"	"	"	EPA 6020 "	

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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 North Creek Analytical - Portland

Analyte	Result	MDL R	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02/2	5/04 15:50	Receive	d: 02/27/0	4 13:25					
Silver	ND		0.394 1	ng/kg dry	1	4030308	03/08/04	03/09/04	EPA 6020	
Arsenic	1.89		0.394	11	11	**	11	"	"	
Barium	98.6		0.394	o o	11	11	n	11	"	
Cadmium	ND		0.394	**	**	17	**	"	**	
Chromium	12.0		0.394	**	**	**	11	**	**	
Mercury	ND		0.0625	11	**	4030035	03/01/04	03/01/04	EPA 7471A	
Lead	5.72		0.394	11	••	4030308	03/08/04	03/01/04	EPA 6020	
Selenium	ND		0.394	11		"	11	11	LI A 0020	

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Project: BNSF-Wishram

Spokane

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

## TCLP Metals per EPA 1311/6000/7000 Series Methods North Creek Analytical - Portland

								<del></del>	
Analyte	Result M	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/25/04	14:40 Received	1: 02/27/0	04 13:25					
Barium	0.579	0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1211/6020	
Chromium	ND	0.0500	11	"	11	U3/11/U4 II	U3/11/U4 "	1311/6020	
Lead	ND	0.0500	n	"	11		**	"	
WSB-04-33-10 (P4B0846-05) Soil	Sampled: 02/25/0	4 15:30 Receive	ed: 02/27	/04 13:25					
Barium	0.758	0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1311/6020	
Chromium	ND	0.0500	11	"	"	"	"	1311/0020	
Lead	ND	0.0500	11	n	**	**	"		
WSB-04-30-5 (P4B0846-06) Soil	Sampled: 02/25/04	15:40 Received	l: 02/27/0	4 13:25					
Barium	0.815	0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1311/6020	
Chromium	ND	0.0500	11	"	"	11	03/11/0 <del>4</del>	1311/6020	
Lead	ND	0.0500	11	**	**	n	**	"	
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02/25/04	15:50 Receive	d: 02/27/	04 13:25					
Barium	0.734	0.0500	mg/l	0.5	4030450	03/11/04	03/11/04	1311/6020	
Chromium	ND	0.0500	"	"	"	"	03/11/04	1311/6020	
Lead	ND	0.0500	"	н	"	11	11	11	

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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

Anchorage

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

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

		Reporting	<u>-</u>						
Analyte	Result MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/25/04 14:40	Received	1: 02/27/04	13:25					
Hexavalent Chromium	ND	10.0 1	ng/kg dry	10	4030286	03/08/04	03/08/04	EPA 3060A	<del></del>
WSB-04-33-10 (P4B0846-05) Soil	Sampled: 02/25/04 15:3	0 Receive	d: 02/27/0	4 13:25				2171 300071	
Hexavalent Chromium	ND	10.0 1	ng/kg dry	10	4030286	03/08/04	03/08/04	EPA 3060A	
WSB-04-30-5 (P4B0846-06) Soil	Sampled: 02/25/04 15:40	Received	: 02/27/04	13:25			05/00/04	LI A JOUA	
Hexavalent Chromium	ND		ng/kg dry	10	4030286	03/08/04	03/08/04	EPA 3060A	
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02/25/04 15:5	0 Receive	d: 02/27/0	4 13:25			03/00/04	LI A JUUUA	
Hexavalent Chromium	ND		ng/kg dry	10	4030286	03/08/04	03/08/04	EPA 3060A	

North Creek Analytical - Portland

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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

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/2	5/04 14:40	Received	: 02/27/04	13:25					
Aroclor 1016	ND	-	67.0 ı	ıg/kg dry	1	4030010	03/01/04	03/04/04	EPA 8082	
Aroclor 1221	ND		134	11	,,	"	#	11	EFA 6062	
Aroclor 1232	ND		67.0	**	n	H	11	**	,,	
Aroclor 1242	ND		67.0	**	n	**	**		,,	
Aroclor 1248	ND		67.0	11			,,	,,		
Aroclor 1254	ND		67.0	11	**	**			**	
Aroclor 1260	ND		67.0	н	"	11	**		"	
Surrogate: 2,4,5,6-Tetrachloro-m-x	120 %		36-14	0		"			,ii	
Surrogate: Decachlorobiphenyl	78.2 %		16-14	-		,,	,,	,,	,	

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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
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/2	25/04 14:40	Receive	d: 02/27/0	13:25					
Acetone	ND	144	2500	ug/kg dry	1	4021108	02/27/04	03/01/04	EPA 8260B	Ū
Benzene	ND	4.44	100	"	"	"	"	03/01/04	"	U
Bromobenzene	ND	12.2	100	11		#	"	**	11	U
Bromochloromethane	ND	16.4	100	11	н		n		11	U
Bromodichloromethane	ND	10.2	100	**	**	11	н	**	n	บ
Bromoform	ND	15.8	100	Ħ	**	"	**	11	n	U
Bromomethane	ND	5.09	500	**		**	**	"	н	U
2-Butanone	ND	148	1000	**	**	.,		**	u	U
n-Butylbenzene	ND	11.3	500	II .	"	19	**	11	"	U
sec-Butylbenzene	ND	7.45	100	11	19	**	.,	"		U
tert-Butylbenzene	ND	15.2	100	0	"	"	**	**	**	U
Carbon disulfide	ND	7.19	1000	11	11		11	**	"	U
Carbon tetrachloride	ND	7.64	100	"	**	"	11	n	**	
Chlorobenzene	ND	8.09	100	**	11	11	**	"	**	U
Chloroethane	ND	10.7	100	11	*		11	**	•	U
Chloroform	ND	7.26	100	н		**	**	n	**	U
Chloromethane	ND	6.72	500	11	11	"	"	11		Ü
2-Chlorotoluene	ND	11.0	100		**	"	11	**		U
4-Chlorotoluene	ND	10.4	100	н	"	**	**	"		U
1,2-Dibromo-3-chloropropane	ND	26.0	500	**		**	,,	н		U
Dibromochloromethane	ND	11.2	100	**	**					U
1,2-Dibromoethane	ND	11.6	100	11		11	**	,,	"	U
Dibromomethane	ND	14.7	100	**						U
1,2-Dichlorobenzene	ND	14.4	100	н	н	"		"		Ŭ
1,3-Dichlorobenzene	ND	5.86	100	11	,,	**	**	,,	**	Ü
1,4-Dichlorobenzene	ND	14.9	100	**	"	11	"	"	**	U
Dichlorodifluoromethane	ND	11.8	500	11	11		"	"	"	U
1,1-Dichloroethane	ND	11.9	100		**	**	**	,,		U
1,2-Dichloroethane	ND	11.2	100	11	11	,,	"		"	U
1,1-Dichloroethene	ND	11.9	100	11	**		"	"		U
cis-1,2-Dichloroethene	ND	12.6	100		,,	**	**	"	н	U
trans-1,2-Dichloroethene	ND	8.97	100	10			"	"	••	U
1,2-Dichloropropane	ND	7.45	100	81	17		,,		19	U
1,3-Dichloropropane	ND	17.4	100	11	.,	"	"	**	19	U
2,2-Dichloropropane	ND	8.09	100	"		"			**	U
1,1-Dichloropropene	ND	10.9		tt .	11	"	**	"	•	U
cis-1,3-Dichloropropene	ND	4.95	100 100	 H	Ħ	"	"	11	**	U U

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

Project: BNSF-Wishram

**Anchorage** 

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	Receive	d: 02/27/04	13:25			<u>-</u>		
trans-1,3-Dichloropropene	ND	8.29	100	ug/kg dry	1	4021108	02/27/04	03/01/04	EPA 8260B	
Ethylbenzene	ND	9.40	100	"	11	"	11	"	EFA 6200B	บ บ
Hexachlorobutadiene	ND	69.4	200	11	**	**	11	**	"	U
2-Hexanone	ND	57.2	1000	11	11	"	**	,,	**	U U
Isopropylbenzene	ND	9.55	200	11	**	11	"	11		U
p-Isopropyltoluene	ND	9.68	200	11	"	**	**	**	"	
4-Methyl-2-pentanone	ND	117	500	**	**	"	**	**	#	U
Methyl tert-butyl ether	ND	11.9	100	11	**	"	"		**	U
Methylene chloride	ND	250	500	**	11	**	**	11	ıi.	U
Naphthalene	ND	14.1	200	11			**	**	,,	U
n-Propylbenzene	ND	9.89	100	H	**		**			U
Styrene	ND	8.89	100	**		**		н	**	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	н	**		11	"	**	U
1,1,2,2-Tetrachloroethane	ND	21.1	100	ii	**	**	"	"	"	U
Tetrachloroethene	ND	16.9	100	**	11	"	"		"	U
Toluene	11.8	6.29	100		**	11	"	"	"	U
1,2,3-Trichlorobenzene	ND	16.9	100	11	**	**	"	,,	"	J
1,2,4-Trichlorobenzene	ND	21.4	100	U	,,	**	"			U
1,1,1-Trichloroethane	ND	6.13	100	**	н	"	"	"		U
1,1,2-Trichloroethane	ND	18.1	100	н	"	**	**	 *	Ħ	U
Trichloroethene	ND	12.0	100	11			"	"	tı	U
Trichlorofluoromethane	ND	8.97	100	0	11	**	"	"	**	U
1,2,3-Trichloropropane	ND	49.2	100	**		,,	"	"		U
1,2,4-Trimethylbenzene	ND	6.75	100	11	**			"	•	U
1,3,5-Trimethylbenzene	ND	9.33	100	11	**	11	"		**	U
Vinyl chloride	ND	5.74	100	0		,,	"	n	**	U
o-Xylene	ND	11.6	100	**		,,	"	"	"	U
m,p-Xylene	ND	11.4	200	11	,,	"	**	"	**	U
Surrogate: 4-BFB		11.4			<del></del>		· -	**		U
Surrogate: 4-BrB Surrogate: 1,2-DCA-d4	86.7%		42.6-1.			"	"	"	"	
Surrogate: Dibromofluoromethane	104 %		57.3-1			"	"	"	"	
Surrogate: Dioromojitioromethane Surrogate: Toluene-d8	97.2 %		45.5-1.			"	"	"	"	
our ozate: Totuene-as	103 %		42.1-1	14		"	"	"	"	

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Project: BNSF-Wishram

Anchorage

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	R MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-33-10 (P4B0846-05) Soil	Sampled: 02	2/25/04 15:30	Receiv	ed: 02/27/0	04 13:25			·		
Acetone	ND	144	2500	ug/kg dry	1	4021108	02/27/04	02/28/04	EPA 8260B	
Benzene	ND	4.44	100	#		"	11	11/20/04	EPA 8200B	U
Bromobenzene	ND	12.2	100	н	11		11	**	н	U
Bromochloromethane	ND	16.4	100	II .	n	11	11	"		U
Bromodichloromethane	ND	10.2	100	**	11	n	**	17		U
Bromoform	ND	15.8	100	11	"		"	Ħ	"	U
Bromomethane	ND	5.09	500	11	11		"	**		U
2-Butanone	ND	148	1000	H	**	17		11	"	U
n-Butylbenzene	ND	11.3	500	н	11	**	**		"	U
sec-Butylbenzene	ND	7.45	100	**		.,	**	11	**	U
tert-Butylbenzene	ND	15.2	100	11	**	"		**	"	U
Carbon disulfide	ND	7.19	1000	II.	11	11	н	 H		U
Carbon tetrachloride	ND	7.64	100	"	11	#	**			U
Chlorobenzene	ND	8.09	100	"		n	"	,,	**	U
Chloroethane	ND	10.7	100	11	11	11	"	"		U
Chloroform	ND	7.26	100	**	**		"	**	**	U
Chloromethane	ND	6.72	500	H.	,,	**	"	,		U
2-Chlorotoluene	ND	11.0	100	11			"		"	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	11	"	" II	"	11	"	U
1,2-Dichlorobenzene	ND	14.7	100	11	"	.,	"	**	**	U
1,3-Dichlorobenzene	ND	5.86	100	**	"	"		"	"	U
1,4-Dichlorobenzene	ND	14.9	100	**	"	**	"	H	"	U
Dichlorodifluoromethane	ND	11.8	500	11	**	,,		"	Ħ	Ū
1,1-Dichloroethane	ND	11.9	100	17	11	"	**	"	"	U
1,2-Dichloroethane	ND	11.2	100	**		"	**	"	**	U
1,1-Dichloroethene	ND	11.9	100	11	,,		11	11	17	U
cis-1,2-Dichloroethene	ND	12.6		0	"	**	"	**	**	U
trans-1,2-Dichloroethene	ND	8.97	100	"	"	"	"	17	**	U
1,2-Dichloropropane	ND	7.45	100	" "	"		11	Ħ	"	U
1,3-Dichloropropane	ND		100	"		"	"	n	"	U
2,2-Dichloropropane	ND ND	17.4 8.09	100	и	"	**	II .	17	H	U
1,1-Dichloropropene	ND ND		100	"	H w	TT .	**	**	**	U
cis-1,3-Dichloropropene	ND ND	10,9 4.95	100 100	"	11	"	tr .	"	**	U
N- d C 1 d 1 d 1	140	7.73	100		11	11	11	"	"	U

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

Project: BNSF-Wishram

Spokane

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	R MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-33-10 (P4B0846-05) Soil	Sampled: 02	2/25/04 15:30	Receiv	ed: 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	11	n	"	Ħ	11	"	U
Hexachlorobutadiene	ND	69.4	200	11	**	H	Ħ		**	U
2-Hexanone	ND	57.2	1000	**	**	"	11	**	**	U
Isopropylbenzene	ND	9.55	200	11	**	"	u	**		Ü
p-Isopropyltoluene	ND	9.68	200	Ħ	"	**	**		**	Ü
4-Methyl-2-pentanone	ND	117	500	**	"	**	"		**	U
Methyl tert-butyl ether	ND	11.9	100	11	**	14		Ħ	11	U
Methylene chloride	ND	250	500	11	"	"	**	"	**	U
Naphthalene	ND	14.1	200	**	"	11	**	"	**	Ū
n-Propylbenzene	ND	9.89	100	#	11	"		u		U
Styrene	ND	8.89	100	*	n		"	**	**	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	11		11		"	**	
1,1,2,2-Tetrachloroethane	ND	21.1	100	11	•	**	n	"	11	U
Tetrachloroethene	ND	16.9	100	D.	**	**		11	**	บ บ
Toluene	ND	6.29	100	**		и	**	**	"	
1,2,3-Trichlorobenzene	ND	16.9	100	**	11	**	**	**	**	U
1,2,4-Trichlorobenzene	ND	21.4	100	11	11	**	**	"	**	U
1,1,1-Trichloroethane	ND	6.13	100	11	**	**		н		U
1,1,2-Trichloroethane	ND	18.1	100	0	**	n	н			U
Trichloroethene	ND	12.0	100	*1	"		"	**	"	U
Trichlorofluoromethane	ND	8.97	100	11	"	**	11	**	**	U
1,2,3-Trichloropropane	ND	49.2	100	11	**	11	"	"		U
1,2,4-Trimethylbenzene	ND	6.75	100	11	n		11	11		U
1,3,5-Trimethylbenzene	ND	9.33	100	**	"	"	u .			Ü
Vinyl chloride	ND	5.74	100	**		"	"	**	11	U
o-Xylene	ND	11.6	100	**	**	11	**		**	U
m,p-Xylene	ND	11.4	200	11	**	**	**	"	"	U
Surrogate: 4-BFB	100 %		42.6-1.	30		"	"	"	<b>"</b>	U
Surrogate: 1,2-DCA-d4	124 %		57.3-14	-		"	,,	,,		
Surrogate: Dibromofluoromethane	108 %		45.5-13			,,	,,	,,	 "	
Surrogate: Toluene-d8	115 %		42.1-14			,,	"	"	n n	

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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	R MDL	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02	2/25/04 15:50	Receiv	ed: 02/27/0	04 13:25			<u>-</u>		
Acetone	ND	144	2500	ug/kg dry	1	4021108	02/27/04	02/28/04	EPA 8260B	
Benzene	ND	4.44	100	H	"	"	11	11	EFA 8200B	U
Bromobenzene	ND	12.2	100	11	n	**	**		,,	U
Bromochloromethane	ND	16.4	100	**	"	11	n	**	,,	U
Bromodichloromethane	ND	10.2	100	11	11		11	11	**	U
Bromoform	ND	15.8	100	11	"	**	**	"		U
Bromomethane	ND	5.09	500	н		**	**	11		U
2-Butanone	ND	148	1000	**		"	**	**		U
n-Butylbenzene	ND	11.3	500	11	**	"	**		"	U
sec-Butylbenzene	ND	7.45	100	11	**	.,	••		,,	U
tert-Butylbenzene	ND	15.2	100	Ħ	,,	11	**	 Ir	"	U
Carbon disulfide	ND	7.19	1000	11	"	,,	,,	"	"	U
Carbon tetrachloride	ND	7.64	100	н	17			"		U
Chlorobenzene	ND	8.09	100	"	,,		" "	"	11	U
Chloroethane	ND	10.7	100	**		,	11		**	U
Chloroform	ND	7.26	100	**		"	"	"	**	U
Chloromethane	ND	6.72	500	11		"	"	**	"	U
2-Chlorotoluene	ND	11.0	100	11	*		"		II .	U
I-Chlorotoluene	ND	10.4	100		**	"	"	"	"	Ū
,2-Dibromo-3-chloropropane	ND	26.0	500	H.	**				11	U
Dibromochloromethane	ND	11.2	100	n		"	"	"	**	U
,2-Dibromoethane	ND	11.6	100	**		,,	"	"	"	U
Dibromomethane	ND	14.7	100	**	"			"	*	U
,2-Dichlorobenzene	ND	14.7	100		"	"	**	11	•	U
,3-Dichlorobenzene	ND	5.86	100	"	**		n	**	••	U
.4-Dichlorobenzene	ND	14.9	100	0	**	"	n	17	II .	U
Dichlorodifluoromethane	ND	11.8	500	**	,,	**	"	**	**	U
,1-Dichloroethane	ND	11.8		,,			"	**	**	U
,2-Dichloroethane	ND	11.9	100	"	"	**	**	11	H	U
,1-Dichloroethene	ND	11.2	100		"	11	FF	11	11	U
is-1,2-Dichloroethene	ND		100	"		"	**	H	11	U
rans-1,2-Dichloroethene	ND	12.6	100		**	"	**	••	"	U
,2-Dichloropropane		8.97	100	17 17	**	"	"	**	"	U
,3-Dichloropropane	ND ND	7.45	100	"	11	"	"	**	п	U
2-Dichloropropane	ND ND	17.4	100	"	"	"	ч	"	•	U
1-Dichloropropene		8.09	100		11	"	"	17	11	U
s-1,3-Dichloropropene	ND ND	10.9	100	17		**	**	11	**	U
,- Diomoropropene	ND	4.95	100	**	"	n	**	**	19	U

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Kennedy/Jenks Consultants-FW 32001 32nd Ave South Suite 100

Project: BNSF-Wishram Project Number: 036026.00

Reported: 08/19/04 07:51

Federal Way, WA 98003

Project Manager: Galen Davis

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

Analyte	Result	MDL R	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02	2/25/04 15:50	Receiv	ed: 02/27/(	4 13:25					
trans-1,3-Dichloropropene	ND	8.29	100	ug/kg dry	1	4021108	02/27/04	02/28/04	EPA 8260B	
Ethylbenzene	ND	9.40	100	11	11	"	"	"	EFA 8200B	U
Hexachlorobutadiene	ND	69.4	200	11	**	**	.,	11	**	U
2-Hexanone	ND	57.2	1000	n		"	**	11	н	U
Isopropylbenzene	ND	9.55	200	11	**	•	"	**		U
p-Isopropyltoluene	ND	9.68	200	It	**	**		**	**	U
4-Methyl-2-pentanone	ND	117	500	11	"	**		п	**	U
Methyl tert-butyl ether	ND	11.9	100	tr		**	10	"		ប
Methylene chloride	ND	250	500	11	н		**	"	"	U
Naphthalene	ND	14.1	200	**	11	**		11	"	U
n-Propylbenzene	ND	9.89	100	H	**	"		" "	"	U
Styrene	ND	8.89	100	11	•		"	"	"	U
1,1,1,2-Tetrachloroethane	ND	9.25	100	11	11		11	**	"	U
1,1,2,2-Tetrachloroethane	ND	21.1	100	n	**	"	"	"	"	U
Tetrachloroethene	ND	16.9	100	**	**	**		,,		U
Toluene	ND	6.29	100	**	**	,,	**	"	H	U
1,2,3-Trichlorobenzene	ND	16.9	100	**	"	н	,,	"	**	U
1,2,4-Trichlorobenzene	ND	21.4	100	11	**		"		#	U
1,1,1-Trichloroethane	ND	6.13	100	11	,,		,,	"	**	U
1,1,2-Trichloroethane	ND	18.1	100	"	**		"		**	U
Trichloroethene	ND	12.0	100	н		,,	"	**	**	U
Trichlorofluoromethane	ND	8.97	100	**		"	"	**	"	U
1,2,3-Trichloropropane	ND	49.2	100		,,	"	,,	"		U
1,2,4-Trimethylbenzene	ND	6.75	100	11	**	"	n	11	49	Ū
1,3,5-Trimethylbenzene	ND	9.33	100			"		"	•	U
Vinyl chloride	ND	5.74	100	**	"	"	"	"	"	U
o-Xylene	ND	11.6	100	**	"	"	"	н	**	U
m,p-Xylene	ND	11.4	200	**	"		"	"	"	U
<del></del>		11.4				**		**	n	U
Surrogate: 4-BFB	99.2 %		42.6-1.			"	"	"	"	
Surrogate: 1,2-DCA-d4	124 %		57.3-14			n	"	"	"	
Surrogate: Dibromofluoromethane	109 %		45.5-1.	-		"	"	"	n	
Surrogate: Toluene-d8	119%		42.1-14	14		"	"	,,	,,	

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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
WSB-04-2-12 (P4B0846-14) Soil	Sampled: 02/2	.6/04 09:10	Receive	d: 02/27/04	13:25			<del></del>		
Benzene	ND	4.44		ug/kg dry	1	4030050	03/01/04	03/02/04	FDA 8260D	
Toluene	ND	6.29	50.0	" " " " " " " " " " " " " " " " " " " "		"	U3/U1/U4	03/02/04	EPA 8260B	U
Ethylbenzene	ND	9.40	50.0	***			11		**	U
Xylenes (total)	ND	26.2	100	H	**		"	**		U U
Surrogate: 4-BFB	89.3 %		42.6-	130				,,		
Surrogate: 1,2-DCA-d4	101 %		<i>57.3-</i>			,,	,,	,,	,,	
Surrogate: Dibromofluoromethane	93.5 %		45.5-	•		,,	,,	"	"	
Surrogate: Toluene-d8	104 %		42.1-			"	"	,,	"	
WSB-04-12-5 (P4B0846-18) Soil	Sampled: 02/2	6/04 11:40	Receive	d: 02/27/04	13:25					
Benzene	ND	4.44		ug/kg dry		4020050	00 (04 10 1			
Toluene	ND	6.29	50.0	ug/kg ury	1	4030050	03/01/04	03/02/04	EPA 8260B	U
Ethylbenzene	ND	9.40	50.0	If	н		"	"	17	U
Xylenes (total)	ND	26.2	100				,,	"	"	U
Surrogate: 4-BFB	79.3 %		42.6-1	120		,,		<del></del> .	<del></del>	<u>U</u>
Surrogate: 1,2-DCA-d4	90.1 %		57.3-1	••			"	"	"	
Surrogate: Dibromofluoromethane	79.3 %		45.5-1	• •		"	"	"	"	
Surrogate: Toluene-d8	91.9%		42.1-1			"	,,	"	"	
WSB-04-12-10 (P4B0846-19) Soil	Sampled: 02/2	26/04 11:50			12.25		.,	"	n	
Benzene	ND	4.44						<del></del>		<u> </u>
Toluene	12.0	6.29	50.0	ug/kg dry		4030050	03/01/04	03/02/04	EPA 8260B	U
Ethylbenzene	ND	9.40	50.0	"	"	"	**	u	**	J
Xylenes (total)	ND	26.2	100	"	"	"	11	11	**	U
Surrogate: 4-BFB		20.2					"	11	ti	U
Surrogate: 1,2-DCA-d4	94.5 %		42.6-1.	-		n	n	"	"	
Surrogate: Dibromofluoromethane	107 %		57.3-1	• •		"	"	"	"	
Surrogate: Dibromofilioromethane Surrogate: Toluene-d8	102 % 109 %		45.5-1.	-		"	"	"	"	
-G semene no	107 /0		42.1-1	44		"	**	"	"	

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

Project: BNSF-Wishram

Anchorage

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
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/2	5/04 14:40	Received	l: 02/27/0 <sup>4</sup>	13:25	· · · · · ·				
Acenaphthene	ND		13.4	ug/kg dry	1	4030203	03/05/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	**			n	"	"	
Anthracene	ND		13.4	11	**	**	"	**		
Benzo (a) anthracene	ND		13.4	**	11	**	**		**	
Benzo (a) pyrene	ND		13.4	11	"	**		11		
Benzo (b) fluoranthene	ND		13.4	**	"	"	**		**	
Benzo (ghi) perylene	ND		13.4	11	"	"	"		**	
Benzo (k) fluoranthene	ND		13.4	H	**	11	**	11		
Chrysene	ND		13.4	**	"		**		**	
Dibenzo (a,h) anthracene	ND		13.4	**	**	**	"	11	"	
Fluoranthene	ND		13.4	**	"	"	**	**	**	
Fluorene	ND		13.4		**	19		**		
Indeno (1,2,3-cd) pyrene	ND		13.4	11		"	"	"	**	
Naphthalene	ND		13.4	n	41	**		**	**	
Phenanthrene	ND		13.4	**	**	**	**	**		
Pyrene	ND		13.4	11	**	11	**	•	11	
Surrogate: Fluorene-d10	84.7%		40-15	0	<u>-</u>	"	"	"	"	
Surrogate: Pyrene-d10	90.9 %		40-15	0		"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	99.9 %		40-15	0		,,	"	"	"	
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02/2	5/04 15:50	Received	1: 02/27/0	4 13:25					
Acenaphthene	ND		13.4 u	g/kg dry	1	4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	ti	"	**	**	11	"	
Anthracene	ND		13.4	H		11	н	**	u	
Benzo (a) anthracene	ND		13.4	11	н	**		u	**	
Benzo (a) pyrene	ND		13.4	11	11	17	**	**	**	
Benzo (b) fluoranthene	ND		13.4	**			"	n	u	
Benzo (ghi) perylene	ND		13.4	0	**	н	"	11	**	
Benzo (k) fluoranthene	ND		13.4	**	n	**	**	11	н	
Chrysene	ND		13.4	**		н	H	"		
Dibenzo (a,h) anthracene	ND		13.4		**	**	**	**	**	
Fluoranthene	ND		13.4	**	**	**	**	11	**	
Fluorene	ND		13.4	#		"	n	**		
ndeno (1,2,3-cd) pyrene	ND		13.4	**	11	"		"		
Naphthalene	ND		13.4	**	**	**	**	"	,,	
vapinnaiene										
Phenanthrene	ND		13.4	11	11	n	*	**	н	

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Project: BNSF-Wishram

Anchorage

Spokane

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
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02/2	5/04 15:50	Receiv	ed: 02/27/(	04 13:25				<del>.</del>	
Surrogate: Fluorene-d10	87.2 %		40-1	150		4030268	03/08/04	03/10/04	EPA 8270m	
Surrogate: Pyrene-d10	93.2 %		40-1	50		"	"	"	EFA 62/UM	
Surrogate: Benzo (a) pyrene-d12	101 %		40-1	50		"	"	"	"	
WSB-04-1-12 (P4B0846-12) Soil	Sampled: 02/26	/04 08:30	Receive	d: 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	11	u	11	11	H	" "	
Anthracene	ND		13.4	u u	"	"	**		**	
Benzo (a) anthracene	ND		13.4	tt .	**	"	"	**		
Benzo (a) pyrene	ND		13.4	11	**	"	"	,,	11	
Benzo (b) fluoranthene	ND		13.4	11	**	**	,,	,,		
Benzo (ghi) perylene	ND		13.4	H	11	**	**	"	**	
Benzo (k) fluoranthene	ND		13.4	**	**		**	"	H .	
Chrysene	ND		13.4	н	**		**	11		
Dibenzo (a,h) anthracene	ND		13.4	"	"	**	"	n		
Fluoranthene	ND		13.4	n	"	11	"		"	
Fluorene	ND		13.4	н		**	11			
Indeno (1,2,3-cd) pyrene	ND		13.4	**	н	11			"	
Naphthalene	ND		13.4	11	"		17	"		
Phenanthrene	ND		13.4	**	•	**		.,	**	
Pyrene	ND		13.4	11	**		**	11	"	
Surrogate: Fluorene-d10	80.9 %		40-15	50		,,	"	,,		
Surrogate: Pyrene-d10	85.8 %		40-1			,,	,,	,,	"	
Surrogate: Benzo (a) pyrene-d12	90.6 %		40-15	-		"	"	,,	"	

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Project: BNSF-Wishram

Anchorage

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 N	1DL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-6-8 (P4B0846-15) Soil	Sampled: 02/26/04	09:40	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	"	11	"	"	"	11 11 02 / 0111	
Anthracene	ND		13.4	u u	"	**	**	"	"	
Benzo (a) anthracene	ND		13.4	11	**	"	**	**	11	
Benzo (a) pyrene	ND		13.4	Ħ	"	**	"	**	**	
Benzo (b) fluoranthene	ND		13.4	**	**	11	**	"		
Benzo (ghi) perylene	ND		13.4	#	**		**	**	11	
Benzo (k) fluoranthene	ND		13.4	11		**	"	**	**	
Chrysene	ND		13.4	**	**	19	11	11	"	
Dibenzo (a,h) anthracene	ND		13.4		**		**	,,	11	
Fluoranthene	ND		13.4	U		**		"	11	
Fluorene	ND		13.4	**	**	**	11	"	"	
Indeno (1,2,3-cd) pyrene	ND		13.4	.00		"	"	**	17	
Naphthalene	ND		13.4	*1	**	**	H	,,	"	
Phenanthrene	ND		13.4	11	11	n	11	,,		
Pyrene	ND		13.4	11	u		**	11	"	
Surrogate: Fluorene-d10	84.6 %	-	40-15	0		"	"	"	"	
Surrogate: Pyrene-d10	91.5 %		40-15	0		"	"	"	,,	
Surrogate: Benzo (a) pyrene-d12	97.4 %		40-15			"	,,	,,	,,	
WSB-04-12-5 (P4B0846-18) Soil	Sampled: 02/26/04	11:40	Received	: 02/27/04	13:25					
Acenaphthene	ND			ıg/kg dry		4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND		13.4	11	n	"	11	"	"	
Anthracene	ND		13.4	11	•	44	**	**	**	
Benzo (a) anthracene	ND		13.4	H	**	**	**	**	**	
Benzo (a) pyrene	ND		13.4	**	**	n		"	u u	
Benzo (b) fluoranthene	ND		13.4	#	"	n .	**		11	
Benzo (ghi) perylene	ND		13.4	II .	*	"	**	**	*	
Benzo (k) fluoranthene	ND		13.4	tt	14	**	н	**	,,	
Chrysene	ND		13.4	**	**	н	*	n		
Dibenzo (a,h) anthracene	ND		13.4	**			н	11	19	
luoranthene	ND		13.4	17			"	11	**	
luorene	ND		13.4		**	**	19	**		
ndeno (1,2,3-cd) pyrene	ND		13.4	11	**	#1		"	"	
Japhthalene	ND		13.4	**	lib	.,	,,	**		
henanthrene	ND		13.4	н	н	"	11		"	
									**	

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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

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

Analyte	Result MDL	Reportin Limi	_	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-12-5 (P4B0846-18) Soil	Sampled: 02/26/04 11:	40 Receiv	ed: 02/27/0	4 13:25	<u>-</u> -				
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		,,	n	"	,,	
WSB-04-12-10 (P4B0846-19) Soil	Sampled: 02/26/04 11	:50 Recei	ved: 02/27/0	04 13:25					
Acenaphthene	ND	13.4	ug/kg dry	1	4030268	03/08/04	03/10/04	EPA 8270m	
Acenaphthylene	ND	13.4			**	0	"	"	
Anthracene	ND	13.4	ļ "	"	"	**	11	**	
Benzo (a) anthracene	26.2	13.4	, "		**	11	**	11	
Benzo (a) pyrene	36.5	13.4	ļ "	19		и	11		
Benzo (b) fluoranthene	46.3	13.4	. "		u	**	17		
Benzo (ghi) perylene	21.8	13.4	. "	**	"		"	**	
Benzo (k) fluoranthene	33.6	13.4	. "	"	"	**	11	"	
Chrysene	39.0	13.4	. "	"	11	"	**	11	
Dibenzo (a,h) anthracene	ND	13.4	н	n		.,	н	"	
Fluoranthene	47.0	13.4	u u		**	11	**	н	
Fluorene	ND	13.4	"	**	"	"	11		
Indeno (1,2,3-cd) pyrene	19.7	13.4	#	**				**	
Naphthalene	ND	13.4	**		11	**	**	,	
Phenanthrene	26.1	13.4	11	**	**	,,	11	"	
Pyrene	47.4	13.4	#	**	"		11	**	
Surrogate: Fluorene-d10	87.8 %	40-	150		"	"	,,	"	
Surrogate: Pyrene-d10	92.5 %	40-			"	"	"	n	
Surrogate: Benzo (a) pyrene-d12	97.4 %	40-			"	,,	"	"	

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Federal Way, WA 98003

Project: BNSF-Wishram

Project Number: 036026.00 Project Manager: Galen Davis

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Reported: 08/19/04 07:51

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

Analyte	Result N	ИDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-31-2 (P4B0846-01) Soil	Sampled: 02/25/04	14:30	Received	: 02/27/04	13:25					
% Solids	91.7			by Weigh	1	4030143	03/03/04	03/04/04	NCA SOP	
WSB-04-31-5 (P4B0846-02) Soil	Sampled: 02/25/04	14:40	Received	: 02/27/04	13:25		05,05,01	03/04/04	NCA SOP	
% Solids	93.3			by Weigh	1	4030143	03/03/04	03/04/04	NCA SOP	
WSB-04-33-2 (P4B0846-03) Soil	Sampled: 02/25/04	13:10			13:25		00.00,01	03/04/04	NCA SUP	
% Solids	92.0			by Weigh	1	4030143	03/03/04	03/04/04	NGA GOD	
WSB-04-33-5 (P4B0846-04) Soil	Sampled: 02/25/04	15:20		-		1050145	03/03/04	03/04/04	NCA SOP	
% Solids	91.5			by Weigh	1	4030143	03/03/04	03/04/04	NGA GOD	
WSB-04-33-10 (P4B0846-05) Soil	Sampled: 02/25/0	4 15:30		_	13:25	1030143	03/03/04	03/04/04	NCA SOP	
% Solids	84.6			by Weigh	1	4030143	03/03/04	03/04/04	NG. con	
WSB-04-30-5 (P4B0846-06) Soil	Sampled: 02/25/04	15:40			-	1030143	03/03/04	03/04/04	NCA SOP	
% Solids	91.4			by Weigh	1	4030143	07/02/04	02/04/04		
WSB-04-30-10 (P4B0846-07) Soil	Sampled: 02/25/04	4 15:50			_	4030143	03/03/04	03/04/04	NCA SOP	
% Solids	82.5			by Weigh		4030143	02/02/04	00/04/0		
WSB-04-29-2 (P4B0846-08) Soil	Sampled: 02/25/04	16:10		_		4030143	03/03/04	03/04/04	NCA SOP	
% Solids	93.9			by Weigh		4030143	03/03/04	02/04/04		
WSB-04-29-5 (P4B0846-09) Soil	Sampled: 02/25/04	16:20				4030143	03/03/04	03/04/04	NCA SOP	
% Solids	93.4			by Weigh		4020142	02/02/04	00.40.440.4		<del></del>
			1.0070	y weigh	1	4030143	03/03/04	03/04/04	NCA SOP	

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Project: BNSF-Wishram

Anchorage

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
WSB-04-29-10 (P4B0846-10) Soil	Sampled: 02/25/	<u>'04</u> 16:3	0 Received	d: 02/27/0	4 13:25					
% Solids	86.8		1.00%	by Weigh	1	4030143	03/03/04	03/04/04	NCA SOP	
WSB-04-1-2 (P4B0846-11) Soil	Sampled: 02/26/04	08:10	Received:	02/27/04 1	13:25					
% Solids	92.3		1.00%	by Weigh	1	4030143	03/03/04	03/04/04	NCA SOP	
WSB-04-1-12 (P4B0846-12) Soil	Sampled: 02/26/0	4 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	
WSB-04-2-2 (P4B0846-13) Soil	Sampled: 02/26/04	08:50	Received:	02/27/04 1	3:25					
% Solids	93.4		1.00%	by Weigh	1	4030143	03/03/04	03/04/04	NCA SOP	
WSB-04-2-12 (P4B0846-14) Soil	Sampled: 02/26/04	4 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	
WSB-04-6-8 (P4B0846-15) Soil	Sampled: 02/26/04	09:40	Received: (	)2/27/04 1	3:25					
% Solids	85.0		1.00%	by Weigh	1	4030143	03/03/04	03/04/04	NCA SOP	
WSB-04-12-5 (P4B0846-18) Soil	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	
WSB-04-12-10 (P4B0846-19) Soil	Sampled: 02/26/0	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	<del></del>
WSB-04-27-10 (P4B0846-20) Soil	Sampled: 02/26/0	13:20	Received	: 02/27/04	13:25					
% Solids	92.3		1.00%1	by Weigh	1	4030143	03/03/04	03/04/04	NCA SOP	

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Project: BNSF-Wishram

**Anchorage** 

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

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

Analyte		Result	R MDL	eporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Nasa
Batch 4030051:	Prepared 03/01/0	4 Using	EPA 5035					701120	Limits	KI D	Lillin	Notes
Blank (4030051-BL)	K1)								-			
Gasoline Range Hydro	carbons	ND		4.00	mg/kg				<del></del>			
Surrogate: a,a,a-TFT		2.39			#	2.50		95.6	50-150			
LCS (4030051-BS1)												
Gasoline Range Hydro	carbons	58.6		4.00	mg/kg	62.5		93.8	70-130			<del></del>
Surrogate: a,a,a-TFT		2.22			"	2.50		88.8	50-150	<del></del> ·,		
Duplicate (4030051-	DUP1)						Source: P	4R0633_6	12			
Gasoline Range Hydro	carbons	ND		4.00 n	ng/kg dry		ND	10000	74	NA	40	·
Surrogate: a,a,a-TFT		2.79			"	3.01		92.7	50-150			<del></del>
<b>Duplicate</b> (4030051-	DUP2)						Source: P	4R0846_0	12			
Gasoline Range Hydro	carbons	ND		4.00 n	ng/kg dry		ND	100010-0		NA	40	
Surrogate: a,a,a-TFT		2.50			"	2.68		93.3	50-150			
Matrix Spike (40300	51-MS1)						Source: P	1R0784_0	13			
Gasoline Range Hydrod	carbons	1250		40.0 n	ng/kg dry	70.6	1210	56.7	65-130	<del>, , , , , , , , , , , , , , , , , , , </del>		Q-99
Surrogate: a,a,a-TFT		2.49			"	2.82		88.3	50-150			<u> </u>

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Project: BNSF-Wishram

**Anchorage** 

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
Batch 4030037: Prepared	1 03/01/04 Usin	g EPA 50	30B		·			Dillita	KID	Lillin	Notes
Blank (4030037-BLK1)									<del></del>		<del></del>
Benzene	ND	0.300	0.500	ug/l	<del></del>						
Toluene	ND	0.300	0.500	"							υ
Ethylbenzene	ND	0.300	0.500	**							υ 
Xylenes (total)	ND	0.600	1.00	**							U
Gasoline Range Hydrocarbons	ND ND	50.0	80.0	**							บ บ
Surrogate: 4-BFB (FID)	39.9			"	50.0		79.8	50-150		<del> </del>	
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	<u> </u>	107	70-130	<del></del>		
Toluene	53.8	0.300	0.500	"	50.0		107	70-130			
Ethylbenzene	52.7	0.300	0.500	**	50.0		105				
Xylenes (total)	150	0.600	1.00		150		100	70-130 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			
<b>Duplicate</b> (4030037-DUP2)						Source: P4					
Gasoline Range Hydrocarbons	203	50.0	80.0	ug/l		140	100704-0	0	36.7	50	
Surrogate: 4-BFB (FID)	48.9			"	50.0		97.8	50-150	30.7		
Matrix Spike (4030037-MS1)					5	Source: P4	R0717_0	1			
Benzene	49.7	0.300	0.500	ug/l	50.0	ND	99.4	70-130			·
Toluene	49.9	0.300	0.500	H	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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Project: BNSF-Wishram

**Anchorage** 

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	Re	sult MDL	Reporting Limit		Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030037: Prepare	ed 03/01/04	Using EPA 5	6030B							Liiiik	Notes
Matrix Spike Dup (4030037	-MSD1)					Source: P	AD0313	01			
Benzene	4	5.8 0.300	0.500	ug/l	50.0	ND	91.6				
Toluene	4	5.9 0.300		g	50.0	ND	91.8	70-130	8.17	20	
Ethylbenzene	4	5.3 0.300		ŧr	50.0	ND	90.6	70-130	8.35	20	
Xylenes (total)	1	0.600		"	150	ND	87.3	70-130 70-130	8.46	20	
Surrogate: 4-BFB (PID)	5	2.1		n	50.0		104	70-130	7.35		
Batch 4030119: Prepare	ed 03/03/04	Using EPA 5	030R				704	70-130			
Blank (4030119-BLK1)								<u> </u>		<del>-</del>	
Benzene		ND 0.300	0.500	ug/l	<del>-</del>				<del></del>		
Toluene	0.3		0.500	ugr							ι
Ethylbenzene		ND 0.300	0.500								
Xylenes (total)		ND 0.600	1.00	"							į
Gasoline Range Hydrocarbons		ND 50.0	80.0								τ
Surrogate: 4-BFB (FID)	44	1.9			50.0		00.0				t
Surrogate: 4-BFB (PID)	53	3.2		n	50.0		89.8	50-150			
CCS (4030119-BS1)					30.0		106	70-130			
Benzene	50	0.300	0.500	ug/l	50.0		100	50.100		<del></del> _	
`oluene	47	.9 0.300	0.500	"	50.0			70-130			
thylbenzene	47		0.500		50.0		95.8 95.8	70-130			
(ylenes (total)	15	0.600	1.00		150		101	70-130			
urrogate: 4-BFB (PID)	49	.9		"	50.0		99.8	70-130 70-130	<del></del>	<del></del>	
CS (4030119-BS2)							~ <b>~</b>	70-130			
asoline Range Hydrocarbons	84	2 50.0	80.0	ug/l	1000		84.2	50-150	<del>-</del>		
urrogate: 4-BFB (FID)	44.	6		"	50.0			50-150			

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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
Batch 4030119: Prepared 03/03	3/04 Usir	ng EPA 50	30B								
Duplicate (4030119-DUP1)						Source: F	AD0766	(1DE1			
Gasoline Range Hydrocarbons	481	50.0	80.0	ug/l		1910	4D0/00-4	IKEI	120		
Surrogate: 4-BFB (FID)	1.00E9			"	50.0	1210		<del></del>	120	50	Q-14
Matrix Chiles (4020110 1801)					30.0		2.00E9	50-150			S-09
Matrix Spike (4030119-MS1)						Source: P	4B0632-	04			
Benzene	48.6	0.300	0.500	ug/l	50.0	ND	97.2	70-130			
Toluene	47.1	0.300	0.500	10	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)					9	Source: P	4R0632 0	14			
Benzene	49.9	0.300	0.500	ug/l	50.0	ND	99.8		2.4		
Toluene	47.9	0.300	0.500	<u></u>	50.0	ND		70-130	2.64	20	
Ethylbenzene	47.9	0.300	0.500		-		95.8	70-130	1.68	20	
Xylenes (total)	152	0.600		**	50.0	ND	95.8	70-130	0.209	20	
	132	0.000	1.00		150	ND	101	70-130	1.31	20	
Surrogate: 4-BFB (PID)	51.0			n	50.0		102	70-130	<del></del>		

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Anchorage

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		Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Notes
Batch 4030003: Prepare	ed 03/01/04 Usi	ng EPA 35	10 Fuels								110103
Blank (4030003-BLK1)											
Diesel Range Organics	ND		0.250	mg/l		<del>-</del>					
Heavy Oil Range Hydrocarbons	ND		0.500	"							
Surrogate: 1-Chlorooctadecane	0.101			"	0.0960	<del></del>	105	50-150			
LCS (4030003-BS1)											
Diesel Range Organics	2.06		0.250	mg/l	2.50		92.4	50.150			
Heavy Oil Range Hydrocarbons	1.51		0.500	"	1.50		82.4 101	50-150 50-150			
Surrogate: 1-Chlorooctadecane	0.104				0.0960						
LCS Dup (4030003-BSD1)					0.0900		108	50-150			
Diesel Range Organics	2.19		0.250								
Heavy Oil Range Hydrocarbons	1.58		0.230	mg/l	2.50		87.6	50-150	6.12	50	
Surrogate: 1-Chlorooctadecane	0.105		0.300		1.50		105	50-150	4.53	50	_ <u>_</u>
				"	0.0960		109	50-150			
Batch 4030063: Prepared	1 03/02/04 Usin	g EPA 355	0 Fuels								
Blank (4030063-BLK1)					<u></u>						
Diesel Range Organics	ND		25.0	mg/kg			<del></del>	-			
Heavy Oil Range Hydrocarbons	ND		50.0	"							
Surrogate: 1-Chlorooctadecane	3.79			,,	4.80	<del> </del>	79.0	50 150	<del></del>		
LCS (4030063-BS1)					7.00		79.0	50-150			
Diesel Range Organics	105		25.0		125	·					
Heavy Oil Range Hydrocarbons	76.7		50.0	mg/kg	125		84.0	50-150			
Surrogate: 1-Chlorooctadecane	4.79		30.0	н	75.0	<del></del>	102	50-150			
Duplicate (4030063-DUP1)	2				4.80		99.8	50-150			
Diesel Range Organics			<del></del>		S	ource: P4	B0846-01	<u></u>			
Heavy Oil Range Hydrocarbons	15.0			g/kg dry		20.9		<del></del>	32.9	50	
	85.4		50.0	"		111			26.1	50	
Surrogate: 1-Chlorooctadecane	4.87			**	5.23		93.1	50-150			

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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

1												
Analyte		Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Notes
Batch 4030063:	Prepared 03/0	2/04 Using	EPA 35	50 Fuels				70000	Dillitta	KI D	Lillin	Notes
Duplicate (403006	3-DUP2)					_	Source: F	4B0846-	03			
Diesel Range Organi	cs	ND		25.01	mg/kg dry		ND			NA	50	<del></del>
Heavy Oil Range Hy	drocarbons	ND		50.0	#		ND			NA	50	
Surrogate: 1-Chloro	octadecane	4.08			,,	5.22		78.2	50-150			
Batch 4030103:	Prepared 03/0	3/04 Using	EPA 35	50 Fuels								
Blank (4030103-B)	LK1)							.,				
Diesel Range Organie	cs	ND		25.0	mg/kg							
Heavy Oil Range Hy	drocarbons	ND		50.0	11							
Surrogate: 1-Chloro	octadecane	4.17			"	4.80		86.9	50-150			
LCS (4030103-BS)	1)											
Diesel Range Organic	cs	121		25.0	mg/kg	125		96.8	50-150			<del></del>
Heavy Oil Range Hy	drocarbons	70.3		50.0	**	75.0		93.7	50-150			
Surrogate: 1-Chloro	octadecane	4.94			"	4.80		103	50-150			
Duplicate (4030103	3-DUP1)						Source: P	4B0749-0	)1			
Diesel Range Organic	es	7290		2500 n	ng/kg dry		9580			27.1	50	
Heavy Oil Range Hy	drocarbons	31300		5000	**		42000			29.2	50	
Surrogate: 1-Chloro	octadecane	ND			"	6.04			50-150			S-01
Duplicate (4030103	B-DUP2)						Source: P	4B0749-0	2			
Diesel Range Organic	es	4180		1250n	ng/kg dry		5380			25.1	50	
Heavy Oil Range Hye	drocarbons	14000		2500	"		17300			21.1	50	
Surrogate: 1-Chlorod	octadecane	ND			11	5.90		· <u>.</u> .	50-150			S-01

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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

1				_								
Analyte	F	Result	MDL	Reporting Limit		Spike Level	Source Result	%REC	%REC	n n n	RPD	
Batch 4030035:	Prepared 03/01/04	Heina	EPA 747			LCVCI	Kesuit	70KEC	Limits	RPD	Limit	Notes
Blank (4030035-B		Carne	EIA 141.									
Mercury	LKI)	ND		0.100								
•	45	ND		0.100	mg/kg							
LCS (4030035-BS												
Mercury		).994		0.100	mg/kg	1.00		99.4	80-120			
<b>Duplicate</b> (403003	5-DUP1)		_				Source: P	4R0773	01			
Mercury	0.0	0825		0.0862	mg/kg dry		0.0708	<del>1D07/3-</del>	01	15.3	40	
Matrix Spike (403	0035-MS1)							470		13.3	40	
Mercury		.930		0.0658	mg/kg dry	0.072	Source: P					
Matrix Spiles (402		.,,,,		0.00561	mg/kg ary	0.872	0.0708	98.5	75-125			
Matrix Spike (403							Source: P	4B0773-	02			
Mercury	:	2.43		0.2291	ng/kg dry	2.29	0.157	99.3	75-125			
Batch 4030219:	Prepared 03/05/04	Using	EPA 3050									
Blank (4030219-BI	LK2)										<del></del>	
Silver		ND		0.500	mg/kg				<del></del>	_		
Arsenic		ND		0.500	#							
Barium		ND		0.500	tı							
Cadmium		ND		0.500								
Chromium		ND		0.500	А н							
Lead		ND		0.500								
Selenium		ND		0.500	**							
LCS (4030219-BS2	)											
Silver		.66		0.500	mg/kg	5.00		112				
Arsenic		1.1		0.500	" " " " " " " " " " " " " " " " " " "	10.0		113	80-120			
Barium	1	0.7		0.500	"	10.0		111	80-120			
Cadmium		0.5		0.500		10.0		107	80-120			
Chromium		1.2		0.500	n			105	80-120			
Lead		0.5		0.500	H	10.0		112	80-120			
Selenium		0.8		0.500	**	10.0 10.0		105	80-120			
				3.500		10.0		108	80-120			

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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	Re	sult MDL	Reporting Limit	S Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Notes
Batch 4030219:	Prepared 03/05/04	Using EPA 30	)50							Lillin	Notes
Duplicate (403021						Source: P	AC0117	01			
Silver	0.08	364	0.350	mg/kg dry		0.0661	40117-	01	26.6	<del></del>	
Arsenic	4	.47	0.350			4.41			26.6	40	
Barium	1	199	0.350			211			1.35	40	
Cadmium	1	ND	0.699			ND			5.85	40	
Chromium	2	3.2	0.350			22.1			NA	40	
Lead	9.	.41	0.350	11		8.23			4.86	40	
Selenium	0.4	05	0.350	**		ND			13.4	40	
Matrix Spike (403			5.550			עא				40	
Silver			· · · · · ·			Source: P	4C0117-0	)1		_	
Arsenic		38		mg/kg dry	6.25	0.0661	117	75-125	. <u></u>		
		5.9	0.500	"	12.5	4.41	99.9	75-125			
Barium		98	0.500		12.5	211	-104	75-125			Q-14
Cadmium	13	3.0	0.500	н	12.5	ND	104	75-125			Q 11
Chromium	34	1.2	0.500	n	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 305	50								
Blank (4030308-BI										-	
Silver	N	D	0.500	mg/kg		<del></del>					
Arsenic	N	D	0.500	" "							
Barium	N	D	0.500								
Cadmium	N		0.500	"							
Chromium	N	-	0.500	и							
Lead	N		0.500	n							
Selenium	N.		0.500	н							

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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	Ro	esult	MDL	eporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030308:	Prepared 03/08/04	Using	EPA 3050								Lillit	140108
LCS (4030308-BS2	)											
Silver		5.90		0.500	mg/kg	5.00		118	80-120	·		
Arsenic	1	11.2		0.500	**	10.0		112	80-120			
Barium	1	11.1		0.500	••	10.0		111	80-120			
Cadmium	1	11.1		0.500	**	10.0		111	80-120			
Chromium	1	1.6		0.500	н	10.0		116	80-120			
Lead	1	1.5		0.500	"	10.0		115	80-120			
Selenium	1	0.6		0.500	11	10.0		106	80-120			
<b>Duplicate</b> (4030308-	-DUP1)						Source: P	4B0866-	04			
Silver		ND		0.439 n	ıg/kg dry		ND			NA	40	_
Arsenic	1	.90		0.439	"		1.79			5.96	40	
Barium	6	7.7		0.439	**		97.0			35.6	40	
Cadmium		ND		0.439	11		ND			NA	40	
Chromium	1	4.4		0.439	11		10.7			29.5	40	
Lead	3	.50		0.439	**		3.04			14.1	40	
Selenium		ND		0.439	"		ND			NA	40	
Matrix Spike (4030)	308-MS1)						Source: P	4B0866-0	)4			
Silver	6	.37		0.500 m	g/kg dry	5.35	ND	119	75-125			
Arsenic	1	3.6		0.500	**	10.7	1.79	110	75-125			
Barium	7	3.6		0.500	**	10.7	97.0	-219	75-125			Q-14
Cadmium	1	2.0		0.500	**	10.7	ND	112	75-125			<b>~</b> · ·
Chromium	2	5.2		0.500	"	10.7	10.7	136	75-125			Q-14
Lead	1	5.6		0.500	11	10.7	3.04	117	75-125			
Selenium	1	1.4		0.500	**	10.7	ND	107	75-125			
Matrix Spike (40303	308-MS2)						Source: P	4B0866-0	6			
Silver	4.	.64		0.407 m	g/kg dry	4.46	0.0399	103	75-125		<del>-                                    </del>	
Arsenic	10	0.6		0.407	н	8.92	3.09	84.2	75-125			
Barium	7:	2.5		0.407	**	8.92	79.1	-74.0	75-125			Q-14
Cadmium	8.	.59		0.407	**	8.92	ND	96.3	75-125			Q-14
Chromium	18	3.1		0.407	•	8.92	12.6	61.7	75-125			Q-14
Lead	13	7.2		0.407	**	8.92	9.16	90.1	75-125			Q-14
Selenium	7.	86		0.407	**	8.92	ND	88.1	75-125			

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Project: BNSF-Wishram

Anchorage

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

			Reporting		C:1.						
Analyte	Result	MDL			Spike	Source		%REC		RPD	
	resuit	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 4030308: Prepared 03/08/04 Using EPA 3050

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Project: BNSF-Wishram

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

### TCLP Metals per EPA 1311/6000/7000 Series Methods - Quality Control North Creek Analytical - Portland

Analyte	Result	Reporting MDL Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030450: P	repared 03/11/04 Using	EPA 1311/3005								
Blank (4030450-BLK	1)									
Barium	ND	0.0500	mg/l			-			<del></del>	-
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		100	75-125			
Lead	5.12	0.100	"	5.00		102	75-125 75-125			
Matrix Spike (403045	0-MS2)				Source: P	4B0846-0	2			
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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Project: BNSF-Wishram

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

#### Hexavalent Chromium per EPA Method 3060A - Quality Control North Creek Analytical - Portland

Analyte	F	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030286: Pr	epared 03/08/04	Using	g EPA 300	60A Cr6				<u> </u>				
Blank (4030286-BLK1)	)											
Hexavalent Chromium		ND		10.0	mg/kg					<del></del>		
LCS (4030286-BS1)												
Hexavalent Chromium		48.0		10.0	mg/kg	50.0		96.0	80-120			
Duplicate (4030286-DU	JP1)						Source: P	4B0014-0	2RE1			
Hexavalent Chromium		54.4		10.0 n	ng/kg dry		58.1		<u></u>	6.58	40	
Duplicate (4030286-DU	JP2)			_			Source: P	4B0014-0	2RE1			
Hexavalent Chromium		54.2		10.0 n	ng/kg dry		58.1		<del></del>	6.95	40	
Matrix Spike (4030286	-MS1)						Source: P	4B0014-0	2RE1			
Hexavalent Chromium		100		10.0 n	ng/kg dry	48.9	58.1	85.7	75-125			

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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 07:51

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

Analyte	Result	MDL	Reporting Limit		Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Notes
Batch 4030010: Prepared 03/0	1/04 Using	EPA 355	0	-					В	Lannt	Notes
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	11							
Aroclor 1260	ND		67.0	**							
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	30.2			"	33.3		90.7	36-140			
Surrogate: Decachlorobiphenyl	29.8			"	33.3		89.5	16-149			
LCS (4030010-BS1)											
Aroclor 1016	315		67.0	ug/kg	333		94.6	57-135	<del></del>		
Aroclor 1260	384		67.0	н	333		115	60-135			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	33.8			"	33.3		102	36-140			
Surrogate: Decachlorobiphenyl	34.2			"	33.3		103	16-149			
Matrix Spike (4030010-MS1)					9	Source: P4	R0569 A	0			
Aroclor 1016	294		67.0 u	g/kg dry	399	ND	73.7	37-145		<del></del>	
Aroclor 1260	320		67.0	"	399	ND	80.2	25-144			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	33.1			"	39.9		83.0	36-140	<del></del>	······································	
Surrogate: Decachlorobiphenyl	29.2			"	39.9		73.2	16-149			
Matrix Spike Dup (4030010-MSD1)					s	ource: P4	R0568_4	R			
Aroclor 1016	321		67.0 ug	/kg dry	399	ND	80.5	37-145	8.78	26	
troclor 1260	322		67.0	"	399	ND	80.7	25-144	0.623		
urrogate: ,4,5,6-Tetrachloro-m-xylene	36.6			"	39.9			36-140	0.023	30	
urrogate: Decachlorobiphenyl	29.0			"	39.9		72.7	16-149			

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

Project: BNSF-Wishram

Anchorage

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			Re	porting		Spike	Source		%REC		RPD	
		Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4021108:	Prepared 02/27/04	Using	EPA 5035									
Blank (4021108-BL	K1)											
Acetone		ND	144	2500	ug/kg							<del></del>
Benzene		ND	4.44	100	11							U
Bromobenzene		ND	12.2	100	**							U
Bromochloromethane		ND	16.4	100	10							U
Bromodichlorometha	ne	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	**							Ü
Chlorobenzene		ND	8.09	100	**							U
Chloroethane		ND	10.7	100	11							U
Chloroform		ND	7.26	100								υ
Chloromethane		ND	6.72	500								Ü
2-Chlorotoluene		ND	11.0	100								Ŭ
4-Chlorotoluene		ND	10.4	100								U
1,2-Dibromo-3-chloro	propane	ND	26.0	500								U
Dibromochloromethan	e	ND	11.2	100	**							U
1,2-Dibromoethane		ND	11.6	100	11							U
Dibromomethane		ND	14.7	100								U
1,2-Dichlorobenzene		ND	14.4	100	**							υ 
1,3-Dichlorobenzene		ND	5.86	100	"							U
1,4-Dichlorobenzene		ND	14.9	100	**							Ü
Dichlorodifluorometha	ne	ND	11.8	500	17							U
1,1-Dichloroethane		ND	11.9	100	n							U
1,2-Dichloroethane		ND	11.2	100	**							U
1,1-Dichloroethene		ND	11.9	100	**							U
cis-1,2-Dichloroethene			12.6	100								U
trans-1,2-Dichloroether	ne		8.97	100	16							U
<del> </del>			100									U

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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 - Quality Control North Creek Analytical - Portland

Analyte		Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Natas
Batch 4021108:	Prepared 02/27/	04 Usir	g EPA 50.					70KEC	Limits	KID	Limit	Notes
Blank (4021108-BI											_	<del></del>
1,2-Dichloropropane		ND	7.45	100	ug/kg							U
1,3-Dichloropropane		ND	17.4	100								บ
2,2-Dichloropropane		ND	8.09	100	**							U
1,1-Dichloropropene		ND	10.9	100	**							U
cis-1,3-Dichloroprop	ene	ND	4.95	100	**							U
trans-1,3-Dichloropr	opene	ND	8.29	100	**							U
Ethylbenzene		ND	9.40	100	**							U
Hexachlorobutadiene		ND	69.4	200	**							
2-Hexanone		ND	57.2	1000	"							U 
lsopropylbenzene		ND	9.55	200	**							U 
p-lsopropyltoluene		ND	9.68	200	**							U 
4-Methyl-2-pentanor	ie	ND	117	500	**							U
Methyl tert-butyl eth	ег	ND	11.9	100								U
Methylene chloride		ND	250	500	**							U
Naphthalene		ND	14.1	200	**							Ŭ 
n-Propylbenzene		ND	9.89	100	**							U
Styrene		ND	8.89	100	**							Ü
1,1,1,2-Tetrachloroet	hane	ND	9.25	100								Ŭ
1,1,2,2-Tetrachloroet	hane	ND	21.1	100								U
Tetrachloroethene		ND	16.9	100	**							U
Toluene		ND	6.29	100	**							U
1,2,3-Trichlorobenzer	ne	ND	16.9	100	**							U
1,2,4-Trichlorobenzer	ie	ND	21.4	100	,,							υ
1,1,1-Trichloroethane		ND	6.13	100								U
1,1,2-Trichloroethane	:	ND	18.1	100								υ
Trichloroethene		ND	12.0	100	**							U
Trichlorofluorometha	ne	ND	8.97	100	**							U
1,2,3-Trichloropropar	ie	ND	49.2	100	**							U
1,2,4-Trimethylbenzer		ND	6.75	100	"							U
1,3,5-Trimethylbenzer		ND	9.33	100	n							U
Vinyl chloride		ND	5.74	100	"							U
o-Xylene		ND	11.6	100	"							U
<b>y</b>		שוו	11.0	100								U

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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 - Quality Control North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC		RPD	
Batch 4021108: Prepared 02/2	27/04 Usin	g EPA 503:		Oiiii	Devel	Result	76REC	Limits	RPD	Limit	Notes
Blank (4021108-BLK1)		9	<u></u>								·
m,p-Xylene	ND	11.4	200	ug/kg			<del></del>				
Surrogate: 4-BFB	1880				2000					<del></del>	
Surrogate: 1,2-DCA-d4	2270			n	2000		94.0	42.6-130			
Surrogate: Dibromofluoromethane	2030			,,	2000		114	57.3-144			
Surrogate: Toluene-d8	2150			"	2000		102	45.5-130			
LCS (4021108-BS1)					2000		108	42.1-144			
Benzene						<u>.</u>					
Chlorobenzene	2010	4.44	100	ug/kg	2000		100	81.9-125			
1,1-Dichloroethene	2030	8.09	100	"	2000		102	79.2-125			
Foluene	1880	11.9	100	**	2000		94.0	66.1-125			
Frichloroethene	2020	6.29	100	"	2000		101	80-125			
	2180	12.0	100		2000		109	76-125			
Surrogate: 4-BFB	1850			"	2000		92.5	42.6-130			
Surrogate: 1,2-DCA-d4	2290			n	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)						'anna D					
Benzene	2720	4.44	100 no	/kg dry	2560	ND					
Chlorobenzene	2700	8.09	100	"	2560			68.5-125			
,1-Dichloroethene	2540	11.9	100		2560	ND		65.9-125			
oluene	2700	6.29	100	"	2560	ND		55.8-125			
richloroethene	2940	12.0	100	ti	2560	ND ND		70.3-125			
urrogate: 4-BFB	2180			"		שא		65.5-125			
urrogate: 1,2-DCA-d4	2620			,,	2560			42.6-130			
urrogate: Dibromofluoromethane	2510			,,	2560			57.3-144			
rrogate: Toluene-d8	2650				2560		98.0	45.5-130			
	2030			"	2560		104	12.1-144			

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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 - Quality Control North Creek Analytical - Portland

Analyte	Result	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4021108: Prepared 02/2	7/04 Using	EPA 503	5								
Matrix Spike Dup (4021108-MSD1	)					Source: P	4B0793-	07			
Benzene	2480	4.44	100 ι	ıg/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 25	
,1-Dichloroethene	2380	11.9	100	n	2560	ND	93.0	55.8-125	6.50		
oluene	2480	6.29	100	н	2560	ND	96.9	70.3-125	8.49	25	
richloroethene	2720	12.0	100	11	2560	ND	106	65.5-125	0.49 7.77	25 25	
urrogate: 4-BFB	2180			"	2560		85.2	42.6-130			
urrogate: 1,2-DCA-d4	2560			,,	2560						
urrogate: Dibromofluoromethane	2400			,,			100	57.3-144			
urrogate: Toluene-d8	2570			"	2560 2560		93.8 100	45.5-130 42.1-144			

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Anchorage

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 - Quality Control

#### North Creek Analytical - Portland

Analyte	Resul	lt MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4030050: Prepared 03/01	/04 U	sing EPA 50						- January	KID	Lillit	Notes
Blank (4030050-BLK1)											
Benzene	NI	9 4.44	50.0	ug/kg					<del></del>		L
Toluene	NE	6.29	50.0	"							ī
Ethylbenzene	NE	9.40	50.0	**							τ
Xylenes (total)	NE	26.2	100	11							Ü
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)							•••	72.7-244			
Benzene	2050	4.44	50.0	ug/kg	2000		102	81.9-125			
Toluene	2060		50.0	и п	2000		102	80-125			
Surrogate: 4-BFB	1990	)			2000		99.5	· · · · · · · · · · · · · · · · · · ·		<del>-</del>	
Surrogate: 1,2-DCA-d4	2420	)		"	2000		99.3 121	42.6-130			
Surrogate: Dibromofluoromethane	2360	1		"	2000		118	<i>57.3-144 45.5-130</i>			
Surrogate: Toluene-d8	2390			n	2000		120	42.1-144			
Matrix Spike (4030050-MS1)						C D					
Benzene	2550	4.44	50.0 11	g/kg dry	2410	Source: P					<del></del>
Toluene	2570		50.0 u	g/kg uly	2410	ND ND	106	68.5-125			
Surrogate: 4-BFB	2240			"		- IND	107	70.3-125		····	·
Surrogate: 1,2-DCA-d4	2530			н	2410		92.9	42.6-130			
Surrogate: Dibromofluoromethane	2500			,,	2410 2410		105	57.3-144			
Surrogate: Toluene-d8	2640			,,	2410		104	45.5-130			
Matrix Spike Dup (4030050-MSD1)							110	42.1-144			
Benzene	2530	4.44	50.0	·/lea_d		Source: P4					
Toluene	2540	6.29	50.0 ևչ 50.0	g/kg dry "	2410 2410	ND		68.5-125	0.787	25	
Surrogate: 4-BFB	2230		30.0	<i>n</i>		ND	105	70.3-125	1.17	25	
Surrogate: 1,2-DCA-d4	2450			"	2410			42.6-130			
Surrogate: Dibromosluoromethane	2500			"	2410			57.3-144			
Surrogate: Toluene-d8	2610			,,	2410			45.5-130			
2	2010			•	2410		108	42.1-144			

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Lisa Domenighini, Project Manager

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Anchorage

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 - Quality Control North Creek Analytical - Portland

Analyte	ı	Result	Re MDL	porting Limit	Units	Spike Level	Source	8/DEC	%REC	222	RPD	
	<del></del>			Limit	Onns	Level	Result	%REC	Limits	RPD	Limit	Notes
	repared 03/05/04	Using	EPA 3550									
Blank (4030203-BLK	(1)											
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) anthracei	ne	ND		13.4	"							
Fluoranthene		ND		13.4	**							
Fluorene		ND		13.4	н							
Indeno (1,2,3-cd) pyrer	ie	ND		13.4	"							
Naphthalene		ND		13.4	**							
Phenanthrene		ND		13.4	**							
Pyrene		ND		13.4	**							
Surrogate: Fluorene-d	0	65.3			"	83.3		78.4	40-150			
Surrogate: Pyrene-d10		66.9			"	83.3		80.3	40-150			
Surrogate: Benzo (a) py	rene-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			
yrene		132		13.4		167		79.0	39-138			
Surrogate: Fluorene-d1	0	70.2			"	83.3		84.3	40-150			
Surrogate: Pyrene-d10		71.0			"	83.3		85.2	40-150			
Surrogate: Benzo (a) py	rene-d12	81.0			"	83.3		97.2	40-150			

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Project: BNSF-Wishram

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

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

Analyte	Denut		eporting		Spike	Source		%REC		RPD	
	Result	MDL	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4030203: Prepared 03/	05/04 Using	EPA 3550									
Matrix Spike (4030203-MS1)						Source: I	P4B0733-0	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-MSD	01)					Source: P	4R0733_0	16			
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			n	112		97.3	40-150			
Batch 4030268: Prepared 03/	NS/N4 Tisina	EPA 3550									
Blank (4030268-BLK1)	out only	, DI 71 3330				<del></del>	<del></del>				<del></del>
DIAIIK (4030208-DL.K.I.)											
Acenaphthene	ND		13.4	ug/kg							
	ND ND		13.4	ug/kg							
Acenaphthene	ND		13.4	-							
Acenaphthene Acenaphthylene	ND ND		13.4 13.4	н							
Acenaphthene Acenaphthylene Anthracene	ND		13.4	"							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene	ND ND ND		13.4 13.4 13.4	11 11							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene	ND ND ND ND		13.4 13.4 13.4 13.4	11 15 15							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene	ND ND ND ND		13.4 13.4 13.4 13.4	11 11 11							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (ghi) perylene	ND ND ND ND ND		13.4 13.4 13.4 13.4 13.4	11 11 11 11							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene	ND ND ND ND ND ND		13.4 13.4 13.4 13.4 13.4 13.4	"" "" "" "" "" "" "" "" "" "" "" "" ""							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene Chrysene	ND ND ND ND ND ND ND ND		13.4 13.4 13.4 13.4 13.4 13.4 13.4	" " " " " " " " " " " " " " " " " " " "							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (a) pyrene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene Chrysene Dibenzo (a,h) anthracene	ND ND ND ND ND ND ND ND ND		13.4 13.4 13.4 13.4 13.4 13.4 13.4 13.4	" " " " " " " " " " " " " " " " " " " "							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene Chrysene Dibenzo (a,h) anthracene Fluoranthene	ND ND ND ND ND ND ND ND ND ND		13.4 13.4 13.4 13.4 13.4 13.4 13.4 13.4	" " " " " " " " " " " " " " " " " " "							
Acenaphthene Acenaphthylene Anthracene Benzo (a) anthracene Benzo (b) fluoranthene Benzo (ghi) perylene Benzo (k) fluoranthene Chrysene Dibenzo (a,h) anthracene Fluoranthene	ND ND ND ND ND ND ND ND ND ND ND ND		13.4 13.4 13.4 13.4 13.4 13.4 13.4 13.4	11 11 11 11 11 11 11 11 11 11 11 11 11							

North Creek Analytical - Portland

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Desa Dom Lisa Domenighini, Project Manager

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Anchorage

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 - Quality Control North Creek Analytical - Portland

Analyte	R	esult	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	DDD	RPD	
Batch 4030268: Prep	pared 03/08/04		EPA 3550		Ollita	Level	Result	70REC	Limits	RPD	Limit	Notes
Blank (4030268-BLK1)												
Pyrene		ND		13.4	ug/kg						<del></del>	<del></del>
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) pyren	e-d12	75.9			"	83.3		91.1	40-150			
LCS (4030268-BS1)									,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Acenaphthene		128		13.4	ug/kg	167		76.6	33-139	<del></del>		
Benzo (a) pyrene		138		13.4	"	167		82.6	45-149			
Pyrene		132		13.4	**	167		79.0	39-138			
Surrogate: Fluorene-d10		56.6			"	83.3	<del></del>	80.0	40-150			
Surrogate: Pyrene-d10	;	71.6			,,	83.3		86.0	40-150			
Surrogate: Benzo (a) pyren	e-d12 7	79.1			"	83.3		95.0	40-150			
Matrix Spike (4030268-N	1S1)						Source: P	4 <b>R</b> 0846.0	7			
Acenaphthene		175		13.4 u	g/kg dry	202	ND	86.6	33-139			
Benzo (a) pyrene		187		13.4	"	202	ND	92.6	45-149			
yrene		184		13.4	"	202	ND	91.1	39-138			
Surrogate: Fluorene-d10	8	9.7	<del></del>		"	101		88.8	40-150	<del></del>		
Surrogate: Pyrene-d10	9	3.8			,,	101		92.9	40-150			
Surrogate: Benzo (a) pyrene	e-d12 9	9.3			,,	101		98.3	40-150			
Matrix Spike Dup (40302	68-MSD1)					,	Source: P4					
Cenaphthene		76	<del></del>	13.4 us	z/kg dry	202	ND	87.1	33-139	0.570	60	
Benzo (a) pyrene	1	82		13.4	#	202	ND	90.1	45-149	2.71	60	
yrene	1	82		13.4	**	202	ND	90.1	39-138	1.09	60	
urrogate: Fluorene-d10	8	8.4			"	101		87.5	40-150			
urrogate: Pyrene-d10	9	3.0			"	101		92.1	40-150			
urrogate: Benzo (a) pyrene	-d12 9.	3.9			"	101		93.0	40-150			

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Project: BNSF-Wishram

Anchorage

Spokane

Bend

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

### 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
Batch 4030143:	Prepared 03/03	04 Using	Dry We	ight								
Duplicate (403014	3-DUP1)						Source: P	4B0793-0	——— )7			
% Solids		77.9		1.00	% by Weight		78.1			0.256	20	
Duplicate (403014	3-DUP2)						Source: P	4B0793-1	2			
% Solids		79.7		1.00	% by Weight		80.0	120173-1	<u> </u>	0.376	20	
Duplicate (403014)	3-DUP3)						Source: P	4C0121-0	)1			
% Solids		77.8	-	1.00	% by Weight		78.0		<del>-</del>	0.257	20	

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Estimated value.

J

Project: BNSF-Wishram

Project Number: 036026.00 Project Manager: Galen Davis

Reported: 08/19/04 07:51

#### **Notes and Definitions**

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.
	The reporting limit for this analyte was raised to compensate for the limited sample quantity available for the analysis

ed to compensate for the limited sample quantity available for the analysis.

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or S-01 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

Sample results reported on a dry weight basis dry

RPD Relative Percent Difference

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#### 19 August 2004

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

The Doment

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

Spokane

Bend

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

Project: BNSF-Wishram

Anchorage

Spokane

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	•	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-7-12 (P4D0312-03) Soil	Sampled: 0	4/05/04 15:00	Receive	ed: 04/08/04	09:15				·	
Benzene	ND	0.00750	0.0500	mg/kg dry	1	4040419	04/12/04	04/16/04	NW-G. 802	
Toluene	ND	0.00750	0.0500			"	#	"	NW-G, 802	Ţ
Ethylbenzene	0.0141	0.00750	0.0500	11	"		,,	**	"	τ
Xylenes (total)	0.0468	0.0300	0.0500		17		,,	,,	"	
Gasoline Range Hydrocarbons	40.5	1.25	2.50		**	11		04/13/04	" H	•
Surrogate: a,a,a-TFT (PID)	54.4 %		70-1	130		,,		04/16/04	*	
Surrogate: a,a,a-TFT (FID)	50.8 %		50-1	50		"	"	04/13/04	n	S-09

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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

### 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
WSB-04-37-7 (P4D0312-01) Soil	Sampled: 04/0	5/04 13:00	Received	: 04/08/04	4 09:15			· ·		
Diesel Range Organics Heavy Oil Range Hydrocarbons	2490 3740		625 n 1250	ng/kg dry	25	4040394	04/12/04	04/13/04	NWTPH-Dx	
Surrogate: 1-Chlorooctadecane	%		50-15	0		"	"	"	n	S-01
WSB-04-38-10 (P4D0312-02) Soil	Sampled: 04	/05/04 12:30	0 Receive	d: 04/08/0	04 09:15					
Diesel Range Organics	ND		25.0 n	ng/kg dry	1	4040456	04/13/04	04/13/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	ND		50.0	**	"	**	n .	"	**	
Surrogate: 1-Chlorooctadecane	101 %		50-15	0		"	"	"	"	
WSB-04-7-12 (P4D0312-03) Soil	Sampled: 04/0	5/04 15:00	Received	: 04/08/04	1 09:15					
Diesel Range Organics	1070		25.0 n	ng/kg dry	1	4040456	04/13/04	04/14/04	NWTPH-Dx	
Heavy Oil Range Hydrocarbons	165		50.0	11	"	**	"	"	n	
Surrogate: 1-Chlorooctadecane	120 %		50-15	0		"	,,	"	"	

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

Project: BNSF-Wishram

Anchorage

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
DRUM SB-5 (P4D0312-04) Soil	Sampled: 04/0	5/04 16:10	Received	04/08/04	4 09:15		-			
Barium Lead	<b>0.363</b> ND		0.00500 0.00500	mg/l	0.05	4040506	04/13/04	04/14/04	1311/6020	A-01, M-02 M-02

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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

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-7-12 (P4D0312-03) Soil	Sampled: 04/05	/04 15:00	Received	: 04/08/0	4 09:15					
Benzo (a) anthracene	ND		13.4 ι	ıg/kg dry	1	4040398	04/12/04	04/20/04	EPA 8270m	
Benzo (a) pyrene	ND		13.4	"	"	**	"	**	"	
Benzo (b) fluoranthene	ND		13.4	11	"	**	H	**	n	
Benzo (k) fluoranthene	ND		13.4	11	"	**	n	н	"	
Chrysene	ND		13.4	**		19	**	**	··	
Dibenzo (a,h) anthracene	ND		13.4	**	**	**	#	"	••	
Indeno (1,2,3-cd) pyrene	ND		13.4	**	н	**	#	n	11	
Surrogate: Pyrene-d10	105 %		40-15	0		"	"	"	"	
Surrogate: Benzo (a) pyrene-d12	84.0 %		40-15	0		"	"	"	•	

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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

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

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WSB-04-37-7 (P4D0312-01) Soil	Sampled: 04/05	/04 13:00	Received	: 04/08/0	4 09:15					
% Solids	90.9		1.00%	by Weigi	h 1	4040536	04/14/04	04/15/04	NCA SOP	
WSB-04-38-10 (P4D0312-02) Soil	Sampled: 04/0	5/04 12:30	D Receive	d: 04/08/	04 09:15					
% Solids	81.3		1.00%	by Weigl	h 1	4040536	04/14/04	04/15/04	NCA SOP	
WSB-04-7-12 (P4D0312-03) Soil	Sampled: 04/05	/04 15:00	Received	: 04/08/0	4 09:15					
% Solids	80.3		1.00%	by Weigl	n 1	4040536	04/14/04	04/15/04	NCA SOP	
DRUM SB-5 (P4D0312-04) Soil	Sampled: 04/05/	04 16:10	Received:	04/08/04	09:15					
% Solids	96.3		1.00%	by Weigh	1	4040536	04/14/04	04/15/04	NCA SOP	

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

Project: BNSF-Wishram

Anchorage

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
		ng EPA 50									
Blank (4040419-BLK1)					. =						
Benzene	ND	0.00750	0.0500	mg/kg							Ţ
Toluene	ND	0.00750	0.0500	11							U
Ethylbenzene	ND	0.00750	0.0500	11							τ
Xylenes (total)	ND	0.0300	0.0500	11							τ
Gasoline Range Hydrocarbons	ND	1.25	2.50								U
Surrogate: a,a,a-TFT (P1D)	1.33			"	1.25		106	70-130			
Surrogate: a,a,a-TFT (F1D)	1.12			,,	1.25		89.6	50-150			
LCS (4040419-BS1)											
Gasoline Range Hydrocarbons	18.5	1.25	2.50	mg/kg	25.0		74.0	50-150			
Surrogate: a,a,a-TFT (P1D)	1.08			n	1.25		86.4	70-130			
Surrogate: a,a,a-TFT (F1D)	0.888			"	1.25		71.0	50-150			
LCS (4040419-BS2)											
Benzene	1.03	0.00750	0.0500	mg/kg	1.25		82.4	65-130			
Toluene	0.975	0.00750	0.0500	H	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			·
Duplicate (4040419-DUP1)						Source: I	4D0362-	01			
Gasoline Range Hydrocarbons	ND	2.50	5.001	ng/kg dry		ND			NA	50	D, U
Surrogate: a,a,a-TFT (FID)	1.89			"	3.35		56.4	50-150			D
Duplicate (4040419-DUP2)						Source: F	4D0362-	03			
Gasoline Range Hydrocarbons	ND	2.50	5.001	ng/kg dry		ND			NA	50	D, U
Surrogate: a,a,a-TFT (FID)	1.91			n	3.38	,	56.5	50-150			D

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Kennedy/Jenks Consultants-FW

Project: BNSF-Wishram

Anchorage

Project Number: 036026.00

Reported: 08/19/04 07:45

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

Project Manager: Galen Davis

## 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
Batch 4040419:	Prepared 04	/12/04 Usi	ng EPA 50	35			-					
Matrix Spike (4040	419-MS1)						Source: F	4D0107-	06			
Benzene		1.32	0.00750	0.0500 n	ng/kg dry	1.54	ND	85.7	65-130			
Toluene		1.23	0.00750	0.0500	11	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-MSI	<b>D1</b> )					Source: P	4D0107-0	)6			
Benzene		1.33	0.00750	0.0500 m	ng/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	11	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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Anchorage 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	DDD	RPD	
<u>-</u>					Ollits	Level	Result	70KEC	Limits	RPD	Limit	Notes
		Using	EPA 355	ou rueis			-					
Blank (4040394-BLk Diesel Range Organics	(1)	NID		25.0		_					·	
Heavy Oil Range Hydr	ocarbons	ND ND		25.0	mg/kg "							
				50.0			<del></del>					
Surrogate: 1-Chlorooc	tadecane	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 Hydr	ocarbons	77.8		50.0	**	75.0		104	50-150			
Surrogate: 1-Chlorooc	tadecane	5.24			"	4.80		109	50-150			
Duplicate (4040394-1	DUP1)						Source: P	4D0273-	27			
Diesel Range Organics		120		25.0r	ng/kg dry		106			12.4	50	
Heavy Oil Range Hydro	ocarbons	146		50.0	11		123			17.1	50	
Surrogate: 1-Chlorooc	tadecane	6.20			n	5.69		109	50-150			
Duplicate (4040394-I	DUP2)						Source: P	4D0273-	28			
Diesel Range Organics		ND	.,	25.0r	ng/kg dry		ND			NA	50	
Heavy Oil Range Hydro	ocarbons	ND		50.0	**		ND			NA	50	
Surrogate: 1-Chlorooc	tadecane	6.34			н	5.38		118	50-150			
Batch 4040456: P	repared 04/13/04	Using	EPA 355	0 Fuels								
Blank (4040456-BLK	(1)			-								
Diesel Range Organics		ND		25.0	mg/kg							
Heavy Oil Range Hydro	ocarbons	ND		50.0	н							
Surrogate: 1-Chlorooci	tadecane	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 Hydro	ocarbons	83.1		50.0	11	75.0		111	50-150			
Surrogate: 1-Chlorooct	adecane	5.80			n	4.80		121	50-150			

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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

Anchorage

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
Batch 4040456:	Prepared 04/1	3/04 Using	EPA 35	50 Fuels								
<b>Duplicate</b> (4040456-	DUP1)						Source: I	P4D0406-	.01			
Diesel Range Organics	i	ND		25.0n	ng/kg dry		ND	120100				
Heavy Oil Range Hyd	rocarbone	ND								NA	50	
		ND		50.0			ND			NA	50	
Surrogate: 1-Chloroo	ctadecane	5.80			"	6.37		91.1	50-150			
<b>Duplicate</b> (4040456-	DUP2)						<u> </u>					
							Source: P	<u> 4D0406-</u>	02			
Diesel Range Organics		ND		25.0 m	ig/kg dry		ND			NA	50	
Heavy Oil Range Hydr	rocarbons	ND		50.0	11		ND					
2							עוו			NA	50	
Surrogate: 1-Chlorood	ctadecane	6.42			"	6.49		98.9	50-150			

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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 - Quality Control North Creek Analytical - Portland

Analyte	R	esult	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040506:	Prepared 04/13/04	Usir	ng EPA 13	11/3005								
Blank (4040506-BL	K1)	_										
Barium	0.	.186		0.00500	mg/l							
Lead		ND		0.00500	#							B, M-02
LCS (4040506-BS1	)											M-02
Barium		9.74		0.0500	mg/l	10.0	<del></del> .	97.4	75-125			
Lead	4	1.06		0.00500	"	5.00		81.2	75-125 75-125			M-02
LCS Dup (4040506-	-BSD1)					2.00		01.2	73-123			M-02
Barium		0.45		0.0500	mg/l	10.0		04.5		<del></del>		
Lead		1.56		0.00500	IIIg/I	5.00		94.5	75-125	3.02	20	M-02
Matrix Spike (4040				0.00500		3.00		91.2	75-125	11.6	20	M-02
Barium	<del></del>						Source: P	4D0291-(	)4			
	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
Matrix Spike (4040:	506-MS2)						Source: P	4D0272.0	12			
Barium	9	.65		0.0500	mg/l	10.0	0.191	94.6	50-150			
Lead	4	.47		0.00500	11	5.00						M-02
	·	- · •		0.00500		3,00	ND	89.4	50-150			M-02

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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

Reporting

Analyte		Result	R MDL	eporting! Limit		Spike	Source		%REC		RPD	
	repared 04/12/04				Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Blank (4040398-BLK)		Using	EPA 3550	<u></u>								
Pentachlorophenol		ND		(7.0								
Acenaphthene		ND		67.0 13.4	ug/kg "							A-02
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	<b>;</b>	ND		13.4	**							
Fluoranthene		ND		13.4	11							
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	н							
Surrogate: Fluorene-d10		57.I				83.3						
Surrogate: Pyrene-d10		68.4			,,			68.5	40-150			
Surrogate: Benzo (a) pyre		64.7			,,	83.3		82.1	40-150			
		,				83.3		77.7	40-150			
LCS (4040398-BS1) Acenaphthene	<del> </del>											
•		121			ug/kg	167		72.5	33-139			
Benzo (a) pyrene		126		13.4	"	167		75.4	45-149			
Pyrene	<del></del>	132		13.4	"	167		79.0	39-138			
Surrogate: Fluorene-d10	ć	52.0			"	83.3		74.4	40-150		<del></del>	
Surrogate: Pyrene-d10		70.1			"	83.3		84.2	40-150			
Surrogate: Benzo (a) pyre	ne-d12 6	64.9			n	83.3		77.9	40-150			

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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
Batch 4040398: P	repared 04/12/04	Using	EPA 355	0								
Matrix Spike (404039	8-MS1)			( 0 )			Source: I	24D0300	01			
Acenaphthene		185		26.8 1	ıg/kg dry	247	34.4	61.0				R-0
Benzo (a) pyrene		173		26.8	-gg u.,	247	ND		33-139			
Pyrene		226		26.8	"	247	19.6	70.0	45-149			
Surrogate: Fluorene-d]	<u> </u>	83.5					19.0	83.6	39-138			
_	,				"	123		<i>67.9</i>	40-150			
Surrogate: Pyrene-d10		114			"	123		92.7	40-150			
Surrogate: Benzo (a) pyi	rene-d12	91.4			"	123		74.3	40-150			
Matrix Spike Dup (40	40398-MSD1)						Source: P	4D0300_0	<b>n</b> 1			
Acenaphthene		184		26.8 u	g/kg dry	247	34.4	60.6		0.540		R-05
Benzo (a) pyrene		183		26.8	"	247	ND		33-139	0.542	60	
Pyrene		254		26.8	**			74.1	45-149	5.62	60	
Surrogate: Fluorene-d10						247	19.6	94.9	39-138	11.7	60	
_	•	93.7			"	123		76.2	40-150			
Surrogate: Pyrene-d10		131			"	123		107	40-150			
Surrogate: Benzo (a) pyr	ene-d12	97.7			"	123		79.4	40-150			

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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

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

Analyte		Result	MDL	Reporting Limit		Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4040536:	Prepared 04/14/04	Using	Dry Wei	ght								
Duplicate (4040536	5-DUP1)						Source: P	4D0273-0	,			
% Solids		91.2		1.00	% by Weight		91.1	·D02/3-0		0.110	20	<del></del>
<b>Duplicate</b> (4040536	i-DUP2)	_				,	Source: P	4D0273-04	5			
% Solids		92.0		1.00	% by Weight		91.6		. <u>.                                   </u>	0.436	20	
<b>Duplicate (4040536</b>	-DUP3)		_			,	Source: P	(D0273_04	6			
% Solids		91.6		1.00	% by Weight		91.4			0.219	20	
<b>Duplicate</b> (4040536	-DUP4)				=		Source: P4	ID0272 12	,			
% Solids		91.6		1.00	% by Weight		91.6	7 <i>0</i> 02/3-1.	<u></u>	0.00	20	
<b>Duplicate</b> (4040536	-DUP5)					5	Source: P4	\D0273-13	1			
% Solids		91.0		1.00	% by Weight	· · ·	90.0		<u> </u>	1.10	20	
Duplicate (4040536	-DUP6)						Source: P4	D0272 4 4				
% Solids		77.5		1.00	% by Weight		77.1	·DUZ/3-14	•	0.517	20	<del></del>

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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

Spokane

Anchorage

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.

В Analyte detected in the method blank.

D Data reported from a preparation or analytical dilution.

J Estimated value.

Analysis performed by EPA 200.7/6010 due to high analyte concentration or sample matrix interference. M-02

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.

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or S-01

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

Relative Percent Difference RPD

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its

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